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Canadian Railway AND Marine World

GENERAL INDEX FOR 1921

ACTON BURROWS, PROPRIETOR
70 Bond St., Toronto, Canada

Items marked with an asterisk are accompanied by maps, portraits or other illustrations.

STEAM RAILWAY DEPARTMENT AND GENERAL MATTER.

A

Aerial Transportation Notes 129, 637
Air Brake Equipment, Facing Valve *122
Air jack, portable *631
Air pump cylinder boring machine *200
Alaska railways 646
Alberta coal resources and production 201
Alberta & Great Waterways Ry. Appointments 525
Development . . ..16, 82, ...193, 241, 305, 311, 419, 528, 583, 646
Rolling stock 372, 418
Alberta railways 305, 311
Alberta Railways and Telephones Department 525
Algoma Central & Hudson Bay Ry. Finance 646
Algoma Eastern Ry.—
Appointments 525
Rolling Stock 310, *372
Alma & Jonquieres Ry. 82
American Express Co. 208, 375
American Railway Association 66, 297, 367
American Railway Association, Equipment Painting Section 418
American Railway Association, Mechanical Division,—
Cars, Rule for replacing ends when broken out 626
Interchange Rules 650
Standard Inside Dimensions of Box Cars.... 654
Committee Reports,—
Arbitration 462
Brake shoe and brake beam equipment.... 463
Car construction *457
Labor and material prices 464
Loading rules 462
Specifications and tests for materials.... 455
Tank cars 460
Train brake and signal equipment *456
American Railway Engineering Association.... ..... 428, 474
American Railway Express Co..... .....208, 375, 440, 497, 541
Appointments, Transportation 24, 76, 134, 197, 253, 307, 368, 415, 476, 525, 588, 644
Association of Professional Engineers of Manitoba 256

B

Babbit melting furnace, portable *122
Baggage insurance for travellers 429
Bagotville & St. Lawrence Ry. 82
Bare, H. S., C.P.R. 200 ton railway track scale *289
Birthdays of Transportation Men 4, 84, 144, 183, 240, 291, 352, 402, 481, 517, 571, 628
Blacksmith shop tools, railway *5
Blue signals for workmen's protection 629
Board of Railway Commissioners,—
Appointments 415, 429, 525, 644
Blue signals for workmen's protection..... 629
Boiler regulations 179
Cattle pass construction, standard size..... 63
Demurrage rate on freight cars 639
Exchange and surcharges on International traffic 188, 306, 432, 476, 586
Explosives, transportation of 310
Express rate increases 129
Fencing, railway companies' duties as to.... 626
Flagging rules 264
Freight rates decisions 531, 535, 634
Freight rate increase notices 577
Frogs, wooden, packing for 135
Fuel and fire protection on New York Central Rd. 311
Hand holds over car doors 539
Inspector of Safety Appliances at Calgary 429
Locomotive boiler explosions 363, 636
Maintenance of way flagging rules 250
Orders by, summaries of 9, 87, 141. 189, 261, 316, 369, 417, 485, 518, 573, 630
Phosphorous shipments in metal containers 586
Pilots on N.Y.C.R. locomotives 10, 86
Railway cartage tariffs 202
Railway employes protection regulations 262
Railway route maps and location plans 29
Rate increases, suspension refused 12
Rates on fodder for Quebec farmers' live stock 635
Seats on locomotives for brakemen 418
Self propelled cars 408
Special Instruction E 375
Station limits, railway companies' special instructions re 28, 59, 311
Traffic orders 18, 81, 132, 194, 251, 304, 365, 432, 467, 514, 597, 638
Whistle for motor cars 595
Wire construction on railways 257
Boiler regulations, railway, other than locomotive 179
Boiler testing apparatus, portable *406
Bolts, reclaiming scrap *294
Boring machine for air pump cylinder *200
Boring mill job *353
Brazilian railway systems 409
British Columbia Express Co. 96
British Empire Steel Corporation's railways 364
Burlington Canal bridges 84
Burrard Inlet Tunnel & Bridge Co., Development 142, 198, 528, 583
Business newspapers. Lieutenant Governor of Ontario's views on 637

C

Calgary & Fernie Ry. 241
Calgary Southwestern Ry. 198, 241
Camp, W. J., Train dispatching, telegraph vs. telephone 567
Canadian Express Co. 28, 96, 264, 317, 422, 488, 598
(See also Canadian National Express Co.)
Canadian Forestry Association 314

Canadian Government Rys.—
Contracts 421
Earnings, expenses, etc. 420, 484, 540, 597, 640
Imperial service medals for employes 481
Supplementary estimates 372
Canadian Light Railways Construction Co... 646
Canadian National and Canadian Express Companies' consolidation 469
Canadian National Express Co. .....
.....28, 96, 147, 208, 264, 317, 375, 422, 440, 497, 525, 541, 588, 598, 655
Canadian National Rys.—
Annual statement by Minister of Railways 205
Appointments 24, 76, 134, 197, 253, 307, 368, 415, 476, 525, 588, 644
Boring machine for air pump cylinder.....*200
Brake equipment, facing valves of *122
Cars, box, repairing *647
Cars, sleeping *465
Construction and operating policy 126
Development . . ..
.....11, 72, 128, 247, 308, 421, 538, 595, 644
Directors' fees, etc. 196
Dismissals of conductors 359
Districts, divisions and subdivisions, changes in 594, 638
Divisional points 363
Draft gear, steel, equipping freight cars....*121
Earnings 10, 81, 136, 185 262, 304, 375, 420, 484, 540, 589, 597, 639, 640
Electric storage battery car 258, *313, 407, 472
Employes' attempts to enter politics 70, 137, 257
Failure of suit against 584
Finance 540
Gasoline motor car *580
Grand Trunk Ry. co-ordination 77, 363, 470
Handy addition to freight car repair yard..*575
Headlight and cab wiring, standard *184
Hornepayne, Ont., locomotive house *412
House of Commons committee on 300, 348, 362
Hub liners, pouring of *405, 529
Ice supply at Mulgrave, N.S. 402
Information to be made public 190, 245
Leaside shops *113, 207
Locomotive terminals, Moncton, N.B. *623
Locomotives, Pacific type *233
Meal rates on trains, etc. 71
Oil fuel for blacksmith shop fires *406
Port Arthur elevators 563
Quebec-Shawinigan railway service 408
Rolling stock .....
.....15, 66, 143, 190, 252, 309, 372, 418, 534
Shop employes reduced 258
Sydney & Louisburg Ry. running rights 568
Train cancellations 368
Universal valve chest weld *121
Welding locomotive cylinder and valve chest.*293
Winnipeg-Quebec service 407
Canadian National Railways Association 6, 86, 207
Canadian National Railways and Marine Association 63, 375
Canadian National Telegraphs 29, 89, 147, 264, 317, 376, 440, 485, 542, 598, 655, 675
Canadian Niagara Bridge Co. 82, 363, 419
Canadian Northern Ry.—
Earnings 10, 81, 136, 185, 304, 375, 420, 484, 540, 597, 640
Finance 10, 422
Annual report 237, 256, 295
Canadian Pacific Ry.—
Appointments 24, 76, 134, 197, 253, 307, 368, 415, 476, 525, 588, 644
Babbit melting furnace, portable *122
Bolts, reclaiming scrap 294
Box cars, hopper bottom, 60 ton *25
Car wheel work *200
Coaling station *67
Connaught Tunnel, concrete lining of *57
Coupler pocket rivetting *405
Development .....
....14, 69, 123, 213, 250, 306, 426, 540, 593, 640
Earnings, expenses, etc. .....
.....10, 81, 136, 185, 262, 304, 376, 420, 478, 484, 533, 540, 587, 597, 629, 640
Finance, meetings, etc. 143, 646
First aid work 207
Grinding in triple valve emergency check valves *293
Handy truck for repair shops *121
Hydraulic ram, portable *631
Inspection 368
Locomotive cylinder and valve chest welding *293
Locomotives converted from oil burners to coal burners 28, 71
Locomotives, largest 123
Locomotive, model of first *128
Machinery flat cars *127
Maintenance work, Kenora Division 413
Passenger officials' conference 135
President's inspection trip 10
Rail handling machine, air operated *184
Rail orders 629, 580
Reclaiming scrap bolts *294
Remarkable locomotive performance 651
Rivet shearing tool stand *575
Rolling stock 15, *25, 66, *127, 143, 191, 252, 309, 372, 418, 474, 534, 585, 635
St. John River Cantilever Bridge *118
Shop blower, new type *649
Superheater joints, changing of *122
Supply train operation 586
Telegraphs 147, 207, 440, 598
Tie plates, reclaiming *576
Toronto freight offices 140
Toronto-Hamilton joint section 432, 467
Track section prize competition, Eastern Lines 61
Track scale, 200 ton *289
Triple valve emergency check valve, grinding in *293
Canadian Railway Club 80, 135, 299
Canadian Ticket Agents Association 256, 363, 470, 590
Canadian Traffic League *645
Canadian Transfer Co. 24
Canadian Transit Co. 82, 190, 305, 419, 586, 646
Canadian Western Ry. 241
Car repairing and steel rails ordered to relieve unemployment 584
Car Service Rules 183
Car Wheel Work *200
Car wheels, chilled iron 239
Cars,— —
Freight, lettering and marking of 240
Rule for replacing ends when broken out.. 626
Steel, freight, repairs or maintenance of..... 180
(See also Railway Rolling Stock Orders and Deliveries.)
Cartage tariffs 203
Cattle pass construction, standard size..... 63
Central Canada Ry., Development 305, 419, 528
Central Ry. of Canada 143, 241, 419
Central Vermont Ry., Finance 10, 540
Coal consumption by locomotives 254
Columbia River Co.'s railway 16
Commercial Cable Co. 542
Coupler pockets, rivetting of *405
Crank pin collar tightening device *631
Cuba Railroad, How Sir Wm. Van Horne built the , ... 1
Cumberland Ry. & Coal Co. 540
Caterpillars, interruption of train service by 374

D

Daylight saving dates 199
Delaware & Hudson Co., Appointments 134
Detroit, Toledo & Ironton Rd. 407, 532
Dolly Varden Mines Ry., Development 16, 78
Dominion Atlantic Ry.—
Development . , ...16, 305
Passenger service reduced 259
Dominion Express Co. .....
96, 147, 208, 264, 317, 375, 440, 541, 598, 655
Dominion Government Telegraphs 207, 317, 376
Draft gear, steel, equipping freight cars.....*121

E

Eastern Main Ry. 528
Edmonton, Dunvegan & British Columbia Ry.
Appointments 134
Development . . ..
.....16, 82, 198, 305, 311, 419, 528, 583, 646
Edmonton & Mackenzie River Ry. 241, 419
Elevator maintenance, terminal 207
Engineering Institute of Canada, Railway Section , ... 636
English River Pulpwood & Timber Limit Ry. project 82, 241
Erie Rd., Appointments 525
Esquimalt & Nanaimo Ry.— —
Appointments . , ...525, 588
Development 16, 82, 142, 241, 305, 419, 528
Land grants 208
Essex Terminal Ry., Development 16, 241
Estimates, Dominion, 1921-1922—
Mail services 207
Railways Department 204, 363, 408
Telegraph and telephone lines 207
Exchange and surcharges on international traffic 85, 188, 306, 432, 476, 586
Explosives, transportation regulations 310
Express Companies, Among the 28, 96, 147, 208, 264, 317, 375, 440, 497, 548, 598, 655
Express Companies' Operations in 1920 655
Express rate increases authorized 129

F

Fencing, railway companies duties as to 626
Fernie & Elk River Ry. 241
Flagging rules 264
Flinflon Mining District railway 16, 82, 142, *186, 241
Flood damages, British Columbia Railways.. 634
Fort Smith Ry. 142, 198, 241
Freight carried throughout Canada 352
Freight charges, exchange rates, between Canada and the U.S. 85, 188
Freight charges, U.S. to Canada, in U.S. currency 26
Freight rate increase notices 577
Freight and Passenger Traffic Notes 23, 80, 127, 185, 254, 355, 417, 530, 590, 646
French exhibits train 539
Frogs, wooden packing for 135

G

Gaspe Peninsula railway service 359
Grain inspected at western points 29, 144, 207, 264, 314, 428
Grain in store at elevators 28, 78, 129, 193, 246, 310, 374, 428, 595
Grain rates reduced in U.S. 580
Grain shipments through Port McNicoll..... 629
Grand Trunk Pacific Ry.—
Cars, box, repairing *647
Development . , ...16, 419
Earnings, expenses, etc. 420, 484, 540, 597, 640
Grand Trunk Ry.—
Air jack, portable *631
Appointments . . ..
....24, 77, 134, 253, 308, 415, 476, 525, 588, 645
Apprentices' drawing prizes 571
Arbitration re stock values 80, 136, 148, 263, 358, 427, 478, 519
Boiler testing apparatus, portable *406
Branch line electrification proposed 193
Co-ordination with Canadian National Rys. 77, 363, 470
Development 10, 82, 131, 305, 419, 528, 646
Directorate , ... 367
Earnings, expenses, etc. 10, 81, 185, 262, 304, 375, 420, 484, 540, 597, 640
Finance 10, 68, 540
First aid work 527
Georgian Bay tourist traffic 258
Locomotive washing apparatus *575
Message to employes 636
Operating results 590
Pensions . , ...236, 594
Portable work bench *294
Report 585
Rolling stock .....
.....15, 66, 143, 252, 309, 372, 418, 534, 635
Suit by E. H. Fitzhugh 314, 589
Suit against U.S. Government 14
Support for shop lighting units *576
Tire heater, portable *576
Toronto-Hamilton joint section 432, 467
Transfer to Dominion Government 297
Grand Trunk Western Ry., Finance 420
Great North Western Telegraph Co. 29
(See also Canadian National Telegraphs.)
Great Northern Paper Co. railway project 198
Great Northern Ry.—
Appointments 77
Development . , ... 419
Marcus-Princeton Line . , ... 586
Greater Winnipeg Water District railway—
Development 254, 415, 583, 646, 647
Rolling stock 585

H

Hall, Grant, Some phases of railway operation in Canada 177
Hand holds over car doors 539
Headlight and cab wiring, standard, Canadian National Rys *184
Headlights, electric, dimming of 312
High River, Saskatchewan & Hudson Bay Ry. 241
Hub liners, good and bad *575
Hub liners, pouring of *405, 529
Hudson Bay Ry., Development 82, 185, 583
Hudson's Bay Co. 83, 142
Hulatt, H., Railway time service 410
Hydraulic ram, portable *631

I

Immigration, necessity for 190
Intercolonial Ry., superannuation 236
International Railway Congress 294
Interprovincial & James Bay Ry. 123, 304, 593, 640
Interstate Commerce Commission 539

J

Jamaican railway supplies, requirements 350

K

Keough, R. E., everyday duties of a road-master 64
Kettle Valley Ry.—
Copper Mountain Branch *17
Development 16, 142, 241, 305, 419, 528, 583
Finance, meetings, etc. 304, 420

L

Lacombe & Northwestern Ry., Development 83, 242, 305, 419
Lake Huron & Northern Ontario Ry., Development 198, 305
Liquor transportation by mail 312
Loading rules 15
Locomotive boiler explosions 363, 636
Locomotive cylinder and valve chest weld..*293
Locomotive design and operation 643
Locomotive operation, avoidable waste, as affected by design *652
Locomotive washing apparatus *575
Locomotives—
Cordoba Central Ry. 144
Rhodesian Rys *309
Rio Grande do Sul State Rys. *310
Rotatable coal hoppers for 27
South African Rys. 418, 635
Trinidad Rys. , ...*474
(See also Rolling Stock Orders and Deliveries)
Luscar Collieries Ltd. 305, 419, 529
Lynn, S., Repairs or maintenance of steel freight cars 180

M

Magdalen River Ry. 142
Mail estimates, 1921-22 .....207, 363
Mai lrates on railways 199
Mainly About Railway People 20, 73, 130, 192, 243, 312, 361, 414, 471, 526, 581, 641

Maintenance of way employes' protection.... 131
Maintenance of way flagging rules 250
Manitoba & North Western Ry., Development 250
Manitoba Public Utilities Commission 250
Marconi Wireless Telegaph Co. 89, 147, 208, 542, 598, 675
Maritime Coal, Ry. & Power Co. 198, 420
Maritime Telegraph & Telephone Co. 89
Mayo Valley Ry. 16, 142, 198, 305
McGill University, new Chancellor and centennial 577
Michigan Central Rd.,—
Appointments 198, 588, 645
Development 198
Minneapolis, St. Paul & Sault Ste. Marie Ry.
Appointments 77, 645
Finance, meetings, etc. 363, 470
Moncton & Buctouche Ry. 540
Montreal Central Terminal Co., Development 142, 420
Montreal Telegraph Co. 89
Motor, hand and push cars and velocipedes, rules for operation 629

N

Napierville Jct. Ry., Finance 68
National Transcontinental Ry. Locomotives at Parent, Que. 404
Newfoundland's Railway Difficulties 431
New York Central Rd.—
Finance 68, 143, 420
Fuel and fire protection 311
Pilots on locomotives in Canada 10, 86
Northern Light Rys. Co., Development 241, 305, 529

O

Oil fuel for blacksmith shop fires *406
Ontario Railway and Municipal Board 8
Ottawa & New York Ry.—
Appointments 368

P

Pacific Cable Board 89, 207, 598
Pacific Great Eastern Ry.—
Development 16, 83, 143, 297, 306, 420, 529, 583, 646
Electrification 296
Rolling stock 15
Partington, Jas., Avoidable waste in locomotive operation, as affected by design....*652
Pennsylvania Rd., Appointments 368, 415
Pere Marquette Rd., Development 306, 420
Perfect package movement 571
Phosphorous, shipment in metal containers.... 586
Pilots on N.Y.C.R. locomotives 10, 86
Piston ring work in a railway shops *62
Port Arthur, Duluth & Western Ry. 247, 308, 408, 538
Port Canada Dock Ry., Development 143, 306
Portable work bench *294
Publishing, high cost of 533
Pullman Co.—
Appointments 77
Report 595

Q

Quebec Central Ry.—
Crank pin collar tightening device *631
Development 16, 143, 242, 306, 419, 529, 583
Quebec & Chibougamau Ry., Development 16, 83
Quebec, Montreal & Southern Ry.—
Development 420
Finance 68
Quebec & Orleans Island Ry., Development 83
Quebec & Saguenay Ry., operating results.. 408
Quebec Transportation Club 366

R

Rail handling machine, air operated *184
Rails, Steel—
Battered ends of 8
Brittleness in 6
Creeping of 79
Handling and sorting of 69
Orders for 258, 375, 584, 585, 650
Price suit 88
Railway accident, extraordinary, in British Columbia *188
Railway accidents throughout Canada 432, 539, 593, 645
Railway Association of Canada—
Agency stations, minimum requirements for establishment of 86
Carelessness in giving hand signals 22
Equipment for points beyond switching limits 128
Headlights, electric, dimming of 312
Maintenance of way employes' protection.. 131
Motor, hand and push cars and velocipedes, rules for operation 629
Rental of railway owned equipment 181
Signalling flags 140
Surcharges on international passenger traffic 135
Valve handles of water gauge mountings on locomotives 207
Railway debts and freight rates 27
Railway deficits in Canada and the U.S. 255
Railways Department estimates 204
Railway Development ..16, 82, 142, 198, 241, 305, 419, 528, 583, 646
Railway earnings 10, 81, 136, 185, 262, 304, 375, 420, 484, 540, 597, 640
Railway electrification in Chicago 63
Railway electrification in South Africa 240
Railway employes protection regulations..... 262
Railway employes' Special Instruction E..... 375
Railway engineer, technical definition of 415
Railway farm crossing case, decision 651
Railway Finance, Meetings, etc. 10, 68, 143, 304, 363, 420, 540, 646
Railway gauges, Australian 27
Railway gradients, Winnipeg-Quebec 296
Railway and harbor contract, Gold Coast.... 196
Railway and highway construction compared 195
Railway lands patented 10, 143, 191, 255, 368, 374, 416, 472, 522, 583, 654
Railway location by aeroplane 4
Railway Mechanical Associations 185, 263
Railway mechanical engineering, succeeding in 7
Railway Mechanical Methods and Devices—
Air jack, portable *631
Air pump cylinder boring machine *200
Babbit melting furnace, portable *122
Boiler testing apparatus, portable *406
Boring mill job *353
Car wheel work *200
Coupler pockets, rivetting of *405
Crank pin collar tightening device *631
Draft gear, steel, equipping freight cars with *121
Facing valves of E.T. 6 brake equipment....*122
Handy addition to freight car repair yard..*575
Hub liners, good and bad *575
Hub liners, pouring of *405, 529
Hydraulic ram, portable *631
Locomotive cylinder and valve chest weld*293
Locomotive washing apparatus *575
Oil fuel for blcksmiths' fires *406
Portable work bench *294
Removing bolts from steel retaining rings..*354
Rivet shearing tool stand *575
Scrap bolts, reclaiming *294
Straightening frame for steel car equipment.*353
Superheater joints, changing *122
Support for shop lighting units *577
Tie plates, reclaiming *576
Tire heater, portable *576
Triple valve emergency check valve grinding *293
Trucks for railway repair shops *121
Waste reclaiming plant *353
Welding universal valve chest *121
Railway men's employment and pay for 1919 and 1920 572
Railway motor cars, whistles for 595
Railway operation, some phases in Canada.. 177
Railway passenger departments, importance of 69
Railway problem in U.S.A. 303, 373
Railway rolling stock—
Dominion Government urged to order 86
for Russian Soviet Government 418, 596, *635
Orders and Deliveries 15, 66, 143, 191, *252, *309, *372, 418, *474, 534, 585, 635
Railway route maps and location plans, approval of 29
Railway Safety Appliance Inspector for Calgary 429
Railway situation, E. W. Beatty on 516
Railway Situation, Sir Joseph Flavelle's review 511
Railway stations, highest 143
Railway statistics .....83, 145, 182, 292, 301, 351, 403, 416, 403, 416. 467, 479, 480, 482, 483, 523,..'* 467, 479, 480, 482, 483, 523, 524, 591, 633, 634
Railway time service 410
Railway track laid in 1920 .....23, 75
Railway wages—
Debated in Toronto 260
Deficits, etc., Minister of Railway on 188
Regulation in U.S. 257
Situation in Canada and the U.S.....187, 263, 298, 364, 425, 473, 477, 527, 532, 578, 648
U.S. Railroad Labor Board orders reduction 345
Railways and Canals Department—
Appointments 24
Salaries estimates 408
Railways, branch operation of 643
Railways, British, Compensation for war operation 311
Railways, British, proposed grouping of 429. 627
Railways, elemination of waste on 593
Railways, Government, a lurid example of operating difficulties 423
Railways, light, new British type 655
Railways, United States—
Financial position, ...424, 468, 534, 596, 651
Problem of 430
Proposed grouping of 569
Rates, freight—
Board of Railway Commissioners' Decisions 531, 535, 634
Demurrage on freight cars 639
Live stock, reduction of 422, 466, 595
Freight, lower in Canada than in U.S. 649
On fodder for Quebec farmers' live stock.. 635
Lumber reduction from B.C. 315
Maritime Provinces demand special 259, 303, 370
Suspension of increases refused 12
United States 636
Voluntary reductions 522
Rates—
Mail, on railways 199
Passenger, summer 196
(See also Board of Railway Commissioners traffic orders.)
Red Mountain Ry., proposed abandonment .. 585
Reid Newfoundland Co.—
Appointments 24, 476, 525, 588, 645
Development 16, 529
Finance 66, 299, 363
Locomotives, Pacific type *140
Operating results 66
Rolling stock 15, 140, 252
Retaining ring bolts, removal of *354
Rhodesian Rys. locomotives *309
Rio Grande do Sul State Rys. locomotives.....*310
Rivet shearing tool stand *575
Roadmaster, everyday duties of 64

S

Saskatchewan railway guarantees 27
Signals for workmen's protection 629
St. John & Quebec Ry.—
Development 242, 306, 529
Finance 646
Seats on locomotives for brakemen 418
Self propelled cars on railways 408
Signals, hand, carelessness in giving 22
Slave River Ry., Development.....83, 198, 241
Snell, W. H., importance of railway passenger departments 69
Sparwood to Kananaskis Pass, B.C., railway project 198
Squamish-Lake Alice Logging Ry. 420, 583
Station limits, railway companies' special instructions re 28, 59. 311
Stations, agency, requirements for establishment of 86
Steam shovel, railway, straightening bent axle *8
Straightening frame for steel car equipment..*353
Superheater joints, changing *122
Supply Train Operation on C.P.R. 586
Support for shop lighting units *576
Switching limits, equipment for points beyond. 128
Sydney & Louisburg Ry.—
Development 83
Rolling stock 474
Running rights over C.N.R. 568

T

Telegraph, Telephone and Cable Matters..... .....29, 89, 147, 207, 264, 317, 376, 440, 485, 542, 598, 655, 675
Telegraph and telephone line estimates....207, 376
Telegraph wires, aurora or earth current effect on 376
Thousand Islands Ry. 143
Tie plates, reclaiming *576
Timiskaming & Northern Ontario Ry.—
Appointments 77, 135, 369
Development 16, 83, 143, 198, 242, 306, 529, 583, 646
Electrification, proposed 147
Finance, meetings, etc. 143
Locomotive Boosters 260, 315, *357, 428
Offices 75, 183
Operating results 296
Rolling stock 15, 66, *252, *309, 418, 585
Tire heater, portable *576
Toronto, Hamilton & Buffalo Ry.—
Development 16, 83, 306, 420, 646
Finance, meetings, etc. 363
Report 484
Toronto railway viaduct situation 193, 299, 572
Track centers, standard, for divisional points, 401
Tractive power, Cordoba Central Ry. locomotives. 144
Train, cost of stopping *475
Train dispatching, telegraph vs. telephone.... 567
Train schedules and locomotive fuel consumption *124
Train shed, raising of 8
Transportation men in Dominion general elections 577
Triple valve emergency check valve grinding..*293
Trucks, handy, for railway repair shops.....*121

U

United States—
Guaranteed payments for railways 190
Railway problem 303, 373

V

Valve chest, welding of *121
Valve handles of water gauge mountings on locomotives 207

W

Wabash Ry., Appointments 24
Waste reclaiming plant *353
Wages of railway men for 1919 and 1920 572
Western Dominion Ry., Development....143, 529
Western Union Telegraph Co. 207, 264, 485
Wicksteed, H. K., Brazilian railway system.... 409
Winfield, E.—
Cost of stopping a train *475
Train schedules and locomotive fuel consumption *124
Wire construction on railways 256

ELECTRIC RAILWAY DEPARTMENT.

A

Accident prevention is everybody's business.. 209
Answers to questions on electric railway topics 326, 380, 438, 550

B

Brantford Municipal Ry., Development 213, 268, 322, 434, 548, 660
British Columbia Electric Ry.—
Car painting costs *439
Development 158, 268, 322, 548, 601, 660
Earnings 34, 92, 158, 215, 323, 380, 436, 489, 546, 600
Motor busses for Vancouver 662
One-man cars 663
Rate increases 33, 90, 157, 212
Rolling stock 602
Rule of the road 268, 319, 489, 552, 608
Statistics 93
Subsidiary company's application to Parliament . , ...94, 157, 215
Vancouver franchise.....320, 381, 436, 489, 546
Wages, working conditions, etc. 211, 602, 663
Western Power Co. of Canada, purchase of 37
British Columbia Public Utilities Commission 211

C

Calgary Municipal Ry.—
Development 381, 434, 548, 601
Earnings, etc. 92, 436, 600, 660
Wages, working conditions, etc. 488
Canadian Electric Railway Association— 36, 213, 269, 529, 606
Annual meeting *148
Cape Breton Electric Co.—
Development 548, 660
Earnings, ... 34, 92, 158, 215, 380, 436, 489, 546, 600, 660
Fares 548, 663
Wages, working conditions, etc. 323, 377
Car, new type of English, ... 95
Car Orders 602
(See also Electric Ry. Notes.)
Chatham, Wallaceburg & Lake Erie Ry.—
Development 268, 381
Future of 158
Rate increases 33, 382
Valuation, etc. 321
Coinage, uniform advocated 436
Cornwall St. Ry. Light & Power Co.—
Development 548, 601
Franchise 434
Fare increases 382

D

Detroit United Rys.— 268, 323, 326, 382, 434
Dominion Power & Transmission Co.—
Development 434, 548
Finance, etc. 215

E

Edmonton Interurban Ry.—
Development 92
Finance, meetings, etc. 158
Edmonton Radial Ry.—
Development 92, 381
Earnings, etc. 34, 36, 149, 380, 436, 489, 600 660
Operating problems, ... 378
Fare increases 266, 382, 436
Extensions as Local Improvements 91

F

Fares in Ontario, bill to change 269
Fares, see rates.
Finance, meetings, etc. 34, 92, 158, 215, 269, 323, 380, 436, 489, 546, 600, 660
Fort William Municipal Ry.—
Development 268, 548, 600
Earnings , ... 323
One-man cars 663
Fares increases 33, 90, 157, 212, 266,487
Rolling stock 38, 216, 601
Frontier Electric Ry. 158

G

Grand River Ry.—
Appointments . , ... 308
Development 36, 92, 322, 381, 434
Equipment orders 35
Rate increases 382
Switching service in Galt 552
Grand Valley Ry. liquidation 212
Guelph Radial Ry.—
Development 36, 601
Future of 32, 95, 267
Fare increases 33, 157, 266
Rolling stock 497, 602
Transfer of 325

H

Hamilton Radial Ry.—
Development 158
(See also Dominion Power & Transmission Co.)
Hamilton St. Ry.—
Development 36, 213, 268, 322, 381, 434, 601, 660
Franchise 267
Fare increases 212, 606, 663
(See also Dominion Power & Transmission Co.)
Hull Electric Co.—
Car, one-man, remodelled 320
Development 548
Fare increases 33, 266
Rolling stock 160, 320, 547, 602
Wages, working conditions, etc. 543, 602, 663
Hutcheson, J. E., Practical operation of service at cost contract *150
Hydro Electric Power Commission of Ontario
Radial railway projects 94
Rolling stock 216, *607, 661
Hydro Radial Railways enquiry, Ontario..... .....35, 96, 212, 326, 378, 490

I

International Ry. 382
Interurban Transit Co., New York 433

K

Kitchener & Waterloo St. Ry., Development 322, 548, *601

L

Lake Erie & Northern Ry.— —
Appointments 308
Development 434, 548
Equipment orders 35
Rate increases 382
Switching service at Galt, Ont. 552
Lethbridge Municipal Ry., Development 92, 213
Levis County Ry.—
Development 36
Future of 215, 267
London & Lake Erie Ry. & Transportation Co. 158, 322
London & Port Stanley Ry.—
Appointments 368
Development 36, 213, 268, 322, 381, 434, 548
Finance, meetings, etc. 92
London St. Ry.—
Development 36, 213, 268
Earnings, etc. 92, 215
Fare increases 33, 157
Finance, meetings, etc. 158, 547
Operating results and position 214, 324
Wages, working conditions, etc. 37, 149, 270, 324, 377, 602

M

Mainly About Electric Railway People 38, 93, 159, 216, 270, 323, 437, 497, 547, 604, 662
McLimont, A. W., publicity and public relations 153
Manitoba Power Co.'s hydro electric development 543, 658
Manitoba Public Utilities Commission, proposed abolition . , ... 324
Moncton Tramways, Electricity & Gas Co.—
Development 660
Finance, meetings, etc. 158, 215
Sale, proposed 552, 606
Montreal & Southern Counties Ry.—
Rate increases 382, 436, 487
Wages, working conditions. etc. 488
Montreal Tramways Co.—
Capital valuation 440
Development 92, 159, 213, 268, 322, 381, 434
Finance 92, 267, 269, 436, 546, 660
Freight traffic 267, 322
Passenger fares 548, 663
Report and meeting 608
Service at cost contract. operation of.....*150
Transportation for blind 270
Wages, working conditions. etc. 323, 377, 433, 488, 543, 602, 663
Motor omnibus notes 600
Municipal councillors disqualified from electric railway management 320, 546
Murrin, W. G., effect of change in rule of road on B.C. Electric Ry. 552

N

New Brunswick Power Co.—
Development 268, 322, 381
Fare increases 90, 157, 487
Rolling stock 326, 381
Wages, working conditions, etc. 323, 378, 433, 488, 543
Niagara, St. Catharines & Toronto Ry.—
Board of conciliation 320
Development 159
Future of 36, 267
Rule infractions by employes 543
Nipissing Central Ry.—
Development 268
Finance 436
Operating results 211, 438
Fare increases 266, 321, 487, 548
Notes, Electric Ry. 38, 94, 160, 216, 271, 326, 381, 437. 497, 550, 604, 662
Nova Scotia Tramways & Power Co. 266, 268, 437

O

Omnibusses, Toronto . , ...*551
One-man cars in Massachusetts 379
Ontario Highway Travel Act 319
Ontario Hydro Electric Rys., Essex Division
Development 213, 268, 381, 434, 549, 601, 660
Earnings 36, 92, 94
Finance 323
Rolling stock 497
Wages, working conditions, etc. 433, 488, 602
Ontario hydro electric railway investigation 378, 434
Ontario hydro electric railways, proposed Toronto-Niagara Falls Line 550
Oshawa Ry.—
Appointments 24
Development 36
Finance, meetings, etc. 158, 323, 380
Fares 663
Sunday cars 440
Ottawa Electric Ry.—
Development 213, 322, 434, 548
Franchise 213
Insurance and benefit plan 93
Purchase proposals 37, 93, 270, 325
Fare increases 212
Report and meeting 149
Valuation and franchise 659
Wages, working conditions, etc. 270, 378

P

Passenger fares, Ontario 91
Passenger fares, Vancouver and Edinburgh compared 92
Peterborough Radial Ry., fare increase, 33, 321
Porcupine Rand Belt Electric Ry., Development . , ...36, 380
Port Arthur Civic Ry.—
Earnings, etc. 158, 323, 660
Fare increases 33, 90, 157, 212, 266, 436, 487
Wages, working conditions, etc. 378
Postmen, transportation of 211
Projects, construction, betterments, etc. 36, 92, 158, 213. 268, 322, 381, 434, 548, *601, 660
Publicity and public relations 153

Q

Quebec Public Service Commission 215, 268
Quebec Ry., Light & Power Co.—
Development 92, 601
Earnings 34
Finance, meetings, etc. 546

R

Rates, freight and passenger, changes....33, 90, 157, 212, 266, 321, 382, 487, 548, 606, 663
Reade, R. Mayne, accident prevention is everybody's business 209
Regina Municipal Ry.—
Cars 160, 216
Development 322, 548, 601
Fares 488
Finance 91, 92, 158, 269, 381, 489, 600, 660
One-man car operating results 378
Wages, etc. 158, 211

S

St. John Ry. (See New Brunswick Power Co.)
St. John's (Nfld.) Light & Power Co. 36
Saskatoon Municipal Ry., Development 92, 322, 434
Service at cost, address at Ottawa 320
Service at cost advocated for Winnipeg 95
Service at cost, contract, practical operation of *150
Sherbrooke Ry. & Power Co.—
Cars 160
Development 381, 548
Fare increases 158
Statistics 156, 212, 321, 549
Sudbury-Copper Cliff Suburban Electric Ry.
Cars 271
Finance 34
Sydney & Glace Bay Ry. 600

T

Toronto, railway gauges not to be changed 269
Toronto Civic Ry.—
Development 36, 322
Earnings, etc. 92, 158, 215, 269, 436, 546
Estimates 213
Finances 93
Report , , ... 34
Toronto Ry.—
Earnings 34, 92, 158, 323, 381, 436, 489, 546
Finance, meetings, etc. 158, 215, 269, 381, 489
Report and meeting 604
Transfer to city, and arbitration 215, 381, 437, 547, 606, 659
Subsidiary companies sale to H.E.P.C. of Ontario *30, 91, 324, 549
Toronto Suburban Ry.—
Fare increases 158
Franchises 35
Wages, working conditions, etc. 211, 378, 434
Toronto Transportation Commission 36, 382, 438, 489, 544, *603
Appointments 603, 662
Car order 271, *318, 379, *545
Fares 486
Omnibusses . , ... *551
Rail, etc., orders 661
Track construction and rehabilitation *599, *656
Trackless trolley omnibusses *661
Wages, working conditions, etc. 488
Toronto & York Radial Ry.—
Development . , ... 548, 601
Earnings 34, 158, 323, 381, 436, 489, 546
Wages, working conditions, etc. 211, 378, 433
Track laid in 1920 37

V

Vancouver, Fraser Valley & Southern Ry..... 94
Vercheres, Chambly & Laprairie Tramways Co. 36

W
Wages, Reductions in U.S.A. 543
Wages, working conditions, etc. 211, 271, 323, 377, 433, 488, 543, 602, 663
Waterloo-Wellington Ry.—
Development 36
Fare increases 33, 91, 158
Windsor, Essex & Lake Shore Rapid Ry.—
Development 434, 548, 660
Rate increases 34, 321
Winnipeg Electric Ry.—
Better service campaign 662
City Council 212
Cars *435
Development 159, 268, 548, 601, 660
Earnings 34, 92, 158, 215, 269, 323, 381, 436, 489, 546, 600
Fare increases 212, 265, 436, 487
Finance 96, 215, 546
Franchise, etc. 379
Improvement expenditures 36
Report and meeting 160
Service at cost advocated 95
Rolling stock 38, 602
Snow fighting equipment 216
Ticket thefts by employes 324
Wages, working conditions, etc. 323, 378
Y
Yarmouth St. Ry. 319

MARINE AND SHIPBUILDING DEPARTMENT.

A
Alberta & Arctic Transportation Co. 175
Alberta, Northern, water transportation 335
American Association of Port Authorities 453, 610
Association of Pacific Coast Port Authorities 46
Atlantic & Pacific Oceans 51, 106, 171, 228, 284, 337, 392, 447, 504, 560, 618, 671
Atlantic, Gulf & Mediterranean Steamship Co. 281
Australian Commonwealth Steamships 454
B
Bay of Fundy navigation aids 230
Belle Isle Strait, proposal to dam 565
British Columbia and Pacific Coast 52, 106, 172, 229, 286, 338, 395, 448, 506, 562, 620, 673
British Corporation Classification 446
British Empire Steel Corporation's steamshipbuilding companies 55
British Empire Steel Corporation and the ships, etc. 453, 499
C
Canada Steamship Lines—
Annual meeting 396
Appointments 134, 307, 368, 397
Finances 170, 231, 332, 503, 675
Montreal-Gulf-Newfoundland service 344
Prospects 218
Traffic 616
Canadian Deep Waterways and Power Association 675
Canadian and Norwegian shipping arrangements 385
Canadian Government Merchant Marine—
Annual report 327
Appointments 24, 76, 588
Canadian Importer, Salvaging of 617
Canadian Recruit, salvaging of *48
Minister of Marine's statement 272
Shipbuilding, operation, etc. *40, 43, *100, 167, *219, 222, 278, *329, *386, 443, *500, 555, *611, 667
Canadian Navigators Federation 172, 225. 335
Canadian Pacific Ocean Services Ltd.—
Appointments 76, 134, 197. 253
Fleet additions 282
Immigration via St. John, N.B. 282
Management 175
S.s. Montrose launched 50, 97
Traffic agency 227
(See also Canadian Pacific Steamships Ltd.)
Canadian Pacific Ry.—
Asiatic traffic arrangements 336
Atlantic and Pacific steamships 334, 668
British Columbia coast steamships converted for coal fuel 53, 71, 111
Steamship Princess Louise and her predecessor *614
Canadian Pacific Steamships Ltd.—
Appointments 525
Canal boats, Canadian, operation of, in New York State 283
Canal estimates 111, 218
Canal openings, traffic, etc. 398
Canal statistics 49, 112, 508, 559, 563, 673
Canal tolls, proposed re-imposition of 99
Champion-Corcoran collision action 450
Chats Falls Navigation Co. 332, 396
Clarke Steamship Co., Lower St. Lawrence steamship service 282, 453
Cruisers Niobe and Rainbow, sale of 224
D
Detroit River navigation regulations 45
Direction finding stations on Atlantic and Pacific coasts 281
Dominion Coal Co.'s additions to fleet 99
Dominion Government s.s. Arctic 391
Dominion Marine Association—
Activities 224, 281, 669
Annual meeting 103
Dominion Shipbuilding & Repair Co.'s affairs 42
Drydock estimates 1921-22 232
Drydock, Esquimalt, B.C. 52, 156, 221, *446, 499
Drydock, Sydney, N.S. 176
Drydock, Vancouver, B.C. 610
E
Electric drive for merchant ships 176
Estimates—
Canal 218
Drydock 232
Harbor and river 111, 451
Lighthouse and coast service 232
Mail subsidies and steamship subventions 230, 232
Marine Department salaries 232, 452
Naval Service Department 232
Ocean and river service 444
River 111
Shipbuilding and ship channel 232
Steamboat inspection 224
Steamship mail service 230
F
Fraser, M. L., Safety first at Halifax Shipyards 616
Freight charges, ocean, exchange rates on.. 46
Freight rates, Pacific Ocean 385
French steamships to be sold 286
G
Georgian Bay navigation services 277
Glen Transportation Co. 282, 285, 339
Government supervision of trans-Atlantic steamships 387
Grain, Canadian, taking its proper route.... 336
Grain shipments from Fort William and Port Arthur, Ont. , ...54, 387
Grain shipments from Vancouver to Great Britain 232, 616
Grand Trunk Pacific Coast Steamship Co., s.s. Prince Rupert, salvaging 54, 105, *389
Great Lakes levels 56, 99, 167, 229, 333, 398, 453, 501, 563, 616, 666
Great Lakes and Mississippi connection 107
Great Lakes-trans-Atlantic route proposed..... 166
Great Lakes Transportation Co., s.s. Glenclova *276
Gulf Transportation Co. 279
H
Halifax drydock expropriation 224, 453
Halifax pilotage amendments 387
Harbor pollution, Canada Shipping Act amendment 396
Harlem-Durley Chine collision damages 452
Havana harbor conditions 453
Head Line's Canadian steamship business 99
Hudson's Bay Co.—
S.s. Nascopie's voyage to Hudson Bay *173
Mackenzie River District transportation 227
Hydroglider, The 454, *556
I
Icebreaking steamship for St. Lawrence River 670
Ice Report for Great Lakes 225
Imperial Oil tank steamships 673
Imperial Shipping Board 559
Inner Harbor Association of Victoria 101
International Mercantile Marine Co. 175, 509
J
Johnson Wharf Co. 49
L
Light and fog alarms on Great Lakes and St. Lawrence 612
Longshoremen's and shipliners' wages at Montreal 338
Longshoremen's wages at St. John, N.B. 671
Lumber shipments, Vancouver to Montreal.... 503
M
Mack, Capt. Edmund, s.s. Nascopie's voyage to Hudson Bay *173
Mail subsidies and steamship subventions.... 232
Mainly about Marine People 53, 107, 170, 225, 286, 339, 397, 449, 563, 620, 671
Manitoba, Saskatchewan, Alberta and N.W.T. 229, 286, 338, 395, 448, 505, 562, 620
Marine Department, Deputy Ministership 231
Marine Department, salaries estimates....232, 452
Marine public works contracts awarded 49, 111, 396, 559, 617
Mariners, Notices to, Canadian 47, 110, 175, 226, 343, 400, 506, 562, 622, 670
Maritime Provinces and Newfoundland 51, 106, 171, 228, 284, 337, 393, 447, 504, 561, 619, 672
Masters' and mates' certificates 163
Merchant Marine, upkeep costs 163
Montreal dock accommodation 227
Montreal Drydocks & Ship Repairing Ltd... 453
Montreal pilotage dues 288
Montreal, Ottawa & Georgian Bay Canal Co. 46
Morse, A. H., Renaissance of the windjammer 231
N
Naval Service Department estimates 232
Navigation aids on Great Lakes and St. Lawrence . , ... 612
Navigation regulations on Detroit River 45
Newfoundland steamship services 99, 165
New York and Quebec steamship service 279
New Zealand steamship services 47
North Atlantic ice patrol 336
Northern Navigation Co., sale of s.s. Waubic 230
Novorossisk, Russian port 609
O
Officers, steamship, ocean, coast, lake and river 217, 275
Ontario and Great Lakes 52, 106, 172, 229, 285, 337, 394, 448, 505, 561, 619, 673
Owen Sound Transportation Co. 275, 336
Owners' rights in partially built ships 554
P
Pacific Coast Association of Port Authorities 399 616
Panama Canal—
Chilled meat shipments 615
Operating results 104, 668
Seven years' record 617
Tolls question 614
Playfair interests add to Great Lakes fleets.. 675
Prince Rupert, s.s., salvaging and reconditioning of . .....54, 105, ..389
Prince Rupert Drydock & Shipbuilding plant's future 589
Q
Quebec and New York steamship service 279
Quebec, Province of 51, 106, 172, 229, 285, 337, 394, 447, 504, 561, 673
Quebec shipping project 277
Quebec Steamship Co.'s incorporation acts.... 397
R
Radiotelegraph stations on the St. Lawrence 499
Royal Mail Steam Packet Co.'s Atlantic and Pacific services 336
S
St. Clair River, U.S. channel 501
St. John, N.B., harbor development and drydock construction 341
St. John, N.B., new Atlantic Ocean passenger depot *287
St. Lawrence channel dredges and tugs 218
St. Lawrence navigation season 1920 55
St. Lawrence steamship service 282
Safety first at Halifax shipyards 616
Sault Ste. Marie canals traffic 51, 101, 341, 394, 448, 505, 562, 672, 673
Sault Ste. Marie and Panama Canals traffic records 399
Searchlight, naval, new type 170
Seaplane stations 615
Ship and boat building industry, Canadian, during 1919 334
Ship plates contract cancelled 221, 230
Shipbuilding—
Canadian, in 1920 .....164, 330
General, throughout Canada 39, 104, 169, *223, *276, *342, *383, *441, *498, 553, 609, *664
Government aid 225
In Great Britain 46, 48, 104
Industry's position 165
Wage reductions, etc., in Great Britain 282, 615
World's statistics 163
(See also Canadian Government Merchant Marine)
Shipping Federation of Canada, report and meeting 161
Shipping legislation, uniform 230, 336
Shipping losses during war 227
Shipping, mercantile, ownership of world's.. 564
Ships added to and deducted from Canadian register ....52, ...110, 227, 279, 393, 447, 504, 561, 618, 668
Ships built in Canada on sale in England 563
Ships registered in Canada 50, 109, 226, 277, 333, 392, 444, 503, 560, 615, 666
Shipowners' liability for loss or damage 563
Spitzbergen coal for Canada 452
Steamship operation on Great Lakes, Canadian and U.S. 166
Steamship prices, decrease in 166
Steel plate prices 56
Strike, British ship joiners 554
Stikine and Dease Rivers navigation 230
T
Tank steamships for molasses 50
Taxation of navigation companies in Ontario 336
Thames ship repairing, etc. 453
Tidal research work in Eastern Canada 668
Toronto harbor contracts, litigation, etc..... 53
Trawlers and drifters, sale of 335
U
United States Shipping Board scandal *44
United States shipping and shipbuilding notes 55, 105, 175, 397
V
Vancouver harbor development *46, 112, 172, 333, 563
Vancouver harbor and marine matters 218
Vancouver shipping statistics 110
Vancouver terminal charges abolished 332
Victoria, B.C., Inner Harbor Association 101
W
Wage scale, etc., marine engineers, Great Lakes 166
Warships, small, lengthened for peace service 166
Welland Canal lock gate accidents 339, 669
Welland Canal statistics 673
Welland Ship Canal contracts 230, 279, 339, 449, 509, 562, 615
Welland Ship Canal wages 614
West Indies steamship service 612

White Star-Dominion Line s.s. Regina reconditioned 227
Windjammer, rennaissance of 231
Winter moorings of Canadian steamships 54, 109
Wreck Commissioners' and Nautical Assessors' status and jurisdiction 666
Wreck Commissioners' Enquiries and Judgments—
Beaverton, stranding 558
Canadian Exporter, loss of 558, 674
Canadian Recruit-Maskinonge collision 674
Charmer-Princess Royal collision 108
City of Colombo, loss of 340
Impoco, stranding of 341
Innerton, stranding , ... 621
John Rugee, grounding 450
Kaduna, stranding 340
Keyingham, stranding 450
Keywest-Oliver Mowat collision 621
Lady of Gaspe, loss of 508
Mina Brea, strandings 558
Ontario No. 2, stranding 224
Princess Beatrice, stranding 340
Princess Royal-Marmion-Louisiana collision 108
Prince Rupert, stranding 50
Prince Rupert, stranding, appeal 507
Rapids King, grounding 507
Romsdalsfjord, loss of 108
Rygja-Mapledawn collision 507
Sarnian, stranding 558
South American, stranding 108
Volunda, loss of 508
Wreck statistics for 1920 675

APPOINTMENTS AND BIOGRAPHICAL.

A
Abbs, L. M. 588
Adams, C. W. 73
Ahearn, T. *148, 159
Allan, J. S. 415
Allen, H. M. 76
Allerton, A. 24, 73
Amy, H. A. 76
Annable, W. G. 243, 253
Arnum, B. 134
Atkinson, W. J. 253, 312
B
Baird, W. 308, 415
Baldwin, G. 307
Ballantyne, W. 197, 253
Barker, A. C. 20
Battley, H. 253
Beasley, H.H. 604
Beaumont, H. B. 197, 243, 253
Bell, G. A. 76
Bellerose, G. E. 28, 96
Bemister, G. B. 76, 134
Bemister, W. F. 134
Bender, C. H. 77
Benjamin, C. E. 253
Bennett, B. H. 312
Birch, F. E. 588
Bohan, P. 253
Bonter, C.C. 368
Borthwick, H.H. 76, 134
Bostwick, R. R. 415
Bosworth, G. M. 525
Bowie, E. G. 414, 415
Bowles, C. L. 28
Boyd, H. H. 76
Brake, E. Y. 307
Briggs, G. C. 307, *360. 368
Brostedt, A. 134, 197, 581, *588
Brousseau, L. C. 76
Brown, E. C. 76, 134
Brown, G. A. 525
Brown, L. S. 20
Brown, T. J. 253
Bryce, Jas. 96
Buckley, C. E. 307, 360
Buller, L. W. 197
Bunting, G. E. 641, 644
Burd, J. H. 76, 134
Burkett, S. C. 368
Burpee, F. D. *149, 159
Burrell, W. G. 541, 655
Burrows, Acton 137, 637, 644
Busteed, F. F. *581
Byrne, H. G. 307
C
Calder, A. B. 130, 134
Caldwell, H. B. 476
Callaghan, John 525
Callway, W. R. 77
Cameron, E.W. 253, 588
Cameron, J. 253
Campbell, D. C. 253
Canfield, G. 134, 197
Carey, F. F. 24
Carson, C. W. 216
Casey, W. C. 197, 243
Chace, B. E. 644
Chard, A. 76
Chivers, D. H. 134
Christie, J. M. 76, 134
Clancy, J. R. 197
Clark, J. N. 134
Clark, J. 588
Clark, R. A. 134
Clarke, Lt. Col. F. F. 24, *73, 134
Clews, P. A. 476, 526
Cline, W. E. 76
Congdon, John 76, 134
Connell, C. H. N. 73, 76
Cook, T. L. 368
Cooke, G. S. 307, 360
Cooke, J. L. 414
Cooper, E. S. 253
Cooper, G. 253
Cordingley, G. M. 644
Cossar, D. 76
Coughlin, W. J. 253
Couzens, H. H. *544
Cowan, H. W. *103
Cowie, G. E. 476, 581
Cowley, F. W. 645
Creighton, H. C. 541
Culross, W. 253
Cunningham, M. P. 77
Cuttle, F. T. 134, 225
D
Dager, G. D. 368
Dalton, H. J. 130, 134, 197
Daly, F. 368
Daly, F. H. 415
Davis, A. H. 588
Deed, J. 476, 525, 581
Deer, H. 134
Delamere, C. T. 253
Devenish, W. R. *20
Devine, A. 24
Dew, C. J. 197
Dickson, W. 134, 197, 307
Doherty, W. M. 645
Dolan, J. F. 671
Donegan, F. M. 525
Doull, C. R. 415
Dorer, R. B. 76
Druce, L. V. 20, 24
Drummond, D. 308
Duff, W. A. 243, 253
Dunlop, J. B. 77
Dunn, A. 415
Dunn, G. C. 24, 197
Dunsmore, T. E. 24
E
East, E. P. 253
Edgley, G. R. 197
Edwards, J. H. 134, 225
Egan, A. C. 20, 24
Elliott, W. S. 197
Ellis, J. A. 415
Elsworth, W. B. 286
Elworthy, R. S. 197, 243
Enderby, T. R. 368
Englehart, J. L. 243
Evans, T. 645
F
Fairbairn, J. M. R. 20, *21, *350
Farrell, S. M. 77
Fitzgerald, E. G.....76, 134
Fitzhugh, E. H. 314
Fletcher, W. H. 197
Flett, R. M. 24
Foote, J. T. B.....368, 414
Forster, J. J. 197
Foster, F. 253, 308
Fox, J. H. 134
Fraser, J. D. 525
Freeman ,E. G. 76
Freiser, F. G. 197
Fuller, H. P. 588
G
Gahan, G. C. 192, 197
Gale, G. Gordon *149, 159
Gamble, R. A. 644
Gard, A. J. 588
Garden, J. C. 24, 415, 476
Gargan, H. M. 134
Gibson, Jas. 76, 525
Gillespie, W. 134
Godfrey, G. A. 525
Goodfellow, John 526
Gorman, Jas. 253, 312
Granger, H. S. 197
Gray, J. E. 134
Griffin, F. 253
Griffiths, W. A. 192
Guthrie, J. H. 253
Guthrie, L. A. 24
H
Hall, J. H. 588
Hall, T. E. A. 197
Hamilton, H. H. 24
Hannah, W. D. 414
Hardwell, Jas. *355
Harrison, G. A. 24, 73
Harvey, D. W. *544
Hauch, H. R. 28
Hawker, C. F. 197
Hayward, A. 307
Heal, H. E. 414, 415
Hemsworth, G. M. 134, 307
Henry, W. J. 307
Herbert, A. T. 588
Higgins, O. M. 588
Hood, W. M. 73, 76, 77
Horn, J. M. 134, 197
Howard, G. A. 197
Hulatt, H. 134
Hunt, P. K. 525
Hutcheson, J. E. *150
Hutchinson, F. L. 20
I
Innes, D. A. 525
Innes, R. A. 308
Isard, F. S. 307, *449
J
Jackson, T. W. 24, 76
Jefferson, C. E. 360, 368
Jenkins, C. E. 588
Jennings, R. B. 192, 197
Johnson, E. M. 134
Johnson, J. P. 307
Johnston, A. L. 77
Johnston, H. L. 24, 74
Jones, A. H. 360, 368
Jones, F. J. 197
Jones, R. H. 541
K
Kane, H. E. 24, 107
Keating, J. 134
Kell, G. A. 77
Kelly, W. R. 197
Kendall, C. N. 307
Kennedy, D. R. 368
Kennedy, E. C. 253
Kennedy, Sir John *582
Kennedy, M. 476
Kennedy, W. N. 415
Keohan, J. L. 415
Keppel, J. W. 588
Kerr, O. 197
Kidd, G. *148, 159
Kilpatrick, J. 253
Kimball, J. W. 76
King, Francis *103, 107
King, J. W. 253
King, R. 24, 307
Kingsland, W. A. 21
Kingston, W. E. 253
Kirkpatrick, Lt. Col. G. H. 53
Kirkwood, W. 253
Knight, F. T. 197
L
Lalonde, J. S. 307
Langham, E. 21
Larmour, R. 360
Larmour, R. E. 361, 368
Latta, B. A. 28, 147
Lavoie, L. 74
Lawrence, Calvin *641, 644
Lawson, V. L. 21, 24
Laycock, G. H. 415
Lazenby, P. A. 323
Leaney, M. F. 134
Leckie, J. R. 308
Lee, G. W. 73, 77, 135
Lenhart, G. E. 368
Lewis, D. K. 159
Lewis, D. O. 24, 525
Lewis, H. M. 77
Lewis, J. E. 415
Lewis, S. T. 307
Life, J. D. 24
Linney, G. H. 525
Little, W. J. 308
Livingston, J. 77, 134
Lloyd, E. E. 130, 134
Logan, E. 308
Logan, W. B. 508
Lytle, G. S. 130, 134, 253
M
McAmmond, A. E. 130, 134
McAuley, J. D. 21, 24
MacCallum, H. M. 197, 244, 253
McClelland, J. P.....476, 525
McCloskey, J. L. 645
McCrae, J. M. 197
McCraw, John 77
McCrea, G. L. 588
McDiarmid, J. H. 525
Macdonald, A. E. 307
McDougald, W. L. 307, 368
McDougall, A. J. 21
McElroy, F. 198
McEwan, R. J. 476, 541, 644
McGill, W. E. 307, 312
McGinty, T. J. 197
MacGregor, C. J. 307
MacGregor, J. B. 135
McKay, G. G. 197, 244
McKay, W. J. 476
McKeage, L. A. 415
McKeough, C. J. 253
MacLaren, G. P. 74, 76, *130
McLaren, Col. J. I. 361, 368
McLaughlin, W. T. 134, 197
MacLean, H. A. *38
McLimont, A. W. *154
McMaster, A. E. 641
McMillan, N. 645
McMorran, R. 368
McNaughton, R. A. 308
McNcil, T. 645
McNeillie, J. K. 134
MacNutt, J. D. 22
McPherson, W. G. 525
McPhillips, W. 76, 134
Macrae, J. 76
McVeigh, T. F. 225
Mahoney, E. P. 198
Mahoney, N. T. 77
Marks, R. E. 308
Marlow, W. T. 253
Martin, Lt. Col L. T., D.S.O. 361, 368
Matthews, H. W. 24
Meachem, H. C. 21
Messeroll, D. C. 135, 253
Middleton, Z. M. 541
Mills, J. M. 76
Mitchell, A. B. 253
Monsarratt, C. N. 244, 307
Moore, W. C. 197
Morgan, R. C. 476, 525, 588, 642, 645
Morrison, H. K. 197
Morrison, S. 76, 192
Morton, J. D. 24
Morton, J. J. 197, 588
Moule, W. J. 131
Mount Stephen, Baron *642
Muir, W. C. 28, *96, 147, *470, 497
Mulkern, L. 192, 197
Munro, W. I. 24
Murdock, Jas. 577
N
Napier, J. J. 197
Niblock, D. B. 368, 414
Nicholson, F. 307
Nicholls, F. W. 253, 307
Nicholson, T. W. 76
Norman, W. E. 541
Noris, E. A. 588
Noyes, W. H. 645
O
O'Donnell, J. C. 22
Olive, J. A. 216
Oliver, R. K. 415
Oliver, S. E. 76, 134
P
Page, H. J. 76
Paist, H. W. 77
Parker, J. E. 253
Payne, S. R. 361
Pearson, D. H. 308
Peers, A. 76, 131
Perry, G. D. *307, 317
Peterson, J. C. 645
Philip, P. 131
Phillips, G. A. C. 415
Phillips, Wm., *471, 476. 541
Pierce, J. 198
Pitt, W. A. 135
Polyblank, K. G. 134, 192
Porter, J. N. 134
Powell, W. H. 76, 134
Preston, A. L. 368
Preston, R. 22, 24, *74
Pullen, John *469, 497
Pyne, R. A. 22, 24
Q
Quinn, R. 588
R
Rawlings, H. T. 76
Reade, R. Mayne *210
Reed, John 76
Reid, J. W. 644
Renix, W. J. 76
Riddell, W. 77
Rippey, W. N. 24
Roberts, G. A. 588
Roberts, John 24, 77, 253
Robider, W. J. 75, 77
Robinson, R. V. 134
Roche, W. G. 197
Rogers, C. S. G. 307, 368
Rohne, M. J. 368
Ronnan, C. F. 645
Roper, E. L. 476, 582
Rosseter, F. S. 77
Rowe, J. 253
Ruggles, T. D. 307
Russell, J. R. 415
Rutherford, F. A. 642, 645
S
St. Louis, Jos. 77
Salsbury, W. F. 312
Salter, F. C. 525, 530
Sample, W. H. 22, 24
Saunders, R. 76
Sheppard, W. J. 361
Schofield, John 361, *368, 415
Scott, E. L. 134
Scott, H. L. 586
Seaton, F. L. 588, 642
Seeley, W. 77
Seigel, W. H. 135
Sharp, W. 253
Sharpe, A. F. 253, 308, 645
Shepherd, W. J. 307
Sheridan, H. W. 24
Shipman, S. C. 588
Shrimpton, F. E. 192
Simpson, C. J. 77
Sindall, J. W. 24, 77
Sloane, R. J. 588
Smith, A. M. 415
Smith, F. J. G. 525
Smith, N. A. B. 77
Smith, R. H. 134
Smith, T. D. 76, 307
Snell, A. W. 197
Snell, E. M. 525, 642
Sorel, W. H. 307
Spiegel, J. F. 134, 197
Staples, G. A. 197
Stebbing, E. T. 197
Steeper, D. W. 525, 526
Stephens, Jas. 588
Sterling, F. W. 131
Stewart, Hon. J. A. *577
Stewart, R. O. 415, 476
Stinson, W. J. 645
Stokes, C. R. 134
Stone, E. 198
Stone, F. W. 645
Strachan, W. G. 197
Sturrock, A. 24, 75, *76
Swain, R. E. 645
Swalwell, J. G. 24, 476
Swinden, W. W. 24
T
Tapley, F. B. 75, 76, *131
Tapsey, P. 368
Taylor, R. E. 307
Tebo, F. E. 588
Temple, C. H. 22, 24
Thorpe, A. H. *645
Throne, M. S. 244
Todd, J. H. 198
Tomlinson, A. T. 75
Tribe, E. W. 134
U
Urwin, R. W. 134
V
Van Wyck, J. 368, 525
Verschelden, I. 253, 312
Vicks, P. 253
W
Walker, H. 588
Walker, J. M. 476, 541, 582
Walmsley, W. 588
Walsh, A. J. 588
Walton, C. M. 415
Walton, J. A. 253
Watson, J. S. 415
Webber, W. 198
Wearing, E. J. 541
Webb, G. H. 642
Webster, Hon. L. C. *103, 107
Weegar, W. E. 244, 253
Weekes, A. S. 76, 134
Weihofen, J. G. 198
Whitelaw, J. 415
Whitsell, John 216, *270
Wiggins, F. N. 541
Williams, H. 197
Windross, J. B. 253, 312, 582, 588
Wray, A. A. 134
Wright, A. A. *103
Wylie, W. W. 381

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Index to contents, 23.

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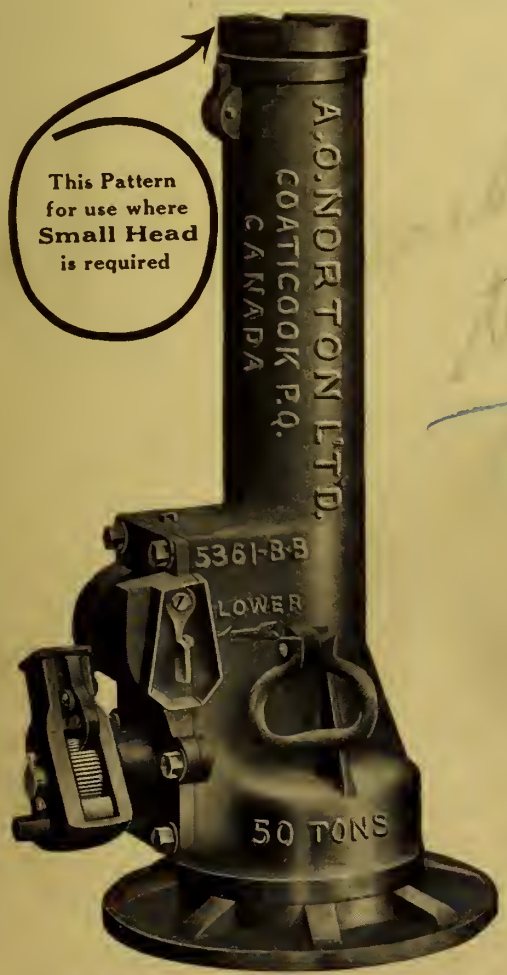

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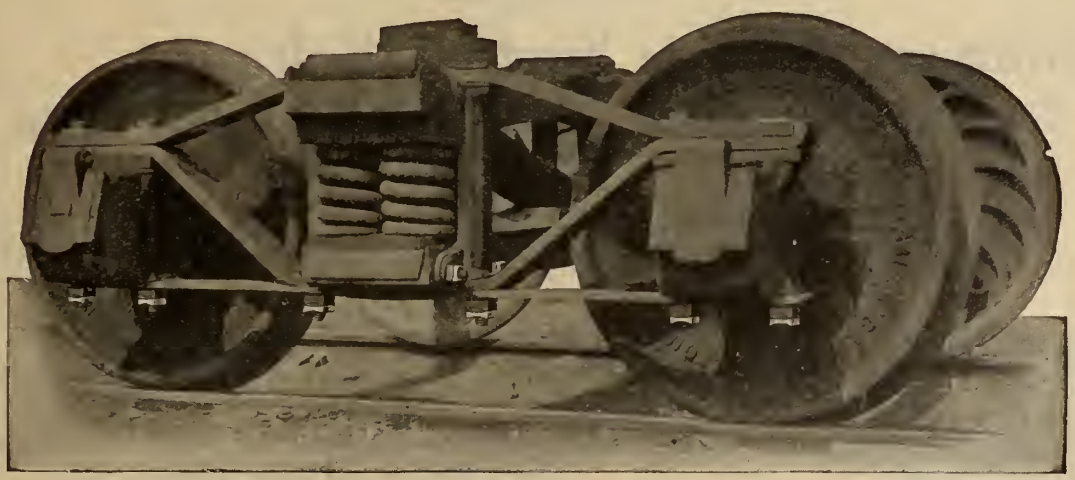

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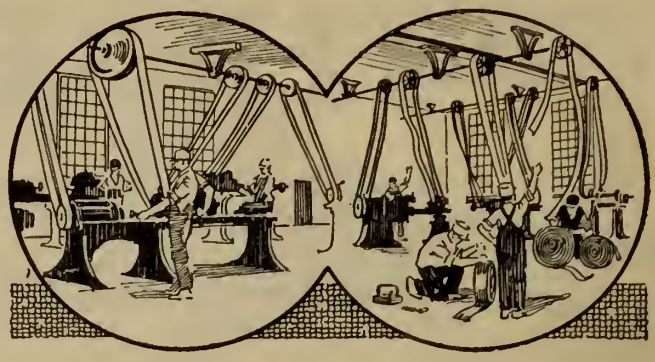

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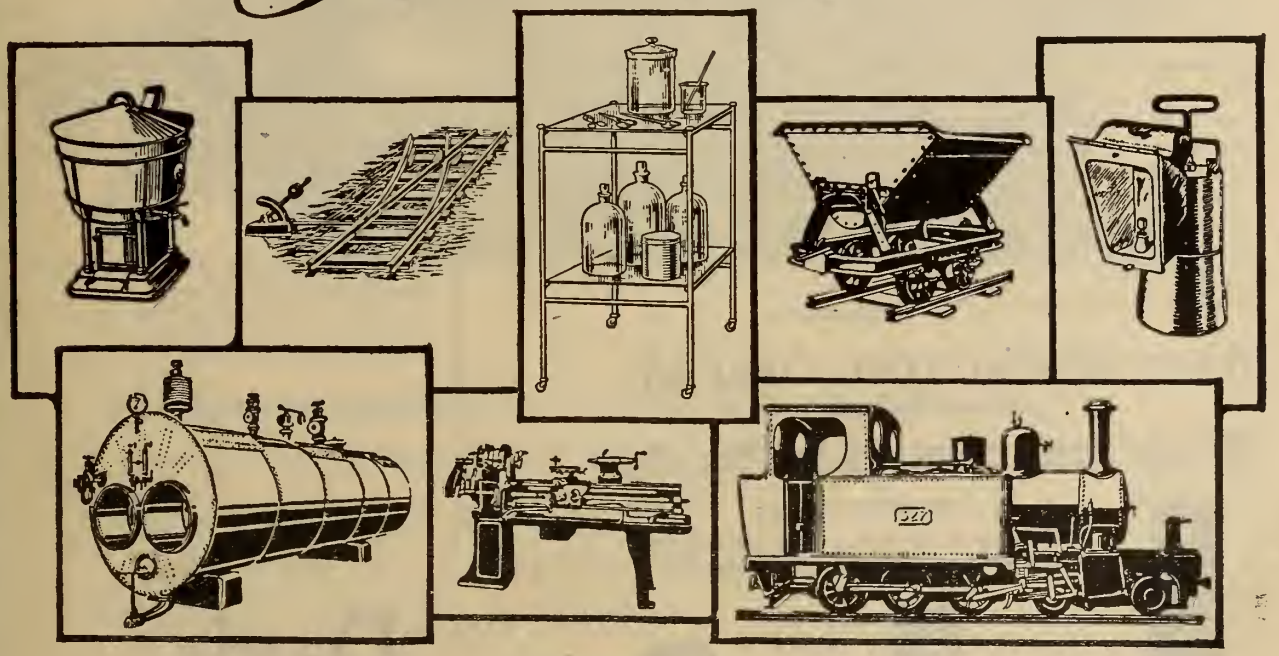

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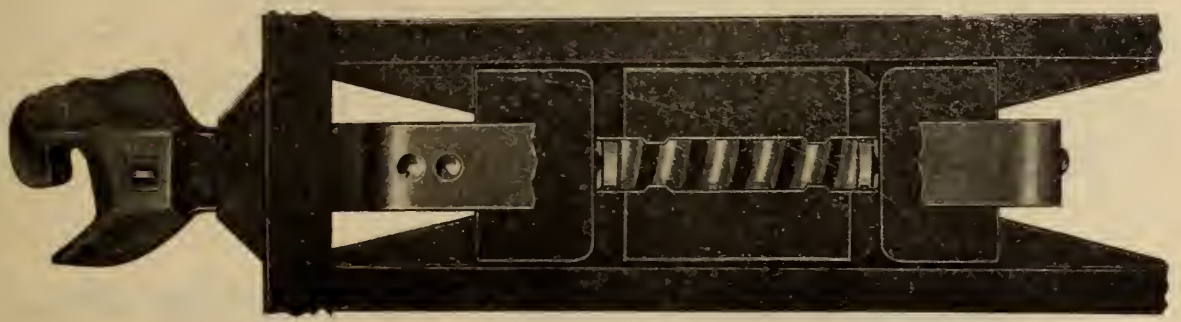

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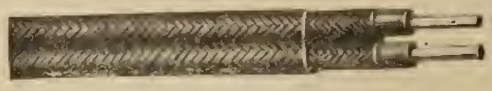

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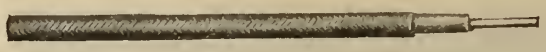

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On that basis you must figure the loss to your Road for the days your locomotives are in the repair shop, or held for too frequent boiler washings, due to bad water supplies.

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costing but a few cents per thousand gallons of water used, keeps scale from forming, and overcomes corrosion and foaming, thereby materially increasing the mileage between boiler washings, effecting large savings in repairs, reducing the fuel consumption, and eliminating many delays in operation. The life of boiler tubes will be more than doubled.

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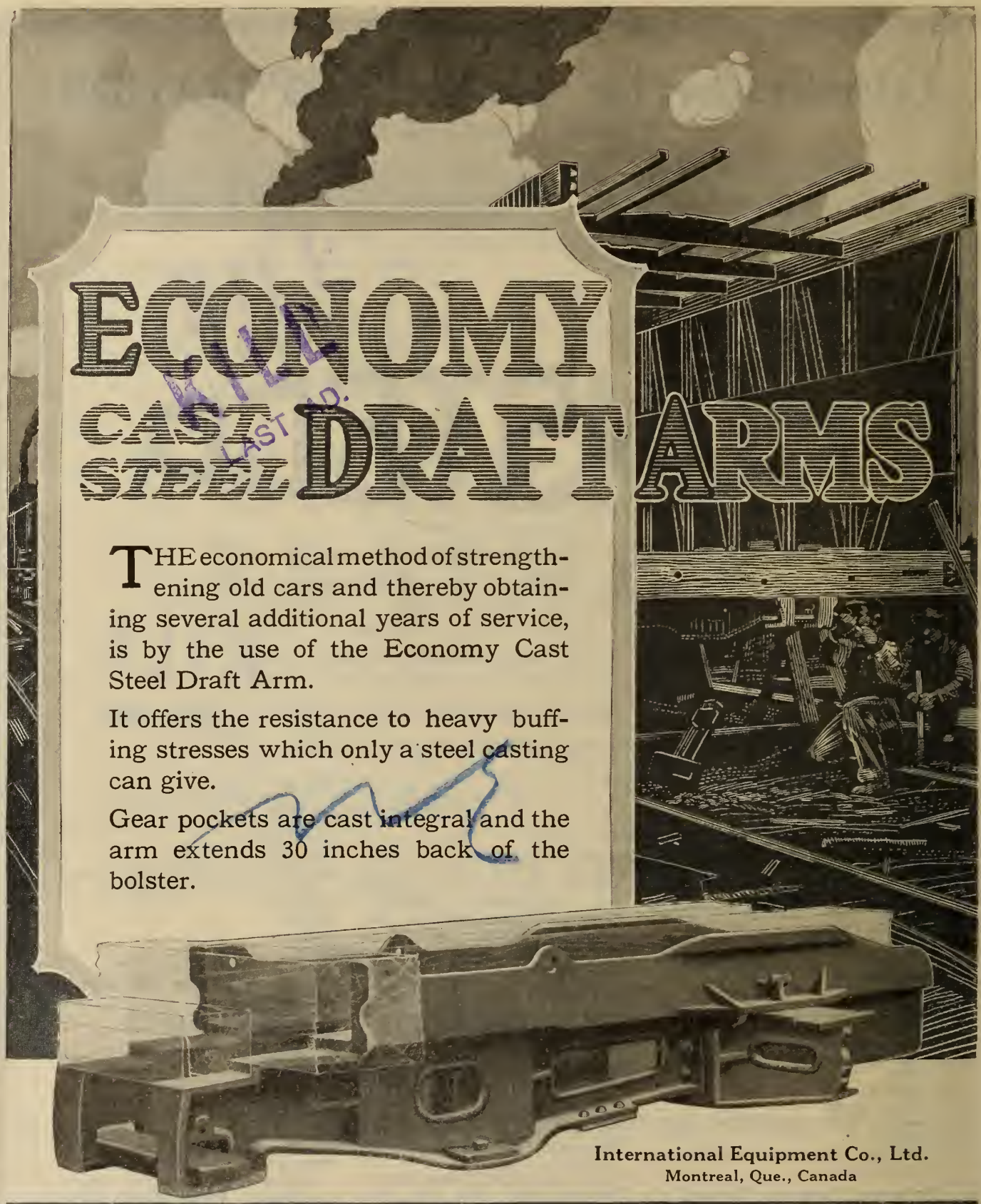

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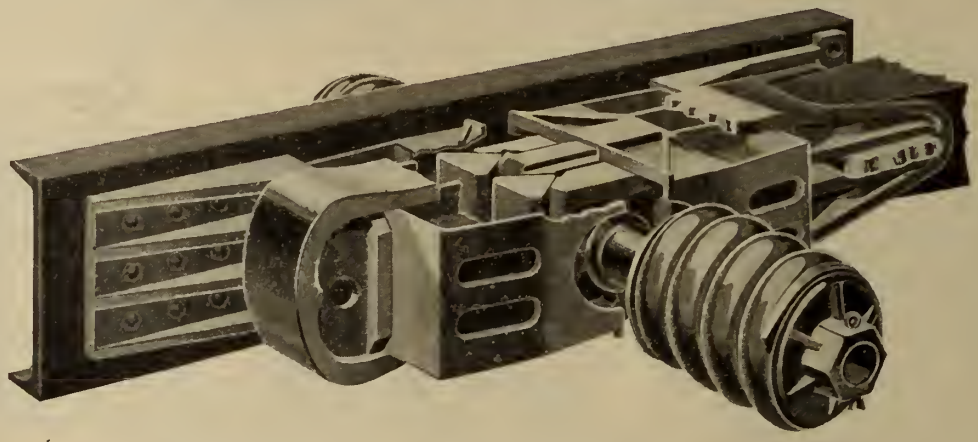

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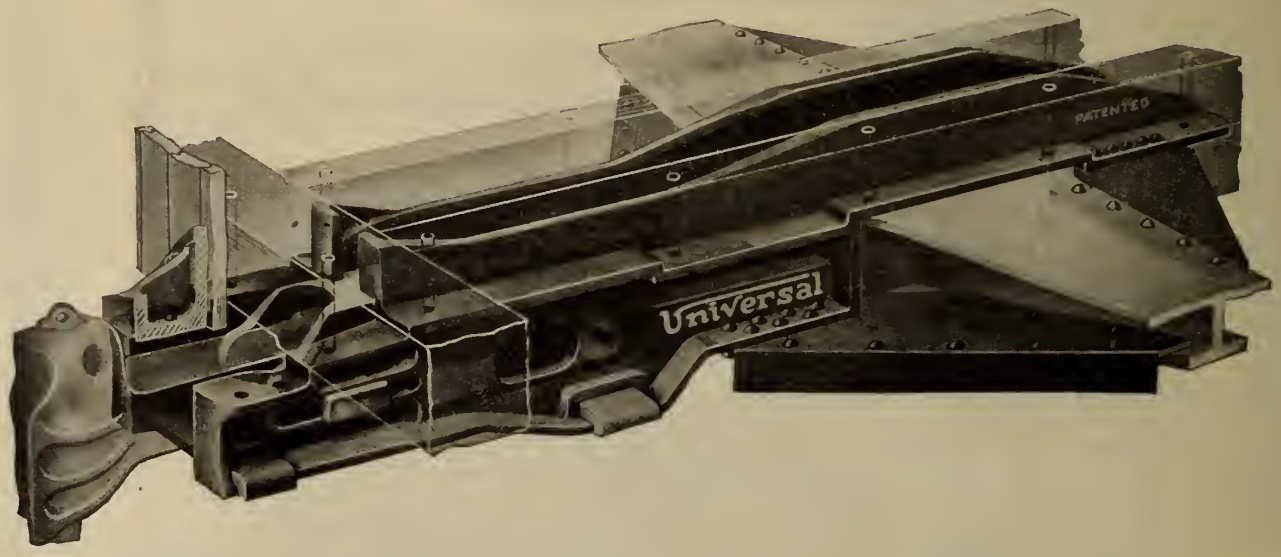

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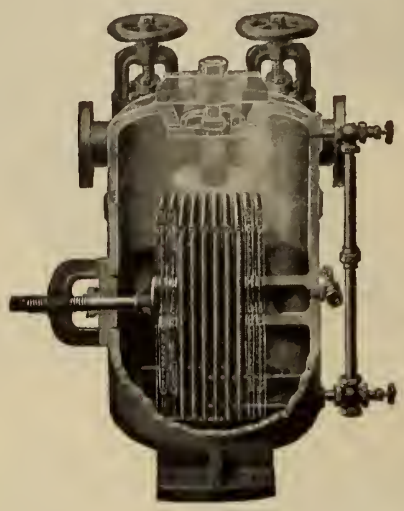

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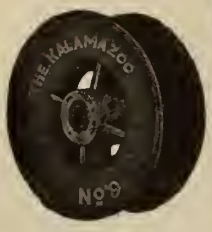

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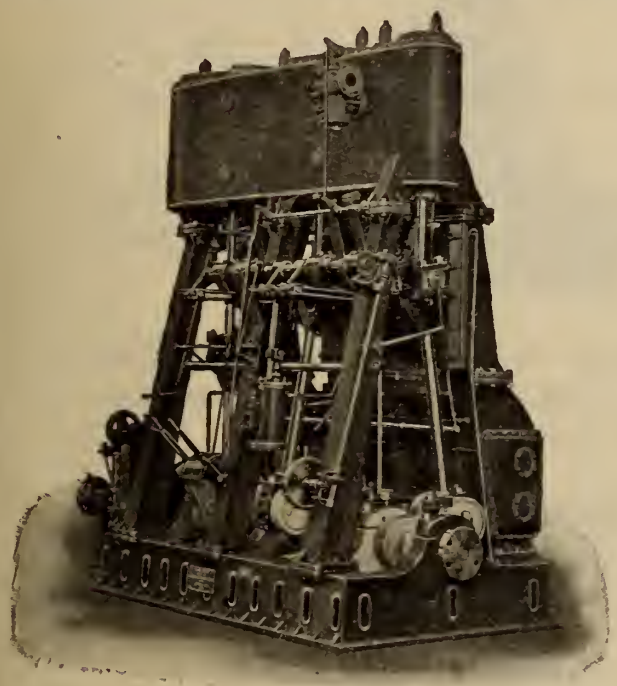

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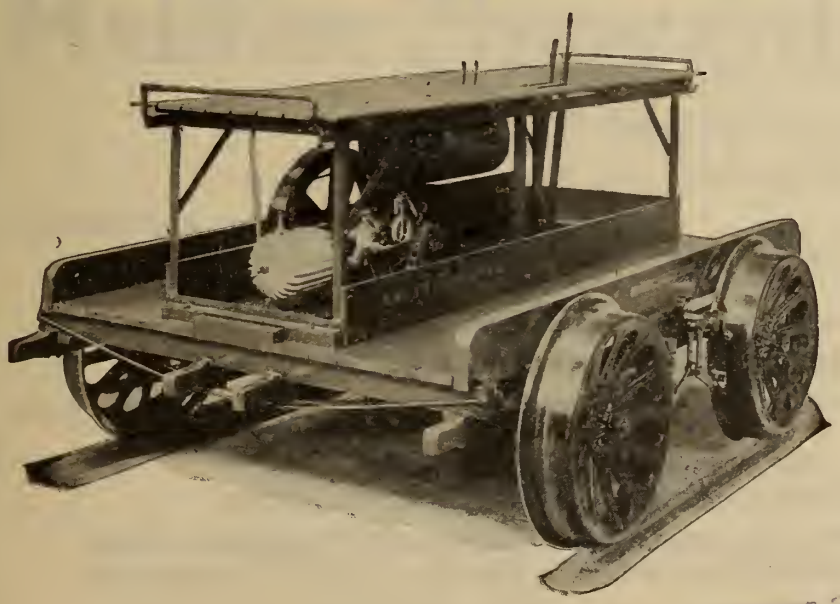

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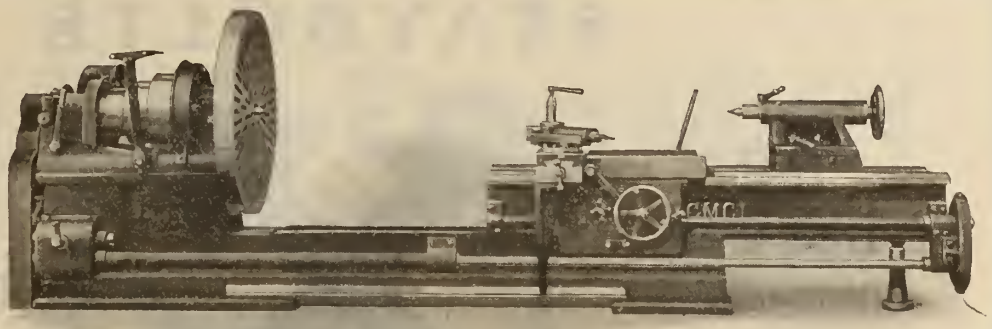

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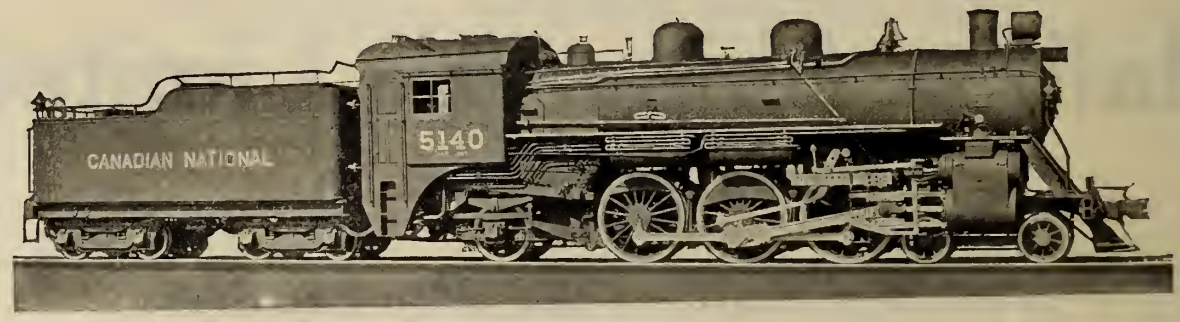

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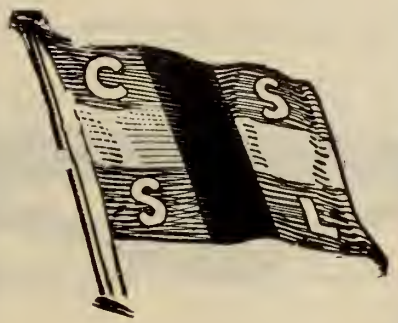

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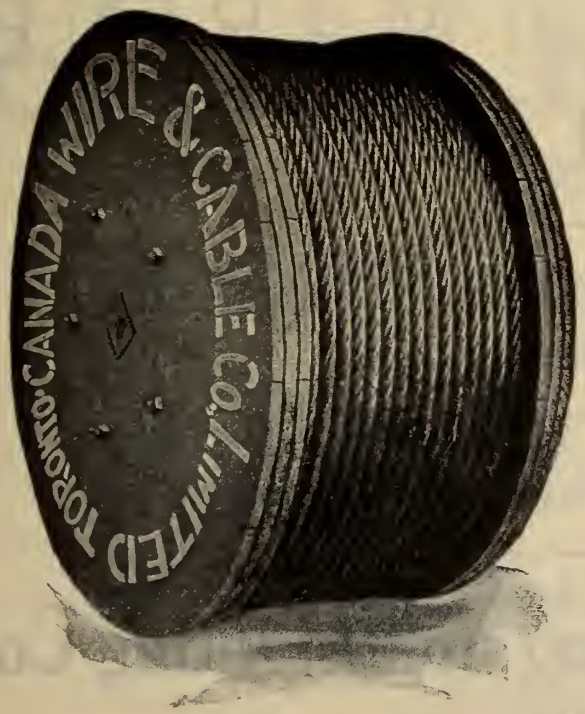

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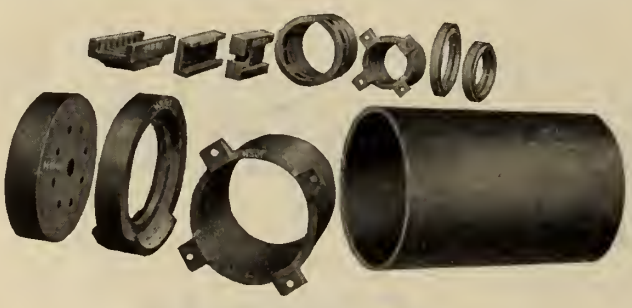

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January, 1921

How Sir William Van Horne Built the Cuba Railroad.

By Walter Vaughan.

After four hundred years of Spanish misrule, and a century of successive revolutions, the United States had liberated the Cuban people. Spain had finally evacuated the colony a year earlier, and the island was being administered by a military governor, General Leonard Wood, pending the institution of a stable civil government based on popular election. The eastern provinces had been devastated by incessant guerilla warfare. The cane fields had been largely destroyed. and the cane had been overgrown with weeds and brush. Cattle raisers had lost everything, and it was difficult to find a cow or an ox. Horses were few and in wretched condition. Mining had ceased, all industries were virtually dead.

The railway system of the island comprised 1,135 miles of railway. Ninety per cent. of these radiated from Havana and were owned by English companies. There were also 965 miles of private railway lines, constructed to carry sugar cane to the mills. In what are now the three eastern provinces of Santa Clara, Camagüey, and Oriente, the largest and richest in the country, and comprising three quarters of the total area of the island, there were only a little over 100 miles of small railways. In the days of Spanish dominion every one had conceded the desirability of a line of railway which would connect Santiago de Cuba, Camagüey, and eastern Santa Clara with Havana, the seat of the island's government and the center of its commercial life. Every principle of politics and economics had demanded communication between the leading cities of the middle and eastern provinces and the western end of the island. But under Spanish rule the construction of such a railway was accepted as impossible.

Travelling in Cuba early in 1900, in company with General Russel A. Alger, the United States Secretary of War, and Hon. Elihu Root, Secretary of State, Sir William Van Horne heard them discuss the desirability, on strategical grounds, of building a railway through the eastern provinces, and also the apparently insurmountable obstacle which the Foraker Act had placed in the way of such a project being undertaken as a private enterprise. This legislation had been enacted by the U.S. Congress in order to protect the Cubans and the interim administration from exploitation by promoters and irresponsible speculators, and prohibited the granting of any franchises or concessions of any kind during U.S. occupation. About the same time he met Percival Farquhar of New York, who was the representative of a group which had obtained control of the Havana tramwaays. Farquhar gave him a glowing description of the interior.

Pondering over this situation, it flashed upon Sir William Van Horne that there was in all probability no law which would prevent the acquisition of parcels of land or the construction of a railway thereon by their owner. To construct a railway in small pieces in this way, without rights of expropriation or eminent domain, and without any assurance whatever beyond his own faith that the future Cuban Government would grant the necessary charter powers, involved great risks and implied great courage. But having hit upon the plan, Van Horne did not hesitate to adopt it.

On his arrival in New York in March he immediately consulted Howard Mansfield, a lawyer of his acquaintance.

"Do you know anything of the Foraker Act?" he asked.

"I do."

"Is there anything in it to prevent an individual or a corporation owning or acquiring lands in Cuba from building a railway on various pieces of such property, taking a chance of ever being able to operate the railway as a whole?"

"No."

"Well, I'm going to form a company to do that, and want you to get out the necessary incorporation papers."

Van Horne's next step was to get the sanction and, if possible, the support of the U.S. Government, and, accompanied by General Grenville Dodge, he went to Washington to lay his plans before President McKinley. From a political point of view the project had much to commend it. The construction of the railway would not only provide immediate employment for a considerable number of the population, but it was also the first requisite for the development of Cuban resources. When completed, it would ensure the speedy transportation of troops to the eastern end of the island and to any part of the interior, and would itself be the best possible agency for the preservation of order and peace. The President expressed approval of the project, and promised to do what he could to have it protected in law before the occupation ended.

Within two months from his departure for Cuba, Van Horne was back in Montreal, as busily occupied in the organization of a new company as he had been eighteen years earlier in the building of the Canadian Pacific Ry. He shed like a garment the comparative apathy and lassitude which had characterized the last few years of his presidency of the Canadian road. With new and important creative work before him, he was once more in his element and completely happy.

"Perhaps you are right in thinking," he explained to a friend, "that I am making a mistake in putting on more harness and going into the Cuban and other enterprises, but my trip to California a year ago satisfied me that my happiness was not in the direction of taking things easy and that I would have to keep as busy as possible for the rest of my days. Perhaps, if I had knocked off ten years ago, it might have been different. All the things which I thought leisure would give me time to enjoy seemed flavorless when I got to them. I can be happy in working out schemes and in no other way. The Cuban one is the most interesting I have ever encountered, and I am looking forward to a great deal of pleasure in carrying it through, and perhaps profits as well—a few dozen Rembrandts and such things, which, I think, will quite fill my capacity for enjoyment."

From the moment the Cuban enterprise took shape in Van Horne's mind he regarded the building and operation of a few hundred miles of railway merely as a first step to larger and more comprehensive schemes. Incorporating the Cuba Company under the laws of the State of New Jersey in April, 1900, he stated its object to be "to develop the resources of the island in all practicable ways."

He retained a vivid recollection of the checks imposed from time to time upon his plans for rapid development of the Canadian Pacific, both by the caution and conservatism of his co-directors and by the difficulty, often the impossibility, of obtaining the necessary capital. He was determined to labor under no such difficulties in his new undertaking. He would, therefore, keep in his own hands the entire control of the Cuba Company, and seek as his associates in the enterprise men who would have faith in his management and whose means were so large that they could afford to wait indefinitely for dividends, yet could be relied on to furnish any additional capital that might be required. To ensure the stock of the company being retained in such hands, he fixed the capital stock at $8,000,000, divided into 160 shares of $50,000 each.

He found a sufficient number of "the right kind of men" with the greatest ease. The entire capital stock was subscribed within a week, and as soon as his plans became known, he was obliged to dodge eager applicants for shares. To one of these he wrote:

"When I went down to New York with my Cuban scheme I found myself in the position of a small school boy with his pockets full of bonbons, and all the shares that I would not let go willingly were taken away from me. I came away stripped of all but a small holding for myself. There is no chance to get any, unless the capital should be enlarged later on."

On the clear understanding that his project was one of slow, but profitable, development, he had obtained the most imposing list of subscribers ever associated in the foundation of a single commercial enterprise. It included, among others, John W. Mackay, J. J. Hill, E. J. Berwind, General Dodge, Henry Bull, Gilbert Haven, Henry M. Flagler, Levi P. Morton, Henry M. Whitney, P. A. B. Widener, Anthony Brady, W. L. Elkins, Thomas Dolan, General Thomas, W. C. Whitney, H. Walters, R. B. Angus, T. G. Shaughnessy, Sir George Drummond, C. R. Hosmer, George B. Hopkins, and Thomas F. Ryan. The aggregate wealth of this group was estimated in many hundreds of millions of dollars.

Van Horne had difficulty in persuading Ryan to join. Ryan, who had made a large fortune in tobacco and street railways, and who was a prominent figure in financial circles as the active force behind the Morton Trust Company, thought it "a great waste of time for Van Horne to turn his back on an empire and go chasing a rabbit; for that great

constructive mind, with its decades of experience, to bury itself down in the jungle." He asked Henry M. Whitney to join with him in urging Van Horne to drop his Cuban plans and take up something else. At a dinner given by Whitney, Ryan proposed that he and his group should obtain control of the Canadian Pacific, and that Van Horne should return to it as its president and work out immense ramifications of its existing system on both sides of the international boundary. Such a scheme would give them industrial dominion over North America and Van Horne an empire to rule over.

Van Horne would not entertain this startling proposal for a moment. It was in direct conflict with the aims of the builders of the Canadian road, and his participation in it would savor of the rankest treachery. He told Ryan that the Canadians, who looked upon the Canadian Pacific as the backbone of their country, would never allow it to pass into the control of Americans. Finally, he pointed out that it would be extremely difficult, if not impossible, for any group of Americans to get control of the system, for in consequence of the policy steadfastly pursued by Lord Mount Stephen and supported by himself, the great bulk of Canadian Pacific stock was distributed among thousands of small holders, a large majority of whom were resident in England. Ryan, who was amazed to learn that the builders of the Canadian Pacific held only a few thousand shares of its stock and had profited little from their opportunities, found the last argument conclusive, and, with great reluctance, abandoned his scheme. Converted by Van Horne's magnetic persuasiveness, he agreed to join the Cuba Company and give it the support of the Morton Trust Company, which was its financial backer for several years.

Van Horne's love of the Canadian Pacific Railway was the master passion of his life. He cherished its interests unswervingly. It was his dearest offspring, the Absalom of his loins. Three years later Ryan consulted him concerning the project of a new railway from the Kootenay Valley to the Pacific Coast. His condemnation was decisive. "The Canadian Pacific Railway cannot and will not surrender that region to any other company. . . . The only commendable thing I see in this enterprise is the prospectus, which should take high rank among imaginative works."

Having established the head office of the Cuba Company in the City of New York, Van Horne sent engineers to Cuba to make a preliminary survey. With them went L. A. Hamilton, Land Commissioner of the Canadian Pacific, to investigate and report upon the natural resources along the route to be traversed. His next step was to purchase a large tract of land at Antilla, on Nipe Bay, and a little railway, the Sabanilla & Moroto, which ran a distance of about 50 miles from the port of Santiago, the eastern terminus of the projected railway. Materials for the construction of the railway were ordered, and Van Horne proposed to begin building at the end of the autumn rainy season. His prospecting engineers having returned and reported that a line could be built along the proposed route with easy gradients and through a country of remarkable agricultural possibilities, location surveys were begun in July from Santa Clara.

The Cuban Government was not yet instituted, and the people, uncertain of the purposes of the United States, and fearful lest they had only changed masters, suspected every form of U.S. activity. But during his visit to the island Van Horne had formed the opinion that they had a fine sense of honor and would respond to fair and courteous treatment. Before starting negotiations, therefore, for the right of way, he employed two able and influential Cubans to go through the eastern provinces and explain the good will and intentions of the company and the benefits which the community would derive from its operations. He also addressed courteous and diplomatic letters to the governors of the eastern provinces, giving detailed information of the project. Invariable and impeccable courtesy was to be the keynote of all dealings with the Cubans. He wrote to his Chief Engineer:—

"Deal with them throughout with politeness, whatever the provocation to do otherwise may be, for we cannot afford to antagonize even the humblest individual if it can be avoided. Our engineers will give the first impression of the Cuban Company to the people in the districts where they are operating, and they should seek in every way to create among these people a pleasant impression. . . . Any one unable to control his temper and who violates the rule which should be made in this regard should be promptly got rid of. I am anxious that the people throughout the country should become impressed as quickly as possible with the desire of the Cuba Company to treat everybody with the greatest consideration and to deal with them in all matters with perfect fairness."

These methods of approach were richly rewarded. Convinced of the company's good will and of the benefits they would receive from the operation of the railway, proprietors gave the land necessary for the railway without compensation. In cases where absentee Spanish landlords were inclined to hold out for payment, their neighbors united in creating a public opinion which forced them to a similar liberality. At the close of the year Van Horne told his shareholders: "So far our rights of way have cost us nothing but the salaries and expenses of our agents." When, sometime later, President McKinley asked him how he had accomplished the purchase of the right of way and begun to build a railway without a charter, he replied:

"Mr. President, I went to them with my hat in my hand."

"I think I understand," said the President.

To his friends Van Horne explained that whenever he met a Cuban, he bowed first and be bowed last. In these early days of his company he was well served by his double nationality. U.S. officials concerned in the administration of the island had full confidence in him as being one of themselves. The Spanish Cubans, who looked upon U.S. people with jealousy and suspicion, trusted him as a Briton. They knew that there were no knights in the United States.

Although possession of rights of way had been easily and inexpensively acquired from private owners, difficulties were frequently experienced in obtaining a clear legal title to them. Regarding a loose system of land titles as prejudicial to all future settement, Van Horne recommended to General Wood the introduction of the Torrens system of registration, which was used in Manitoba and other western provinces of Canada. He urged that speedy attention should be given to so fundamental a matter and that surveys of the land should be made and base lines and meridians established as a preparatory step to the re-establishment of agriculture. He also advocated the expropriation by the government of large areas held idle by absentee owners or on account of disputed ownership, and their subdivision and resale in small parcels to those who would immediately cultivate them. This, he thought, should be followed up by taxation of land. He wrote to General Wood:

"A system of land taxation is the most effective and equitable way of securing the greatest possible utilization of lands, and affords at the same time the best safeguard against holding lands in disuse for speculative purposes. It affords, moreover, the most certain and uniform revenue to the state. Freedom from land taxation or merely nominal land taxation comes from landlordism, which you certainly do not wish to continue or promote in Cuba. The country can only reach its highest prosperity and the greatest stability of government through the widest possible ownership of the lands by the people who cultivate them. In countries where the percentage of individuals holding real estate is greatest, conservatism prevails and insurrections are unknown."

As, with a fine instinct, he found the royal road to the favor of the Cubans and discarded the sharp and rough-and-ready methods of U.S. railway building, so he determined at all costs to avoid antagonizing the railway companies already operating on the island. Unsupported as he was by legal authority, any other course would have been suicidal. Having no charter, he was without power to cross another railway, and he instructed his engineers to carry their line clear south of the Cuba Central Railway, running north from Placetas del Sur.

While his engineers were locating the line and his agents obtaining rights of way, Van Horne was preparing for the work of construction with all his old zest for detail. He shipped construction supplies and materials for assemblage at Santiago, Cienfuegos, and Santa Clara in advance of their use. Grading was begun at both ends of the line in November, 1900, with Spanish and Cuban laborers. The final location of the railway was on a line which, running from Santa Clara through Camagüey to the port of Santiago, would bisect the greater part of the island and serve as a trunk line for the branches running north and south, which could be constructed later. It was found necessary to follow the watershed and head the streams, which widen and deepen rapidly in their descent to the sea upon each side.

In 1901 Van Horne went again to Cuba, to see construction well started and take a look at the interior for himself. Six weeks work and travel, which included a ride from San Luis to Nipe Bay, strengthened his enthusiasm for the enterprise. Getting off his mule at a point called Palmerito one evening, his waistcoat caught on the pommel of the stock saddle, and he fell heavily to the ground on his back. Miller A. Smith, the Chief Engineer, rushed up, ejaculating:

"My God! Sir William, are you hurt?"

"No," replied Van Horne, getting to his feet and dusting himself. "That is the way I always get off."

The company now had definite ownership of lands for terminals, construction bases, and several townsites, together with a fairly continuous strip for the right of way 30 meters in width and about 350 miles in length. Power to cross streams, roads, and public property was becoming a matter of pressing necessity. There were, too, a few landowners whom he could not bring to terms, and to deal with them expropriation powers were essential. A general election had been held throughout Cuba in September for the purpose of choosing delegates to a convention to frame and adopt a constitution and to determine with the U.S. Government the relations to exist between that Government and the Cuban Government. The con-

vention had met in Havana in November, and was still engaged in framing the constitution.

With the difficulties of a charterless position ever in his mind, Van Horne had already drafted a general railway law for the island. General Wood had told him that he had thought of applying to Cuba the railway law of Texas. But this was, in Van Horne's opinion, distinctly inferior to the railway law of Canada, and he based his draft on the Canadian model. He spent several evenings with General Dodge over its revision and adaptation to Cuban needs and submitted it to General Wood. After careful scrutiny and a few amendments by the Interstate Commerce Commission, it was presented by General Wood to Hon. Elihu Root, Secretary of War at Washington, who pronounced it to be the best railway law ever drawn up. General Wood said:

"Sir William contributed a very large portion of the foundation work on this law, which covered everything from the local procedure necessary to make preliminary surveys to the final winding up of the affairs of a railroad in case of its dissolution. The law covered the relations between the public and the road, and looked to the adequate protection of the railroad personnel and the public. It was so fair and evidently just to all interests that very few changes were suggested by the U.S. Interstate Commerce Commission, whose railway experts were invited to Cuba and went very thoroughly over the law."

The Cuban convention adopted a constitution for the Republic of Cuba on Feb. 21, 1901, but before that date the necessity for expropriation powers and rights to cross public property had become acute. Van Horne went twice to Washington to plead with the President, Secretary Root, Senators Platt, Aldrich, and Foraker, and others officially concerned in Cuban relations for the immediate passage of the railway law. Friction had developed, however, between the U.S. Government and the delegates to the convention, who, standing out for unequivocal independence and sovereignty of the island, were averse to incorporating in the constitution certain provisions concerning the right of intervention, coaling, and naval stations, and other matters upon which the U.S. Government was determined to insist. In these circumstances no progress could be made with the general railway law, and the Foraker Act, which prohibited the grant of public concessions or franchises, was still in effect.

Bent on carrying his project through, and stimulated, as always, by the challenge of difficulties, Van Horne evolved from his inexhaustible inventiveness a way to overcome this one. The Foraker Act said nothing about a "revocable license." Might not a revocable license be granted to a builder who was willing to assume the risk of having the license modified or cancelled by the Cuban Government after the close of U.S. occupation? The railway would incontestable benefit Cuba. By securing the opinions of prominent Cubans on the questions at issue and communicating them to members of the Foreign Relations Committee of the Senate, he was actively promoting a better understanding between the representatives of the two peoples. The authorities in Washington had confidence in him, and they agreed that such a license as he described might oe issued.

Encouraged by their concurrence, Van Horne went to Cuba to obtain the license from the military governor. Wishing to strengthen his case with the force of public opinion, he sent Farquhar to the island to secure petitions praying for the immediate passage of a general railway law in order to promote the building of railways for the development of the country and to enable it to take speedy advantage of the road under construction. He devised the method of obtaining the petitions. Construction would be suddenly stopped at some crossing in every municipality along the line, and the laborers thrown out of work. Farmers and merchants, as well as laborers, suffered from the interruption of the flow of U.S. dollars, and were given an object lesson of the benefits they enjoyed from the company's operations. They were glad to sign petitions which might ensure their continuance. These had due effect at Havana and Washington. The U.S. Government promised to forward Van Horne's plans and the general railway law in every possible way.

Van Horne now approached General Wood, and in diplomatic fashion asked for something more than he knew he would get; namely, an unconditional permission to effect the necessary crossings. General Wood was heartily in favor of the railway, had noted the petitions from the municipalities, and was sincerely desirous of helping him; but the Foraker Act stood in the way. He could grant no concessions, but promised to give the matter his most serious consideration and see what he could do. Van Horne withdrew, and hastened to the Cuban who was General Wood's confidential adviser on such matters. He unfolded to him his idea of a revocable license, and intimated that if he and General Wood could devise nothing better, he was willing to continue construction on it. These tactics were successful. The Governor took counsel with his adviser and decided to grant the revocable license.

Construction was resumed, and continued without further interruption. Some trouble developed with the London executive of the Cuba Central Railways, which opposed Van Horne's building farther west than Sancti Spiritus, and still more strongly opposed his building into Santa Clara, where they had their terminus. He met these objections in a conciliatory manner, returned sweet and friendly answers, and intended to keep the correspondence going all through the summer until his line had advanced beyond all danger of interference.

Exercising an immediate supervision over the details of construction, Van Horne continued to press the passage of the general railway law, and to assist the U.S. administration in combating the doubts and fears of the Cuban people concerning the sincerity of the United States in establishing their independence. He first suggested to Secretary Root that the Cuban flag should fly with the U.S. flag over the naval and coaling stations which the U.S. Government planned to retain on the island. This was a small detail, but it had the effect of propitiating the Cubans and removing some of their objections to the stations.

With 6,000 men employed, as rapid progress was made in the construction of the road as was possible in an undeveloped tropical country. Streams and public highways were crossed under authority of the revocable license, which, as Van Horne widely and publicly announced, put his enterprise "entirely at the mercy of the people of Cuba." But he was willing to do this because of his "faith in the honor and justice of the Cuban people."

On Feb. 7, 1902, the general railway law was promulgated by an order of the Military Governor. Understanding that Van Horne had been instrumental in outlining the law and fearing that it was devised to injure their properties in order that he might buy them cheaply, the officials of the western Cuban railways received the law with suspicion. He stoutly denied such a motive to the president of one of the companies, asserting that if he had wished the collapse of the railways, the Texas law would have better served his purpose. He contended that, in basing the Cuban upon the Canadian law, he had conserved the interests of all the other companies as well as his own. The correctness of this contention was eventually conceded.

Following adoption of the general railway law, a board of railway commissioners, similar to the Canadian board, was appointed to regulate and control the traffic rates of all Cuban railways. The railways in operation were requested to frame and submit a schedule of uniform rates and classifications. This they failed to do, and well intentioned officials of the Government compiled an intricate classification similar to western U.S. schedule, which was described by Van Horne as "approximately the old Missouri classification of 'plunder and lumber.'" He assisted the commissioners in framing a new schedule, which prescribed maximum rates substantially below those of hitherto existing fariffs. This was heartily welcomed by the people, but met with vehement opposition from the established railway companies. Their directors decided to ignore it, and instructed their Cuban officials accordingly. The Military Governor interpreted this course as defiance of the law and the Government, and threatened severe measures.

Van Horne again took a hand in the affair. He was experiencing once more the difficulty, which he had often found in his early days in Canada, of securing unity of action from, and setting up harmonious relations with, remote boards of directors in London. He wrote to financial friends in that city, asking them to prevail upon these boards to abandon "their supreme belief in the efficacy and fitness of the rules and instructions laid down in London"; to give their Cuban officials full powers to deal with questions as they arose, or, failing this, to send out to Cuba the best and broadest minded man among them, not "one of the narrow minded, self sufficient damn fools so often sent out from London to various centers in such cases."

He fixed upon the ancient city of Camagüey, then called Puerto Principe, for the headquarters of the railway, and decided to mark the turning of the first sod at that point with a public celebration. The influence of the officials of a small railway running from the city to the northern coast was exerted, however, to prevent the public from attending the ceremony. The attendance was wretchedly small, but, undaunted by his chilly reception and determined to win the favor of the people, Van Horne accepted the situation as though every circumstance was propitious. With courtly deference he handed the spade to Niña Adelina, the little daughter of Mayor Barreras, and she performed the ceremony. On his return to New York he bought her a gold watch, which bore a suitable inscription, and had an illuminated address prepared to commemorate "the interest she manifested in the company's undertaking" and for "so graciously inaugurating its work at Puerto Principe. When he next visited the city, bringing with him the watch and the address, the people had come to realize the

benefits they would derive from the new railway, and the presentation ceremony, which took place in a flower decked patio, was a genuine festival. Some months later the tide of good feeling had risen so high that he was formally adopted by the civic authority as a "son of Camagüey."

The grading of the road was completed in March, 1902, but a labor shortage, the non-arrival of bridge material, and damage by rains delayed completion of the line. Its estimated cost was largely exceeded, and construction was handicapped by financial pressure and the need for rigorous retrenchment. On Dec. 1, 1902, the Cuba Railroad was opened for traffic. Till then it had taken ten days to travel from one end of the island to the other; now the journey could be made in a luxurious sleeping car in 24 hours. Van Horne, who had gone to Cuba for the occasion, found himself not merely the adopted son of Camagüey, but of all the eastern provinces.

Meanwhile the government of the Republic of Cuba had been inaugurated in the preceding May and had taken over the administration of the affairs of the country. The Foraker Act had thereupon become inoperative. But by that time, while all others who wished to promote railway building in Cuba had been held back by the provisions of the act, Van Horne had substantially completed his line. The road had been built without subsidy or public aid of any kind, through a region where, despite an offer of government guaranties, the old regime had been unable to find men bold enough for the task. It was a monument to Van Horne's faith in the honor of the Cubans and in the future of their country. Furthermore, it was a monument to the Cubans' sense of honor and fair dealing. Remarkable, if not unique, in Spanish-American countries, it was built without buying any man or any one's influence. Farquhar, who had an intimate knowledge of the undertaking, said:—

"The Cuban Railway was the purest big enterprise I've ever heard about in North or South America. There was not one dollar spent directly or indirectly in influencing legislation or the people. Sir William relied upon the fact that he was supplying a desirable public utility. He merged the company's interests with the community's, and went ahead, buying no man. There was one time I wondered if we could stick to Sir William's rule in this respect. However, we got through, holding to our principles. It was a fine and most rare side of a business of this sort, as creditable to the Cuban people as it was to Sir William."

The foregoing, reproduced from The Century Magazine, is from the biography of Sir William Van Horne, by Walter Vaughan, since published in book form.

Birthdays of Transportation Men in January.

Many happy returns of the day to:—

J. Abrams, Wharf Freight Agent, C. P.R., Vancouver, B.C., born at Manchester, Eng., Jan. 24, 1870.

W. U. Appleton, General Superintendent of Rolling Stock, Eastern Lines, Canadian National Rys., Moncton, N.B., born there, Jan. 29, 1878.

R. Armstrong, Superintendent, Brandon Division, Manitoba District, C.P.R., Brandon, born at Kingston, Ont., Jan. 27, 1865.

L. E. Ayer, General Agent, Canadian National-Grand Trunk Rys., Kansas City, Mo., born at Henderson, Ia., Jan. 11, 1877.

F. X. Belanger, ex-General Freight and Passenger Agent, Temiscouata Ry., Riviere du Loup, Que., now Traffic Manager, Fraser Companies, Ltd., Edmundston, N.B., born at Chlorydormes, Que., Jan. 20, 1876.

Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., born at Hamilton, Ont., Jan. 20, 1866.

J. E. Dalrymple, Vice President, G.T.R., G.T.P.R., and Central Vermont Ry., Montreal, born there Jan. 1, 1869.

A. Davidson, Division Freight Agent, Canadian National Rys., Vancouver, B.C., born at St. Henri, Montreal, Jan. 29, 1885.

G. J. Desbarats, C.M.G., Deputy Minister of Naval Service, Ottawa, Ont., born at Quebec, Que., Jan. 27, 1861.

J. E. Everell, Superintendent, Montmorency Division, Quebec Ry., Light & Power Co., Quebec, Que., born at Cap Rouge, Que., Jan. 1, 1863.

Gordon Grant, Chief Engineer, Chief Engineer, Dominion Highways Commission, and Consulting Engineer, Railways and Canals Department, Ottawa, born at Dufftown, Scotland, Jan. 2, 1865.

G. F. Hichborn, General Traffic Manager, United States Rubber Co., formerly Agent, Great Eastern Fast Freight Line, New York, born at Boston, Mass., Jan. 13, 1875.

C. Hood, Grain Agent, C.P.R., Winnipeg, born at Edinburgh, Scotland, Jan. 20, 1864.

D. W. Houston, Superintendent, Regina Municipal Ry., Regina, Sask., born at Bathurst, N.B., Jan. 3, 1879.

H. J. Humphrey, Superintendent, Trenton Division, Ontario District, C.P.R., Toronto, born at Berrys Mills, N.B., Jan. 26, 1879.

P. A. Keeler, Treasurer, Dominion Express Co., Toronto, born near Prescott, Ont., Jan. 18, 1867.

H. G. Kelly, President, G.T.R. and G.T.P.R., Montreal, born at Philadelphia, Pa., Jan. 12, 1858.

W. J. Lynch, General Manager, Quebec Ry., Light, Heat and Power Co., Quebec, Que., born there, Jan. 17, 1882.

G. E. McCoy, Master Car Builder, Eastern Lines, Canadian National Rys., Moncton, N.B., born there, Jan. 8, 1886.

C. R. Mackenzie, Assistant to General Manager, Canadian National Rys., Montreal, born at Toronto, Jan. 10, 1883.

John Macrae, Locomotive Foreman, C. P.R., Swift Current, Sask., born at Springburn, Glasgow, Scotland, Jan. 30, 1879.

P. A. Macdonald, Manitoba Public Utilities Commissioner, Winnipeg, born at Gananoque, Ont., Jan. 6, 1857.

G. C. Martin, General Traffic Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Creemore, Ont., Jan. 2, 1866.

George Pepall, Assistant Foreign Freight Agent, Canadian National-Grand Trunk Rys., Toronto, born at High Wycombe, Bucks, Eng., Jan. 15, 1849.

William Phillips, European Manager, Canadian National Rys., Canadian Government Merchant Marine Ltd., and Grand Trunk Pacific Ry., London, Eng., born at Toronto, Jan. 31, 1870.

W. Pratt, Manager, Dining and Parlor Cars, Hotels and News Department, Canadian National Rys., Toronto, born at Sibbertoft, Northamptonshire, Eng., Jan. 18, 1870.

John Pullen, President, Canadian Express Co., Montreal, born at Shepton Mallet, Eng., Jan. 23, 1863.

Ralph M. Reade, Superintendent, City Division and Quebec County Railways, Quebec Railway, Light & Power Co., Quebec, born at Llanelly, Wales, Jan. 1, 1868.

L. J. Rouleau, Commercial Agent, Canadian National-Grand Trunk Rys., Sherbrooke, Que., born at Montreal, Jan. 6, 1879.

W. A. B. Russell, Division Freight Agent, Canadian National-Grand Trunk Pacific Rys., Calgary, Alta., born at Rednersville, Ont., Jan. 1, 1886.

J. R. Scott, Assistant General Freight Agent, British Columbia Lines, Canadian National-Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., born at Lochmaben, Scotland, Jan. 3, 1882.

A. F. Stewart, Chief Engineer, Eastern Lines, Canadian National Rys., Moncton, N.B., born at West Bay, N.S., Jan., 1864.

J. G. Sullivan, ex-Chief Engineer, Western Lines, now Consulting Engineer, C.P.R., Winnipeg, born at Bushnells Basin, N.Y., Jan. 11, 1863.

Ross Thompson, ex-Chief Engineer, and Managing Director, St. John & Quebec Ry., Fredericton, N.B., now of Montreal, born at Newry, Ireland, Jan. 1, 1865.

T. H. White, Chief Engineer, Canadian Northern Pacific Ry., Vancouver, B.C., born at St. Thomas, Ont., Jan. 27, 1848.

A. Wilcox, General Superintendent, Central District, Canadian National Rys., Winnipeg, born at Kincardine, Ont., Jan. 2, 1865.

Locating a Railway by Aeroplane.

According to a recent news letter of the Air Service, United States Army, locating a railway by aeroplane has been carried out by the 3rd Aero Squadron, Camp Stotsenburg, Philippine Islands, way engineer to determine which one of and one long flight has enabled a railthree general routes will be used for the new road. It is stated that many months and thousands of dollars have been saved in the work. Instead of three parties of locating engineers being sent out to make the survey, only one will now be necessary. The new line is projected by the Manila Railroad Co. as an extension of its line from Cabanatuan, through parts of the provinces of Nueve Ecija and Nueva Vizcaya to Bayombong. The first trip was made with the Chief Engineer of the railway, passing over Mount Arayet and then following the Pampanga River until the railroad line was picked up at Gapan. The river was followed from Cabanatuan on to Pantabangan and over Mt. Pangloriahan, thence to Bayombong.

New Brunswick Timber Exports. — It is reported that a British syndicate has purchased from the Imperial Government the immense quantities of lumber bought for Government purposes during the war and which have been accumulating all over the province, and that shipment will commence with the opening of the winter season and proceed steadily.

The Roumanian State Railways are, according to a press dispatch, to be leased to a British syndicate, for 25 years.

A Railway Blacksmith Shop Tools.

Railway management has frequently gone on the principle that if you shave the machine shop appropriations, the men will fudge up some sort of machine to do the work. And they generally do. But almost every other kind of industrial management has learned that this is far from economical.

It has, however, developed the railway mechanic into a sort of genius for taking a couple of angle irons or channels, a few pieces of scrap steel, and an old air cylinder, and building almost any sort of machine for bending, forging, riveting or what not. This is especially true of the blacksmith shop, and a few of the many ingenious kinks and devices developed by and under Otto Schultze, Blacksmith Foreman, Chicago, Milwaukee & St. Paul shops, Tacoma, Wash., are shown herewith.

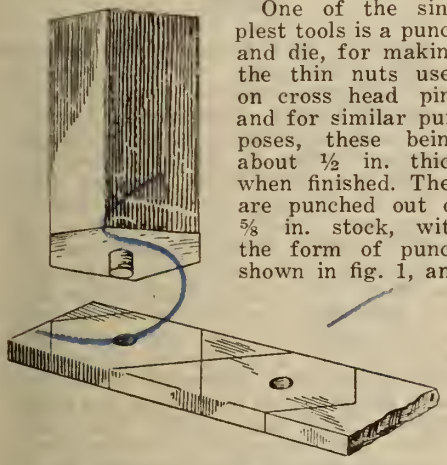


Fig. 1. Punch for Thin Hexagon Nuts.

One of the simplest tools is a punch and die, for making the thin nuts used on cross head pins and for similar purposes, these being about ½ in. thick when finished. They are punched out of ⅝ in. stock, with the form of punch shown in fig. 1, and a corresponding die. The center hole is first punched in a preliminary operation. Then the pilot on the punch ensures the nut being properly positioned on the strip of steel to get out the blanks with but little loss of metal. as can be seen.

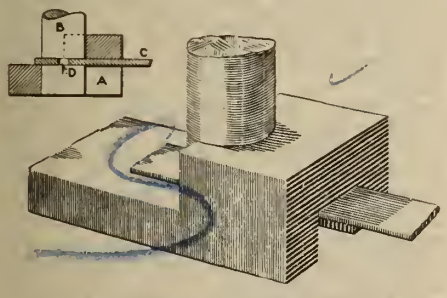


Fig. 2. Trimming end of Brake Lever.

A somewhat different type of punch and die, and one which has possibilities in other directions, is shown in fig. 2. This is for rounding the ends of brake levers, but can be used for any similar work. The body of the die A, has a round hole to accommodate the punch B. It is raised at the back to support the punch against the side thrust of the cut as it forces its way through the heavy metal. The die is open at the back, to allow the brake lever to be inserted, and also open beneath the lever, so that it can be forced down by the punch as it clips off the end to the proper size and shape. The lever is first punched with the hole for the clevis pin and this hole becomes a guide which ensures the brake lever being trimmed to the correct length.

Fig. 3 shows a die for trimming split keys for various purposes. The two pieces are cut separately and riveted together afterward. The only feature about the die is the guide A, which takes the thrust away from the cut. This is a feature in all of the dies designed by Mr. Schultze.

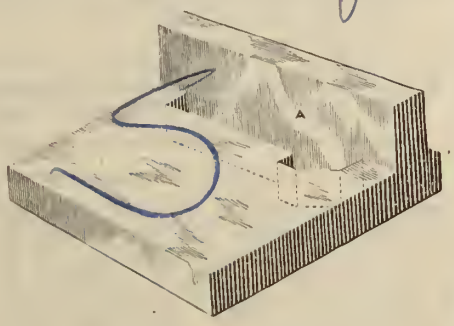


Fig. 3. Punching Split Keys.

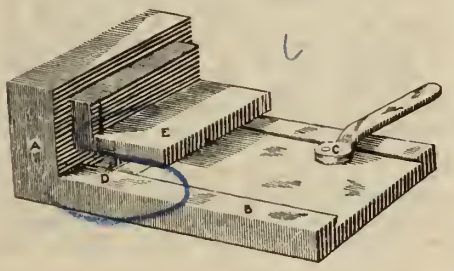


Fig. 4. Supporting a Heavy Shearing Cut.

This thrust block or slide is again noticeable at A in the trimming die shown in fig. 4. This is for squaring the ends of plates 12 in. wide and ⅛ in. thick. The plate is locked firmly against the raised edge B by means of the cam C and then the heavy press forces the knife D down across the end of the plate. The knife is inserted in the bolster E and can be readily renewed when necessary.

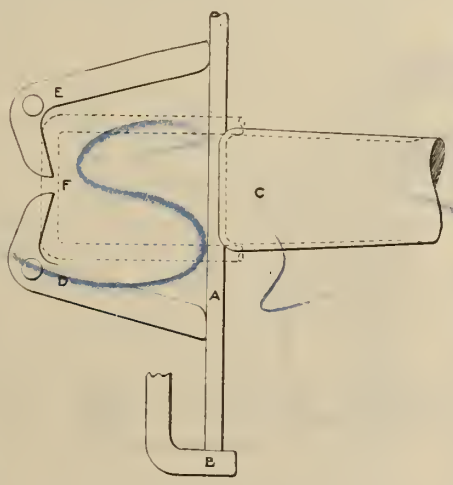


Fig. 5. Die for bending U Bolts.

The thrust guide ensures the knife making a square instead of a slanting cut.

Fig. 5 is an outline of a die for forming U bolts in a bull dozer. The stock A is heated and put in position, with one end against the stop B, which is adjustable. Then the ram C forces the stock between the jaws D and E, making an easy bend, until the center strikes the short ends of the formers at F. The continued movement of the ram swings the arms in and forms the work into a straight sided U bolt with corners just a trifle rounded. The swinging arms bend the rod much more easily and with less power, than where the stock is forced down between the straight sides of a die.

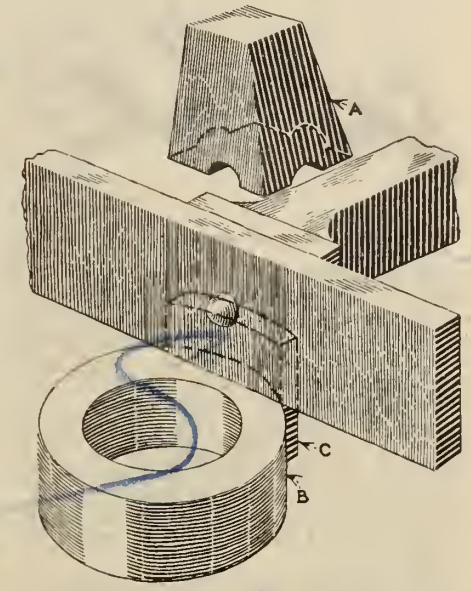


Fig. 6. Cutting off Rivet Heads.

Fig. 6 shows a simple but effective device for cutting off rivet heads in brake beams and similar pieces. The punch A has four cutting sides and is held in the ram of the press. The ring B, with a thrust piece C fastened to the outside, holds the beam while the decapitation is in process. It is a very simple device, easily adjustable for a large variety of work, and capable of continuous use over long periods, as by simply turning the punch a new cutting edge is provided.

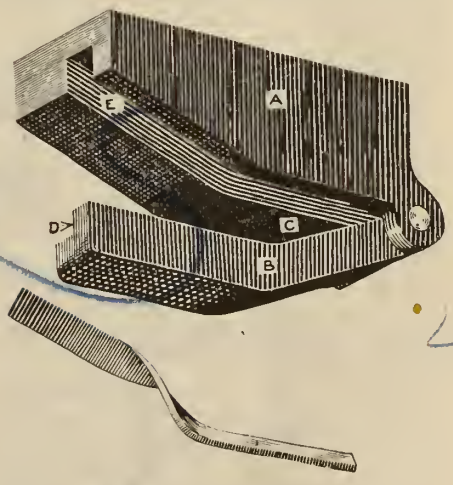


Fig. 7. Quarter-twisting a Bar.

A fixture for putting a quarter twist in the end of a flat bar is shown in Fig. 7. It consists of two pieces, the body A and the swinging arm B. The flat part of the bar is clamped at C, while the lip D folds the end into the opening at E. Such a fixture is capable of many modifications for various kinds of work.

One of the air machines mentioned is shown in outline in fig. 8. This is a spe-

cial bending press for fairly heavy car truck and similar work. A large air cylinder is mounted between heavy channels, and a suitable bed plate used to carry the bending fixture which becomes the anvil for the press. The particular work shown is to make a right angled bend near the end of a heavy flat bar, the bend to be at a given distance from a bolt hole which has already been punched. After the bar has been heated, the hole is placed over the guide pin A, which leaves the end of the bar projecting beyond the corner of the anvil block B. Then the air is turned into the cylinder and the ram R forces the end around the square corner. The whole triangular frame is then swung on the large and substantial center C, which bears in the bedplate across the two channels. By moving this carefully and gradually, a heavy bar can be bent as desired. The corner of the anvil block B must be in the center of the center or bearing block. The triangular frame D can be made any desired shape according to the work to be done.

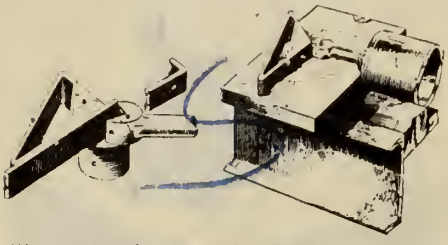


Fig. 8. Bending Press for Car Truck Work.

The machines built by Mr. Schultze, shown in figs. 9 and 10, are used in reclaiming and repairing drawheads for modern couplers. The merits of this design were recognized by the U.S. Railroad Administration and used at other points. The first, fig. 9, is for shearing the heads off the two rivets in the drawhead, and as these are 1¼ in. in diameter, considerable pressure is required The bed is made of two I beams, 20 in. deep and with 7 in. flanges. The main uprights are steel bars, 2⅝ in. in diameter. The cylinder is 18 in. in diameter and the lever arms are respectively 43 and 3 in., giving a leverage of over 14 to 1, for the ram C. The ram D works on a 16 in. arm, making a considerably reduced leverage. This ram, however, is only for straightening plates and bars. The air cylinder is tied into place with two 2¼ in. bars, with a heavy recoil spring at the top. The whole press is also mounted on four coil springs on a timber base, to allow it to move with comparative freedom when the reaction from the breaking of the rivet occurs. In breaking rivets, a block A is placed on the bed of the press, and a drawhead put in position as at B, handled of course by an air hoist. The draw-head strap rests on the raised portions of the block, leaving space beneath for the drawhead casting when the rivets let go. Both rams C and D are guided in the double plate projection E, and are adjusted by screwing up or down on the threaded bar which supports and drives them. The threads are coarse square in form, 32 to 12 in. or 2 2/3 per in. The fit is loose enough to be easily adjusted by hand, the ram being run down to contact with the work. Air at 100 lb. pressure is used and a heavy effective pressure built up in this way. But as there are two 1¼ in. steel rivets in double shear, considerable pressure is necessary.

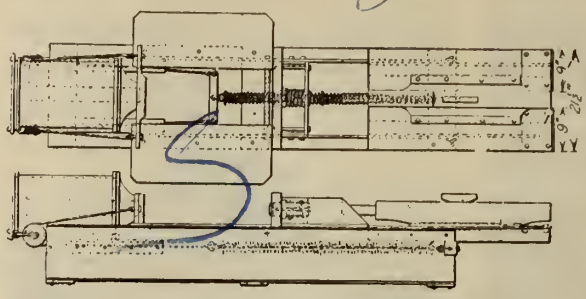


Fig. 10. A combined Holder-on and Riveting Machine.

Adjoining this machine, and part of the same reclaiming plant, is the riveting machine shown in fig. 10, and used for putting new rivets into place and making the drawhead serviceable once more. The bed is of 12 in. channels, 7 ft. long and carries an air cylinder for the "holder-on" and a rock drill to do the riveting. The illustration shows the combination and leaves little to be said as to its operation. The ram or the holder-on is returned to position by the long spring in the bed, through the medium of the steel cable shown.—By Fred. H. Colvin, in American Machinist.

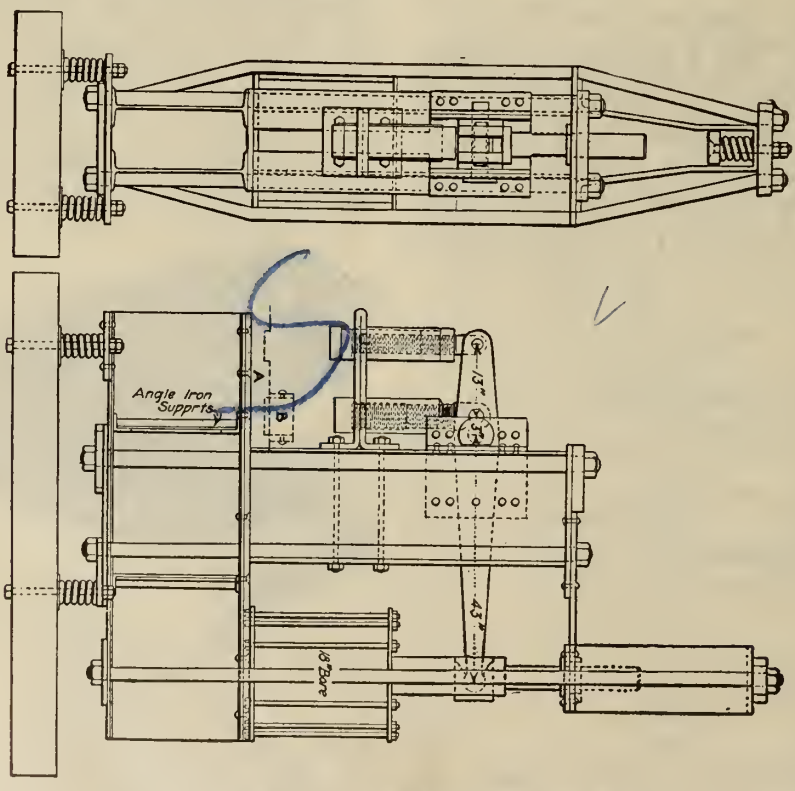


Fig. 9. Machine for shearing rivets in Draw-heads.

Two Sources of Brittleness in Steel Rails.

According to a review of the present status of knowledge of brittleness in steel rails, presented as a report to the American Railway Engineering Association's rail committee by M. H. Wickhorst, engineer of tests to the committee, brittleness is of three kinds, showing itself in fracture starting (1) from an area of segregated carbon and phosphorus, (2) from a minute internal crack, and (3) from a seam (narrow groove) in the bottom face of the base. Both of the first two causes are responsible for failures which originate in the head or develop when the rail is so bent as to put the head in tension. Fractures developing when the base is in tension are due to the first and third causes only. While brittleness due to segregated areas exist simultaneously in head and base of the rail, the segregation generally extends farther into the head than into the base, and therefore is more readily detected by bending with head in tension than with base in tension. Mr. Wickhorst consequently recommends that in acceptance bend tests to determine ductility the head should be put in tension. Bend tests show the same ductility whether the drop testing machine or a hydraulic bender be used, but in the former case the impact is likely to break off the flange in case there are seams in the base, which would defeat the object of showing the actual ductility of the metal. The hydraulic bender, which always gives normal tension breaks, is therefore recommended as preferable to the drop testing machine. Segregation of carbon and phosphorus causes not only longitudinal but also transverse brittleness, the latter producing split heads when the top part of the head flows under the rolling action of wheels. The same effect may be due to large amounts of non metallic inclusions, commonly manganese sulphide.

The Canadian National Railways Association held its second annual at home at the Masonic Temple, Toronto, Nov. 30. More than 400 officials and employes located in Toronto, and their friends, attended, Mrs. H. G. Foreman, wife of the Treasurer, Canadian Northern Ry. System and Grand Trunk Pacific Ry., acting as hostess.

R. F. Richardson, General Agent, Alaska and Yukon Territory, Canadian Pacific Ry., Juneau, Alaska, writes: "I certainly appreciate Canadian Railway and Marine World."

Succeeding in Railway Mechanical Engineering.

Railway mechanical engineering is a special branch of mechanical engineering necessitating a college training of from four to six years. It is a profession that has a larger following in America than in any other place in the world, due to the extent of American railway systems. This means also that there is a greater future for the railway mechanical engineer in America than elsewhere. America's wealth has been made possible by her railways; her future depends largely upon them. The young man entering this field can feel that he is associating himself with a stable profession that will give him any future his ability and capacity justify. It is a field in which big deeds are possible and one in which big deeds are recognized.

The author is enabled to outline the field of railway mechanical engineering through the kind and unselfish assistance of a man, who is well known in the field, but too modest to be quoted. This man has been in a position to survey this field for a number of years, and what he has had to say regarding it can be taken as good, sound advice. If more young men would heed the advice of successful men in the field they contemplate entering, there would be more successes in life than there are at present.

It has been stated previously that the wealth of America has been largely developed through the agency of the railways. The prosperity of the country then depends to a very great extent upon the efficiency and economy with which its transportation systems are managed. This, in turn, depends largely upon the railway mechanical engineers who, in a way, stand guard over the largest and most perfect transportation systems in the world. The railway mechanical engineer renders service of the most valuable nature, in improving the design of cars, locomotives, etc., in the general interests of operating efficiency and economy. It is through the honest efforts of these men in the past that we have the most powerful, fastest and most efficient locomotives in the world. Few stories of industrial development and progress have more romance, more daring and more interest in them than that of the railways of America.

What must the training of a successful railway mechanical engineer be? The length of time that an engineer must spend in training varies. In the ordinary case four years of intensive college training will suffice. The length of time that a man should take for education along this line depends to a great extent upon the size of the road with which he expects to follow his profession. If it is a small independent road, probably the four years training will equip him to master easily all the problems it may present. On the other hand, if he contemplates a more successful career and wishes to become connected with one of the larger railways of the country, more time must be spent in preparatory work. In fact, some of our better engineers have spent years in training, supplementing their college courses with several years spent in the shop and designing room. A few have made short cuts and attained their title within a few years; but a man cannot really call himself a thoroughly trained railway mechanical engineer until he has spent some time gaining practical experience in the railway mechanical department. It is here that he gets his first really thorough understanding of the construction and maintenance of the equipment. Although a few of our large colleges are fairly well equipped for the teaching of this profession, none of them is able to construct locomotives, box cars or other rolling stock; experience along this line must be gained with large locomotive manufacturers. It is also possible to gain this experience in some of the good repair shops of the railways where equipment is being continually overhauled and repaired.

The gentleman interviewed informed the writer that there have been many successful railway mechanical engineers who were self-trained. These men have proved beyond all possible doubt that there is a future for the man who cannot go to college and yet who has a desire to succeed in this particular field. The men in question possessed marked mechanical ability and this was probably their greatest asset. This, combined with the opportunity of associating with engineers and a continuance of home study, secured for these men practically as much technical knowledge as the average college graduate possesses.

The need for mathematics in this profession is about the same as in general mechanical engineering. The problems met are of the same general nature. Of course the study of higher mathematics is necessary, as there is no room for the rule-of-thumb man in this field. Too much depends upon a locomotive to have the design of its parts decided upon without calculation of the most accurate nature. If the connecting rod or crank pin of a locomotive travelling at high speed breaks, a catastrophe generally follows in which many lives may be lost; and every railway mechanical engineer must feel the responsibility that rests with him. The writer mentions mathematics only for the benefit of the man who has decided upon training himself as he usually looks upon this as the most difficult thing he has to accomplish.

One of the most necessary qualifications for a young man entering this special field of engineering is natural engineering ability and initiative. It is not exactly a vocation for the admirer of "white shirt professions." A man entering this field has to be a worker, one who is not afraid to dirty his hands and get "mussed up" out in the shop, as this is all part of the training. A locomotive is not a clean thing to play around, and during the shop experience of the engineer a certain amount of this work is essential. Second in importance to natural engineering ability, a young man must have a fair supply of determination. Of course determination is necessary for success in any field but not of this particular brand. A man must have determination in this field in order to get "those high up" to adopt his recommendations. This requires faith and no little perseverance.

The salary of a railway mechanical engineer is a difficult thing to state definitely. It depends upon the size of the railways. Of course the larger roads have more money, require greater talent and are willing to pay for it. About the best salaries that are being paid at this time are in the neighborhood of $6,000 a year. They range anywhere from $2,000 to this figure. Of course, the writer does not mean to infer that $6,000 is the absolute limit for a man of exceptional ability. The American Association of Engineers recently made some very definite recommendations regarding the salaries which mechanical engineers of this type should be paid.

A word about the future of railway mechanical engineering. Of course this depends entirely upon the development and progress of our transportation systems and one who realizes how this has gone forward in the past need have no concern about its future. The railways of this country simply have to keep growing. There is a very good future for this profession, as the increasing costs will make it necessary to incorporate greater refinement in locomotive and car design. This will create a demand for men who are capable of a higher quality of engineering work than was thought necessary in the past. In other words, during the past the railways were not so much concerned with minute details of efficiency as they will be in the future. This makes the field more promising for the man with extraordinary ability and unusual training. It will call for the best there is in men with higher engineering talent.

Very few, if any, railway mechanical engineers go into business for themselves, even in a consulting practice. In fact they would not have many people to consult them, as the big railways have engineers of their own and do not find it necessary to go outside of their own organization for advice. Most engineers consider that their first connection with a railway is only a stepping stone to something higher up. There are many positions on a railway for which an engineer may qualify. There is the position of mechanical superintendent, superintendent of motive power and other good and remunerative positions in the operating department.

With the great importance and extent of our railway systems, the reader will probably be surprised to learn that only two or three colleges offer really worth while special courses in railway mechanical engineering. In general these courses are about as satisfactory as most of the other engineering courses. This is not saying that they are perfect by any means, and probably the next few years will see a marked improvement in the training offered along this line.

What course should the young man follow who desires to become a mechanical engineer and who cannot enter college? In general it can be said that there is a fair chance for any young man to become a self trained railway mechanical engineer. There is probably more chance in this field than in most technical professions.

First, a position should be obtained in a railway repair shop or in the shops of one of the large locomotive manufacturers. This work will bring a man into daily contact with locomotives of all types and he can see them being taken apart, repaired and assembled. If he uses his eyes, his head and a note book, the most valuable part of his education can be obtained in this manner. Aside from this, a study of general mechanical engineering should be followed. This can be followed as a night course in a local school, or as a correspondence course. There is still hope for a man unable to take up either one of these courses. Intensive study of the subject will eventually bring success, although it will require a greater length of time.—Raymond Francis Yates, in Scientific American.

Canadian Railway and Marine World brought to the attention of the authorities of McGill University, Montreal; Queen's University, Kingston, Ont.; and Toronto University, the statement that "only two or three colleges offer really worth while special courses in railway mechanical engineering," and asked for comment thereon. The following has been received in reply:—

From Frank D. Adams, Ph.D., D.Ss., F.A.S., Dean of Applied Science Faculty, McGill University: "In the Faculty of Applied Science at McGill University we have six separate courses, covering different branches of engineering; one of these is a course in mechanical engineering. All of these courses are identical for the first two years, during which time the subjects fundamental to the education of every engineer are taught, such as the various branches of mathematics, physics, mechanical and freehand drawing, shopwork, etc. In the third and fourth years, the men are trained in the special branch of engineering which they elect to follow. For these courses in engineering, there are provided, not only adequate classrooms, but a complete set of laboratories and workshops. Nearly all of our men also, during their vacations, engage in the practical work of their profession, in connection with various engineering enterprises, field parties, or industrial plants. Our course was founded on the best expert advice which we could secure, which was to the effect that it is not advisable to attempt to train men in special types of mechanical engineering work, but to give every man a thorough grounding in the theory and practice of mechanical engineering, thus giving him a good general knowledge for his profession so that when he graduates he may take up the more or less specialized work which he may be called upon to do, and which he will easily pick up in the plant with which he becomes connected. This method of education we find works satisfactorily and our men, after graduation, find no difficulty in securing suitable work at once. Many of them are engaged on the great Canadian railways, and that more of them do not find employment in railway mechanical engineering is due chiefly to the fact that salaries paid by railways are not as high as those the men can secure in many industrial enterprises and in other lines of mechanical engineering."

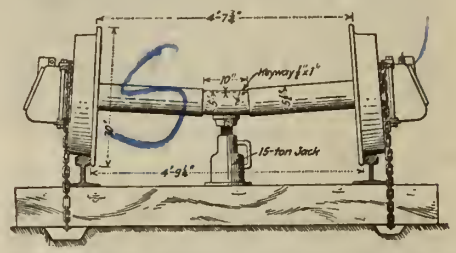
From L. M. Arkley, M.Sc., Professor of Mechanical Engineering, Applied Science Faculty, Queen's University, Kingston, Ont.:—"We have no course in mechanical engineering at Queen's which applies directly to railway engineering. Of course a great deal of the work a man gets in mechanical engineering, such as thermodynamics, boiler design, machine design and work on power plant construction, and efficiency of operation, have a direct bearing on the question of railway engineering. While, no doubt, there would be certain advantages in having a course especially for men wishing to follow up railway mechanical engineering, the same thing could be said of many particular branches of engineering. It is perhaps better, therefore, to give the student a broad general training along mechanical engineering lines, so that when he graduates, he can, without a great deal of effort, fit into the branch of engineering in which he is interested and in which an opening offers when he is ready to fill it."

From the Faculty of Applied Science and Engineering, Toronto University:—"We have a general course in mechanical engineering, covering four years, leading to the degree of B.A.Sc., but we do not specialize in railway mechanical engineering.

Straightening Bent Axle of Railway Steam Shovel.

A bent axle of a Marion railway steam shovel was straightened by a railway yard crew in the field without removing the axle from the truck. Less labor was expended on the job than probably would have been necessary in putting in a new part and the cost was under $50.

The truck was run out from under the shovel, and the axle spotted over a tie with the bend of the axle down. Holes were excavated under the tie beneath the journal boxes and the axle securely lashed to the tie with a 1 in. car chain passed over the journal boxes close to the wheel.



Method used in taking out bend in railway steam shovel axle.

The axle was 5½ in. in diameter except for a 10 in. length in the center, which was turned down to 5 in. with a ½ x 1 in. keyway cut into it. All the bend was in this portion and was sufficient to make a 1½ in. difference in the gauge of the wheel, as shown by the accompanying illustration, which also shows a general arrangement of the work, together with various dimensions.

The bent portion was heated to an almost white heat, with a crude oil burner, a boxing of sheet iron and wood having been built around the bent portion to confine the heat. A 15 ton jack was then placed under the axle, by means of which the bend was straightened. It was a compound bend, two applications of the jack being necessary, but only one heating being required.

Battered Ends of Rails.

W. P. Burn, Roadmaster, Northern Pacific Ry., Glendive, Mont., in replying to the question "What is the cause of rails becoming battered to such extent that it becomes necessary to remove them and saw off the ends?" says:—I do not think that it is economical to saw off the ends of battered rails. I believe that rails which become battered are of a very soft and not a good quality of metal and if they are sawed off, they become battered again, no matter what track conditions are.

I have had some 25 years experience on maintenance of way work. At one time, this division of over 400 miles had 56 lb. steel, laid in the early eighties, which was taken up in the early nineties and found to be in good condition, except flange worn on the curves. There were no battered joints or flowing of metal on the lower sides of curves. We then replaced some 200 miles of this with 66 lb. rail, which gave very poor service, and had to be changed on account of battered joints, and the flowing of metal on the low sides of curves after 5 or 6 years use. This in turn was relaid with 85 lb. rail, which seemed to be the same class of metal as the 66 lb.; it battered badly at the joints and the low sides of curves flowed out to such an extent that it had to be changed out in 5 or 6 years. On a portion of the division, for about 200 miles, we took out the 50 lb. rail and relaid 72 lb. rail. When the 56 lb. rail was taken out, it was in good condition, except flange worn on curves and some rails were surface bent on account of the soft spots in the track. There was not a rail with battered ends and it did not flow on the low side of curves. The 72 lb. rail that was laid on this portion of the track gave good service for 10 or 11 years, and when taken out was in first class condition, except flange worn on the high side of curves. There were no battered joints, and the rail did not flow on the low side of curves. When the 72 lb. rail was taken up, we relaid it with 90 lb. rail. This 90 lb. rail was relaid in 1910, and it does not seem to be wearing very well, flowing badly on the curves, and battered joints showing up pretty frequently. A good many of the curves had to be changed out after the rail was in five years, on account of flowing metal and battered joints. I figure that battered joints are caused by inferior quality of metal and poorly rolled.

I do not think that the rigidity of the superstructure at the joint has anything to do with the battering of the rails at the ends. My opinion is that the superstruction is not rigid enough. Rolling stock, motive power and volume of traffic has increased very materially in the last 25 years, but our heavy rail should take care of this, and my opinion is that it would if it was made of the right kind of metal, and properly made as was the lighter rail. It must be remembered too that our roadbed has been improved wonderfully during the past 25 years by the widening of banks, cuts which have been ditched out, and by ballasting several times, so that our rail should last longer now than it did formerly under poorer roadbed and track conditions.

Raising a Train Shed.

The Delaware, Lackawanna & Western Rd. has nearly completed raising to its original level its Hoboken, N.J., station train shed, the supporting columns of which had sunk irregularly from 5 to as much as 14 or 17 in. in places. This shed is the first ever built of the Bush type, with slots for the locomotive smoke stacks. It is 360 ft. wide and 630 ft. long, covers 14 tracks and an area of about 5 acres and weighs 18,000,000 lb. It is supported on 207 cast steel columns each set on a concrete foundation resting on 80 ft. wooden piles which had settled. The shed was raised in 4 sections, by means of packs at each column in the station to bring the roof to its proper level. The concrete platforms have also been built up and the tracks raised to their original level. The old scheme of wire glass roofing, with large sections of glass, which used to break from the vibration, has been replaced by a concrete and vault light roofing. The whole project has been carried out without delay to a traffic of 225 trains daily or without inconvenience to the 1,500,000 passengers who use the station monthly.

The Ontario Railway and Municipal Board's offices have been removed, from the Legislative Buildings, to 47 Queen's Park, Toronto.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 319. Nov. 30.—Declaring that proper charge for milling-in-transit within Canada of grain, the product of which is re-shipped to U.S., was 1c. per 100 lb. on and after Aug. 26, 1920. This order is given in full on another page, under "Traffic Orders by Board of Railway Commissioners."

General order 320. Dec. 9.—Ordering that pasteurized cream be carried by express companies at same rates as ordinary cream. This order and the judgment on which it was based, are given in full on another page, under "Traffic Orders by Board of Railway Commissioners."

General order 321. Dec. 2.—Ordering that all route maps and location plans approved by the Board be signed by the Chief Commissioner.

General order 322. Dec. 10.—Ordering all railway companies to withdraw Special Instruction E from their respective timetables and hereafter observe the Uniform Code of Rules for Canadian Railways approved by general order 42. The judgment on which this order was based is given in full on another page.

General order 323. Dec. 14.—Approving freight tariffs of a number of railways, to become effective Jan. 1, on reduced basis prescribed by the Board's judgment of Sept. 6, and general order 308, Sept. 9. This order is given in full on another page, under "Traffic Orders by Board of Railway Commissioners."

General order 324. Dec. 14.—Approving passenger tariffs of a number of railways, to become effective Jan. 1, on reduced basis prescribed by Board's judgment, Sept. 6, and general order 308. This order is given in full on another page, under "Traffic Orders by Board of Railway Commissioners."

30,321. Nov. 13.—Authorizing C.P.R. to build spur for Canadian Insulation Co., West Selkirk, Man.

30,322. Nov. 13.—Authorizing Canadian National Rys. to build viaduct for revised crossing over Riviere-du-Loup, Que., at mile 103 from Quebec.

30,323. Nov. 13.—Authorizing Canadian National Rys. to build spur for Mid-West Collieries, Ltd., Drumheller, Alta.

30,324. Nov. 13.—Extending to Dec. 31, time for completion by G.T.R. of spur for Crane Limited, Toronto.

30,325. Nov. 13.—Amending order 29,591, re Lake Erie & Northern Ry. crossing at Victoria St., Simcoe, Ont., by providing that electric bell be installed by Dec. 31, 1920.

30,326. Nov. 13.—Authorizing Canadian National Rys. to build viaduct for revised crossing over East Yamachiche River, at mile 96 from Quebec.

30,327. Nov. 15.—Authorizing C.P.R. to build spur for Dominion Sugar Co., in Lot 24, Con. 1, Chatham Tp., Ont.

30,328. Nov. 15.—Authorizing C.P.R. to build spur for Congoleum Co., Montreal.

30,329. Nov. 13.—Authorizing Canadian National Rys. to open for traffic portion of its McRorie Westerly Branch from Eaton to Alsask, mile 115 to 148.13, Sask.

30,330. Nov. 13.—Ordering Kettle Valley Ry. to build two-pen stock yard at Princeton, B.C.

30,331. Nov. 17.—Authorizing Canadian National Rys. to connect its spur at March, Que., approved by order 30,273, with National Transcontinental Ry. spur at mile 49.76.

30,332. Nov. 18.—Authorizing C.P.R. to build spur for Winnipeg Supply & Fuel Co., Winnipeg.

30,333. Nov. 17.—Relieving C.P.R. from providing further protection at crossing 2 miles west of Jellicoe, Ont.

30,334. Nov. 11.—Dismissing application of Hatton village, Sask., for order directing C.P.R. to build crossing opposite Cummings St.

30,335. Nov. 9.—Ordering Vancouver, Victoria & Eastern Ry. (G.N.R.) to erect station waiting room, etc., at Crescent, B.C., to appoint agent during June, July and August, and caretaker for remainder of each year.

30,336. Nov. 10.—Authorizing Columbia River Lumber Co. to cross C.P.R. with its logging railway at mile 52.89, Mountain Subdivision, B.C.

30,337. Nov. 15.—Authorizing G.T.R. to build bridge, 35 ft. wide with 5½ ft. sidewalk on each side, carrying St. Paul St., St. Catharines, Ont., over its tracks.

30,338. Nov. 17.—Dismissing application of W. T. Finch, Pambrun, Sask., for order directing C. P.R. to provide cattle pass on its Wymark-Archive Branch in n.e. ¼ Sec. 16, Tp. 13, Range 11, west 3rd meridian.

30,339. Nov. 8.—Dismissing complaint of Calgary Live Stock Exchange against charge made by railway companies for unloading and reloading live stock.

30,340. Nov. 19.—Amending order 18,064 to provide that crossing of C.P.R. Weyburn-Lethbridge and Soo Branches by the Grand Trunk Pacific Ry. Weyburn Branch in Sec. 20, Tp. 8, Range 14, west 2nd meridian, be protected by half interlocker, instead of full interlocker.

30,341. Nov. 18.—Dismissing application of Dominion Public Works Department for order authorizing highway crossing in lieu of existing farm crossing over Esquimalt & Nanaimo Ry., north of Ladysmith, B.C.

30,342. Nov. 18.—Authorizing Esquimalt Tp., B.C., to make highway crossing over Esquimalt & Nanaimo Ry. at Fairview Road.

30,343. Nov. 18.—Approving agreement between Bell Telephone Co. and Bond's Corners Telephone Co., Oxford County, Ont.

30,344. Nov. 13.—Authorizing G.T.R. to build spur for Hepworth Manufacturing Co. on Lot 1, Con. 9, Keppel Tp., Ont.

30,345. Nov. 15.—Extending to Mar. 31, 1921, time within which Canadian National Rys. may build spur for J. I. Case Threshing Machine Co., Winnipeg.

30,346. Nov. 15.—Ordering Canadian National Rys. to rebuild bridge over Halifax & South Western Ry., near Lunenburg, N.S.

30,347. Nov. 22.—Amending order 30,282, re C.P.R., and Three Rivers Traction Co., operating over St. Maurice St. crossing, Three Rivers, Que.

30,348. Nov. 19.—Ordering C.P.R. to install combined electric alarm bell and wigwag signal by Jan. 1, 1921, at crossing near east switch at Darlington, Ont.

30,349. Nov. 19.—Ordering Wabash Ry. and G.T.R. to arrange for Wabash Ry. trains 2 and 3 to stop at Cayuga, Ont., until further order.

30,350. Nov. 22.—Extending to May 31, 1921, time within which G.T.R. may build sidings for Canada Crushed Stone Corporation, Flamboro West Tp., Ont.

30,351. Nov. 22.—Authorizing C.P.R. to extend spur for Independent Coal Co., Ottawa.

30,352. Nov. 22.—Authorizing G.T.R. to use bridge carrying highway between Lots 150 and 151, Range St. Edward, and Lot 313, Range St. Patrick, St. Liboire Parish, Que.

30,353. Nov. 22.—Relieving G.T.R. from providing further protection at second crossing east of Drumbo station, Ont.

30,354. Nov. 23.—Authorizing City of Prince Rupert, B.C., to build bridge over Grand Trunk Pacific Ry. at Morse Creek.

30,355. Nov. 19.—Ordering Canadian National Rys. to build cattle pass at station 155+50, by May 15, 1921, for S. Manson, Turtleford, Sask.

30,356. Nov. 23.—Authorizing G.T.R. to build spur for Frank Ryan & Co., Toronto.

30,357. Nov. 12.—Approving revised location of portion of C.P.R. Langdon North Branch (Acme to Empress), mile 39.03 to 59.94.

30,358. Nov. 24.—Authorizing G.T.R. to build spur for Ontario Paper Co., Lot 47, Thorold Tp., Ont.

30,359. Extending to May 31, 1921, time within which C.P.R. may build spurs for Cowan Co., Toronto.

30,360. Nov. 22.—Ordering Grand Trunk Pacific Ry. by July 1, 1921, to fence north side of its right of way between mile 935 and 940, from connection with Canadian National Rys. fence east of Dandurand to Ernsted Siding west, Alta.

30,361. Nov. 24.—Authorizing C.P.R. to build spur for Calgary Industrial Exhibition Co., Victoria Park, Calgary, Alta.

30,362. Nov. 24.—Authorizing C.P.R. to build spur for St. Maurice Paper Co., Cap de la Madeleine, Que.

30,363. Nov. 24.—Authorizing Montreal & Southern Counties Ry. to build spur for Slate Milling Corporation of Canada, Granby, Que.

30,364. Nov. 24.—Authorizing Toronto, Hamilton & Buffalo Ry. to change alignment of its westbound main track at corner of John and Hunter Sts., Hamilton, Ont.

30,365. Nov. 24.—Ordering C.P.R. to erect standard A3 station building at Blucher, Sask.

30,366. Nov. 26.—Authorizing Canadian Northern Western Ry. to build spur for Alexo Mining Co. at mile 158.6 Brazeau Extension, Alta.

30,367. Nov. 26.—Authorizing Canadian National Rys. to open for traffic portion of spur line approved by order 30,273, between mile 47.9 and 49.76, St. Lawrence Subdivision, also spur to which the line has been connected.

30,368. Nov. 26.—Approving agreement between Bell Telephone Co. and Omemee Telephone Co., Victoria and Durham Counties, Ont., and rescinding order 25,448.

30,369. Nov. 24.—Approving plans showing patrol bridge by Hydro Electric Power Commission of Ontario over Toronto & Niagara Power Co. and Toronto, Niagara & Western Ry. right of way on Lot 187, Stamford Tp., Ont.

30,370. Approving new location of Canadian National Rys. station at Birch Hills, Sask.; work to be completed by June 1, 1921, and rescinding order 26,329.

30,371. Nov. 26.—Approving agreement between Bell Telephone Co. and South McNaughton Telephone Co., Renfrew County, Ont., and rescinding order 25,735.

30,372. Nov. 27.—Authorizing C.P.R. to build spur for Winnipeg Fish Co., Winnipeg.

30,373. Nov. 29.—Ordering Canadian National Rys. to build farm crossing for W. Byskal, Erickson, Man.

30,374. Nov. 29.—Authorizing C.P.R. to build spur for Beach Foundry Co., Ottawa, Ont.

30,375. Nov. 29.—Authorizing Niagara, St. Catharines & Toronto Ry. to build spur for Provincial Paper Mills Ltd., Thorold, Ont.

30,376. Nov. 29.—Approving British Columbia Electric Ry. Standard Freight Mileage Tariff, Supplement 1 to C.R.C. 132.

30,377. Nov. 29.—Extending to Dec. 31, 1920, time within which C.P.R. may build spur for Reliance Investment & Developing Co., Morden, Man.

30,378. Nov. 26.—Ordering G.T.R. to erect suitable crossing (hydro crossing) west of Niagara Falls, Ont., and authorizing G.T.R. to enter on T. Morrison's lands to remove trees to improve view, and rescinding orders 29,837 and 30,100.

30,379. Nov. 29.—Authorizing C.P.R. to build spur for Milverton Furniture Co., Milverton, Ont.

30,380, 30,381. Nov. 29.—Authorizing C.P.R. to build spurs for T. Kinnear & Co., Toronto, and Canada Ingot Iron Co., Guelph, Ont.

30,382, 30,383. Nov. 30.—Approving Chatham, Wallaceburg & Lake Erie Ry. Standard Passengar Tariff C.R.C. 42, and Standard Freight Mileage Tariff Supplement No. 1 to C.R.C. No. 576, effective Dec. 6, 1920.

30,384. Nov. 29.—Ordering Pere Marquette Rd. to seize and offer for sale cars of coal BLE 12088, C&O 52228 and C&O 54895, if same are not released within 48 hours from receipt of this order.

30,385. Nov. 29.—Approving location and details of G.T.R. station at Fraserville, Ont.

30,386. Nov. 30.—Ordering Canadian National Rys. to install by May 31, 1921, gates at crossing of Dufferin St., Trenton, Ont., and to protect crossing by day and night watchmen until completed.

30,387. Nov. 19.—Authorizing Canadian National Rys. to build branch from mile 23, Grenville Subdivision, to Ste. Monique, Que.

30,388. Nov. 19.—Authorizing Canadian Northern Quebec Ry. to build branch from mile 35.16 Lachute Subdivision to Ste. Monique, Que.

30,389. Nov. 30.—Authorizing C.P.R. to use bridge 1.17 over west branch of Winnipeg River, Keewatin District, Manitoba Division.

30,390. Dec. 1.—Authorizing Oshawa Ry. to take certain lands in Oshawa and East Whitby Tp., Ont.

30,391. Dec. 1.—Authorizing G.T.R. and Oshawa Ry. to build additional interchange track across Base Line Road between Oshawa and East Whitby Tp., Ont., to connect with jointly used tracks south of Base Line Road; authorizing Oshawa Ry. to build spur for Ontario Malleable Iron Co., Oshawa, Ont., rescinding order 29,972 re foregoing, and authorizing Oshawa Ry. to build additional track across First Ave., Oshawa.

30,392. Nov. 30.—Approving Windsor, Essex & Lake Shore Rapid Ry.'s Standard Mileage Freight Tariff C.R.C. 269, effective Dec. 6.

30,393. Dec. 1.—Extending to Feb. 1, 1921, time within which Canadian National Rys. may extend passing and elevator tracks at Craik, Sask.

30,394. Dec. 2.—Authorizing Canadian Northern Quebec Ry. to divert highway in Lot 11, Range 2, St. Boniface Parish, Que., at mile 88.7 from Quebec.

30,395. Dec. 2.—Extending to June 1, 1921, time within which Grand Trunk Pacific Ry. may complete station building at Bechard, Sask.

30,396. Dec. 3.—Authorizing Vancouver and Districts Joint Sewerage Board to connect its tracks with C.P.R. at Coquitlam, B.C.

30,397, 30,398. Nov. 30.—Authorizing Canadian Northern Quebec Ry. to divert highways in Lot 13, Range 2, St. Boniface Parish, and Lot 54, Range 3, Que., mile 89.0 from Quebec.

30,399. Nov. 19.—Authorizing Canadian Northern Quebec Ry. to build branch from mile 35.1 Lachute Subdivision to mile 1.6 Montfort Subdivision, Que.

30,400, 30,401. Nov. 30.—Authorizing Canadian Northern Quebec Ry. to cross and divert highways in Lots 55 and 54, Range 3, St. Boniface Parish, Que., mile 90.2 and 90.8, from Quebec.

30,402. Nov. 30.—Authorizing Royal Bank of Canada, Vancouver, B.C., to repay certain money to Vancouver Ice & Cold Storage Co., re C.P.R. spur.

30,403. Nov. 30.—Dismissing application of Dominion Canners, Ltd., for order requiring G. T.R. to refund demurrage which accrued during influenza epidemic.

30,404. Dec. 1.—Authorizing C.P.R. to build spur for J. A. Harrison Coal Co., at mile 2.52 Galt Subdivision, Toronto.

30,405. Dec. 1.—Extending to Dec. 18, time within which G.T.R. may erect station at Gould's Crossing, Ont.

30,406. Dec. 2.—Authorizing C.P.R. to divert road allowances on south and west boundaries of s.w. ¼ Sec. 11, Tp. 4, Range 25, west 1st meridian, at mile 103.63 Napinka Subdivision.

30,407. Nov. 29.—Authorizing C.P.R. to build spur for Ruggles Motor Truck Co., London, Ont.

30,408. Dec. 1.—Ordering Canadian National Rys. to stop trains 17 and 18 on flag at mile 40, Rossburn Branch, Man., and to handle c.l. and l.c.l. to and from said point, service to become effective Dec. 15.

30,409. Dec. 2.—Approving British Columbia

Electric Ry. Supplement 1 to Standard Tariff of Maximum Fares, C.R.C. 8.

30,410. Dec. 2.—Authorizing Canadian Northern Pacific Ry. to use bridge over South Thompson River, in Kamloops, B.C.

30,411. Dec. 6.—Authorizing E. Morris, Chairman, Central Freight Association, Chicago, Ill., as agent for various railways, also all other railways publishing reconsignment rules in international traffic, to file with Board upon one day notice supplements or tariffs containing revised reconsigning rules and charges within U.S., applicable on all freight in open cars, and coal and coke in all cars.

30,412. Dec. 2.—Ordering G.T.R. to install wigwag signal at Eadward St., Prescott, Ont.

30,413. Dec. 7.—Authorizing C.P.R. to prosecute William Scott, for alleged violation of Sec. 428 of Railway Act, by false billing of intoxicating liquor.

30,414. Nov. 30.—Relieving Canadian National Rys. from providing further protection at crossing of Bessie St., Emo, Ont.

30,415. Dec. 3.—Relieving C.P.R. from providing further protection at crossing of Calgary-Edmonton Tarif, near Blackfalds, Alta.

30,416. Dec. 9.—Ordering that British Columbia Electric Ry. should be liable for maintenance of siding extending from its right of way in Grey municipality, B.C., to Huntting-Merrit Lumber Co.'s siding.

30,417. Dec. 2.—Authorizing Grand Trunk Pacific Ry. to divert road in n.w. ¼ Sec. 22, Tp. 39, Range 2 1w.est 3rd meridian, mile 574, Tramping Lake rural municipality 380, Sask., and rescinding order 4,021, Nov. 15, 1907.

30,418. Dec. 2.—Declaring that for present, Canadian National Rys. crossing near mile 66, Chester Subdivision, N.S., is protected to Board's satisfaction.

30,419. Dec. 9.—Ordering Canadian National Rys., by May 1, 1921, to erect small passenger shelter at junction of Latimer Road and C.N.R. at Port Kells, B.C.

Pilots required on New York Central Locomotives.—The New York Central Rd. applied to the Board of Railway Commissioners recently, for permission to use a step equipment instead of a pilot, on the front of locomotives on its Ottawa Division, contending that the step equipment is allowed under Interstate Commerce Commission rules, and not objected to by the public utilities commissioners of any of the states through which the N.Y.C.R. operates. Assistant Chief Commissioner McLean, in giving judgment, stated that the Board was asked to allow a departure from its regulations, and to allow the substitution of a practice depending entirely on tolerance, and that having in view Canadian conditions, and the careful consideration given before the regulations were adopted, he considered the application should not be granted.

Transportation Men as Hotel Directors. The Mount Royal Hotel Co., which is going to build a large hotel in Montreal, has among its directors Brig. General Meighen; J. K. L. Ross and Hon. W. J. Shaughnessy, of the C.P.R. directorate; A. D. MacTier, Vice President, Eastern Lines, C.P.R.; H. G. Kelley, President, G.T.R.; W. W. Butler, President, Canadiana Car & Foundry Co.; Senator Lorne Webster, President, Webster Steamship Co., etc.; and J. T. Loree, General Manager, Delaware & Hudson Co.

The Canadian Welding Society was organized at a meeting at the Prest-O-Lite Co. of Canada's office in Toronto, Dec. 16, to embrace people connected with, or interested in, electric, gas and thermit welding. An executive committee, consisting of J. N. Robinson, chairman, A. A. Stewart, secretary, and F. Borys, was appointed to act until the election of permanent officers in January.

Railway Lands Patented.—Letters patent were issued during November, 1920, for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Alberta & Great Waterways Ry.	65.10
Canadian Northern Ry.	163.00
Edmonton, Dunvegan & British Columbia Ry.	6.17
Grand Trunk Pacific Branch Lines Co.	6.09
Total	240.36

Railway Finance, Meetings, Etc.

Canadian Northern Ry.—An issue of $25,000,000 of Canadian Northern Ry. 7% 20-year bonds is reported to have been placed in New York by W. A. Reid & Co., and associated brokers, and to have been oversubscribed. The bonds are dated Dec. 1, 1920, and mature Dec. 1, 1940. They are guaranteed unconditionally as to principal and interest by the Dominion Government.

Central Vermont Ry.—The Interstate Commerce Commission is reported to have authorized the Central Vermont Ry. to issue $1,359,016 of 5% refunding mortgage gold bonds to pay an indebtedness to the Grand Trunk Ry. Co.

Grand Trunk Ry.—A London, Eng., cable states that holders of G.T.R. guaranteed stock will receive a dividend in January, that some of the stock has been in existence for 36 years, and is only now on a dividend basis.

Grand Trunk Railway Construction, Betterments, Etc.

Portland, Me.—A press report states that the company is building with its own forces a wharf and wooden freight shed at Portland, Me., at an estimated cost of $109,000. The new structure is said to be 100 x 390 ft.

Toronto Belt Line Ry.—A press report states that the G.T.R. is desirous of repurchasing a portion of the old Belt Line Ry., from Gunns Road to Keele St., which was sold for taxes some years ago. The section mentioned is said to be also desired by the City of Toronto or the Hydro Electric Power Commission of Ontario in connection with radial railway plans.

Fraserville Station. — The Board of Railway Commissioners has approved location plan and details of a new station at Fraserville, Durham County, Ont.

London Subway. — G. A. Mountain, Chief Engineer, Board of Railway Commissioners, is said to have recommended the elevation of the tracks at Rectory St., 6 ft., and the construction of a subway there, the work to be fitted in with the general plan of grade separation. The estimated cost of the subway is $250,000, towards which the Dominion Government is expected to provide $15,000 from the grade separation fund. The matter was discussed by the city council's railway crossing's committee Dec. 13, when it was decided to ask the Board of Railway Commissioners to direct the subway to be built and to apportion the cost between the city, the G.T.R., and the London St. Ry.

London Division. — A press report states that estimates for betterments proposed to be undertaken during this year on London Division amount to about $250,000, and that this includes the building of several stations.

Goderich Locomotive House.—The locomotive house at Goderich, Ont., is reported to have been considerably damaged during the heavy gales of Dec. 14.

Pontiac Signal Plant.—A press report states that an order has been given the General Railway Signal Co. for a Model 2 unit-lever-type electric interlocking signal for Pontiac, Mich. (Dec., 1920, pg. 650.)

More than 500,000 barrels of apples had been shipped from Halifax, N.S., up to the beginning of Dec., 1920. During November, 125,000 barrels were shipped to the United Kingdom.

Canadian National Railways Earnings.

	1920.	1919.
March	7,761,326	7,160,086
April	8,207,478	6,936,635
May	8,305,860	7,884,287
June	7,776,538	6,433,035
July	9,003,674	7,896,685
August	9,582,989	8,415,864
September	9,685,682	8,853,007
October	12,351,167	9,541,628
November	12,446,824	8,950,283
	$98,885,159	$85,124,539

Approximate earnings for three weeks ended Dec. 21, $7,828,729, against $5,930,939 for same period 1919.

Canadian Northern Railway System.

	1920	1919
January	$4,200,700	$4,026,000
February	3,862,300	3,363,800
March	4,587,700	3,554,350
April	4,732,623	3,878,149
May	4,863,500	4,337,750
June	4,364,600	3,131,000
July	5,168,500	4,347,300
August	5,900,700	4,901,150
September	6,140,500	5,260,500
October	7,620,000	5,799,400
	$51,441,123	$42,599,399

Canadian Pacific Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net	Increases or decreases
Jan.	$13,914,569	$13,328,628	$ 585,941	*967,571
Feb.	13,557,104	12,843,231	713,873	*267,242
Mar.	15,715,937	13,758,171	1,957,766	418,721
Apr.	15,929,416	13,587,570	2,341,846	253,222
May	16,459,986	13,262,044	3,197,942	164,182
June	16,480,574	13,849,757	2,630,817	*359,604
July	17,375,761	15,756,275	1,619,486	*1,377,218
Aug.	17,994,769	15,793,956	2,200,813	*1,577,355
Sept.	20,009,287	16,100,632	3,908,655	*183,265
Oct.	24,800,632	17,099,810	7,700,822	2,353,040
Nov.	23,799,146	19,726,136	4,073,010	1,223,201
	$196,037,181	$165,106,209	$30,930,972	*$319,888
Incr.	36,133,705	36,453,593	.....	.....
Decr.	.....	.....	$319,888	.....

Approximate earnings for three weeks ended Dec. 21, $14,878,000, against $11,477,000 for same period 1919.

Grand Trunk Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net
January	$5,054,034	$5,867,445	$*813,441
February	4,660,831	5,159,742	*498,911
March	5,756,372	5,491,293	265,079
April	5,477,816	5,187,340	290,476
May	5,878,934	5,547,513	331,421
June	6,645,433	6,146,600	490,833
July	7,592,000	6,568,053	1,023,947
August	7,764,280	6,273,621	1,490,659
September	8,123,927	7,546,533	478,394
October	9,743,453	7,677,653	965,800
	$65,697,080	$61,564,793	$4,132,287
Incr.	9,234,013	12,221,173	.....
Decr.	.....	.....	$2,987,160

President Beatty's Western Trip.—E. W. Beatty, President, C.P.R., arrived in Winnipeg, Nov. 28, on a trip of inspection, and, according to a press report, to discuss estimates for 1920 with the company's western management. He remained in the city until Nov. 30, leaving for Minneapolis, Minn., whence he came east, stopping over in Toronto Dec. 6, en route to Montreal. He is reported to have said in Winnipeg that railways were always building, but he could not give any statement as to what the company proposed to do. The feasibility of operating the company's lines in the mountain districts was being investigated, but no definite reports had been received which would justify a start being made with the work. A proposition was under consideration for the enlargement of the Hotel Vancouver.

Canadian National Railways Construction, Betterments Etc.

Sydney Terminals.—The Dominion Public Works Department's Chief Engineer visited Sydney, N.S., Dec. 17, and, in company with a number of city officials, inspected the site of the proposed new railway and steamship terminal.

Halifax Terminals.—A press report states that C.N.R. officials were in Halifax, N.S., Dec. 10, inspecting the south end terminals. The need for some filling and other work on the approaches was brought before them. It is reported that the brick walls at the old North St. station are likely to be torn down.

Cut Bridge, Lunenburg.—The Board of Railway Commissioners has directed the C.N.R. to rebuild the road leading to Cut bridge over the Halifax & South Western Ry., near Lunenburg, N.S., by producing the bridge tangent 50 ft. at the east and 25 ft. at the west end; and to fence the new road, the railing of the bridge to be raised to a sufficient height to comply with the Board's requirements, the bridge to be put in proper repair and replanked, if necessary, and the approaches to be covered with 5 in. of gravel. The work to be done by July 1, and the C.N.R. to bear the cost of building and maintaining the bridge.

Cut bridge is on the old Nova Scotia Central Ry. At the investigation it was stated that when the bridge was built there was an agreement with the Lunenburg municipality that the company should build the bridge and keep it in repair, but this agreement could not be traced. The Board decided that the bridge was built and had been repaired by one railway company, and that the company should pay for its building and future maintenance. The building directed in the order were made on the report of T. L. Simmons, the Board's Assistant Chief Engineer, who inspected the bridge Aug. 1, 1918.

Caraquet Branch. — A press report states that sidings will be put in at nearly every station on the branch line from Bathurst to Caraquet and Tracadie, N.B., and that it is possible that heavier rails will be laid from Gloucester Jct. to Grand Anse, at an early date.

National Transcontinental Ry. Yards, Moncton.—A press report, published in Canadian Railway and Marine World for December, stated that the N.T.R. yard at Moncton had been dismantled. We are officially advised that the N.T.R. locomotive house there is being taken down, and transferred to Chaudiere, Que., but that none of the tracks in the yard have been taken up.

Island Yard, St. John.—We are officially advised that work is in progress on an addition to the Island freight yard, to the east of Marsh Creek crossing at St. John, N.B. The work consists of 9 new tracks, varying in capacity from 59 to 64 cars each, necessitating the diversion of Marsh Creek. The track work is completed, and the stream diversion is well advanced. It is likely that other alterations will be undertaken during this year. Some of the approximate quantities of material moved in this work are:—Filling, 45,000 cu. yd; creek diversion, 30,000 cu. yd.; ballast, 50,000 cu. yd.

St. Luce Station, Rimouski County, Que., is reported to have been totally burnt Dec. 13., owing to the explosion of an oil stove.

Quebec Viaducts.—The Board of Railway Commissioners has authorized the building of a viaduct for the revised crossing of Riviere-du-Loup, at mile 103 from Quebec, and a viaduct for a revised crossing of East Yamachiche River, mile 96 from Quebec.

Chaudiere Jct. Coaling Plant.—A contract for the erection of a mechanical coaling plant and sand house at Chaudiere Jct., Que., has been given Williams & Wilson Ltd., Montreal.

N.T.R. and C.N.Q.R. Connections. — We are officially advised that the connection which has been built from mile 47.9 from Quebec, on the National Transcontinental Ry., is a two mile line from St. Marc, to a station of the same name on the Canadian Northern Quebec Ry. A second connection of a little over half of mile has also been built from near St. Prosper, on the C.N.Q.R., about 14 miles west of St. Marc, to the National Transcontinental Ry. The ruling gradient on both these lines is 0.4%, and the grading was light. The object of these lines is to permit the operation of trains from the C.N.Q.R. over the National Transcontinental Ry. between the points mentioned.

Montreal to National Transcontinental Ry.—The Montreal Chamberof Commerce on Dec. 2 reaffirmed its previous decision in favor of the construction of a line from Montreal to a connection with the N.T.R. and a delegation waited on Hon. C. C. Ballantyne, Minister of Marine, and Hon. P. Blondin, Postmaster General, Dec. 6, and urged its construction. The City of Quebec is opposed to the proposal.

Rinfret Jct. to Fresniere.—We are officially advised that it has been decided to postpone until the spring the construction of the projected line from mile 35.6 Lachute Subdivision, near Rinfret Jct., to mile 23 Grenville Subdivision, near Fresniere, Que., none of the tenders received recently having been accepted.

Forfar to Gananoque.—The Gananoque, Ont., Board of Trade is proposing that the line which has been surveyed from Forfar to Findlay, Ont., to give connection between the C.N.R. and the G.T.R., be deflected so as to reach Gananoque instead of Findlay.

Orient Bay Bridge.—In regard to the bridge which is being built at Orient Bay, mile 44.1 from Jellicoe, Ont., we are officially advised that the present structure is a timber trestle 90 ft. long, and the new bridge will consist of one half through girder span 40½ ft. long over all, carried on two wing abutments, the foundations being piled and resting on a sand and clay formation. The concrete abutments have been completed and the steel span will be erected early in the spring by Canadian Bridge Co.

Port Arthur Coal Docks.—A press report states that reconstruction of a portion of the coal docks at Port Arhur, Ont., is contemplated. The plans, it is stated, will increase the storage capacity by 100,000 tons and add considerably to the handling facilities.

Western Branch Lines.—We are officially advised that grading and track laying was done on lines in the prairie provinces during 1920 as follows:—

Manitoba:—St. Rose du Lac extension, grading 11 miles. Amaranth north, grading, 4.5 miles.

Saskatchewan:—Alsask southeasterly, no grading; track laid, 20.6 miles. Acadia valley line, grading, 4.43 miles. Eston southeasterly, grading, 5.25 miles. Humboldt-Melfort line, grading, 3.9 miles; track laid, 33.4 miles. Luck Lake line, grading, 5 miles. Melfort northeasterly, grading 12.8 miles. Peebles-Lampman line, grading, 1.8 miles. Swift Current extension, grading, 4.13 miles; track laid, 6.7 miles. Thunderhill extension, grading, 5.8 miles; track laid, 8.3 miles.

Alberta:—Hanna-Medicine Hat line, grading, 5.1 miles; track laid, 10 miles. Olive northeasterly, grading, 0.4 of a mile; track laid, 23.1 miles. Onoway branch, grading, 2.9 miles; track laid, 18.1 miles. Red Deer spur, grading, 3.8 miles; track laid, 6.4 miles. Manson, second track, grading, 3 miles; track laid, 3 miles. Jackfish branch, grading, 5.9 miles; track laid, 10 miles.

Eston to Alsask Extension.—The Board of Railway Commissioners has authorized the opening for traffic of the extension of the McRorie Westerly Branch, from Eston to Alsask, Sask., mile 115 to 148.13. This line runs from Tichfield, on the branch from Delisle southerly, running westerly about midway between the South Saskatchewan River, and the Saskatoon-Drumheller line, with which iti connects to Alsask.

Hanna-Medicine Hat Line.—A press report states that construction of a steel bridge across the Red Deer River, on the line from Hanna to Medicine Hat, Alta., will be gone on with during the year.

The Board of Railway Commissioners has approved revised location of the Canadian Northern Western Ry.'s Hanna-Medicine Hat, Alta., branch from mile 116.39 to 127.63.

Leader-Paisley Line. — A press report states that track is being laid from the north end on the line from Leader to Paisley, Alta.

Edmonton Union Station.—A press report states that work will be started shortly on the construction of a union station in Edmonton, Alta., that the offices in the present building were to be vacated Dec. 31, and that the building will be torn down in the near future.

Oliver-St. Paul de Metis Branch.—The Board of Railway Commissioners has authorized the Canadian Northern Western Ry. to open for traffic the extension of the Oliver-St. Paul de Metis Branch, from Spedden to St. Paul de Metis, Alta., mile 98.5 to 120.85.

Kamloops Bridge.—The Board of Railway Commissioners has authorized the Canadian Northern Pacific Ry. to use the newly completed bridge over the South Thompson River at Kamloops, B.C.

Kamloops-Kelowna-Lumby Branch. — A press report states that grading is practically completed on this branch from Kamloops to Kelowna and Lumby, B.C. We are officially advised that 52.7 miles of track were laid during 1920 from Ducks to Armstrong, from Vernon to Kelowna and on the Lumby Branch.

Vancouver Terminals.—We are officially advised that a contract has been let to the Pacific-Atlantic Construction Co. (formerly known as the Pacific Dredging Co.) to finish the sea wall at False Creek, Vancouver. This is part of the terminal construction work, and was held up by litigation with Champion & White, owners of the adjacent water front. The contract let to the Pacific-Atlantic Construction Co. also covers the making of a fill back of the sea wall, the removal of the steel bridge from Main St., cutting down the street to the new level, and building permanent drainage culverts across the city property east of the sea wall. (Dec., 1920, pg. 647.)

Suspension of Increases in Railway Rates Refused by Board of Railway Commissioners.

In the matter of the application of the Manitoba and Saskatchewan governments, et al, for an order suspending the railway rate increases, as granted by the Board of Railway Commissioners' order 308, Sept. 9, 1920; or in the alternative, that the said order be varied by reducing the increase thereby granted on railway lines west of Fort William, to 15%, which was heard at Ottawa, Nov. 22, 1920, Commissioner J. G. Rutherford, C.M.G., gave the following judgment Dec. 10, 1920:—

This is an application for a suspension of the increase in railway rates as granted by the Board's order 308, Sept. 9, 1920; or that the said order be varied by reducing the increases in railway rates on lines west of Fort William to 15%. The application is based on a judgment of the Governor in council, of Oct. 6, 1920, which referred the said order back to the Board for further consideration. The appellants were represented by H. J. Symington, K.C., for Manitoba; D'Arcy Scott for Saskatchewan, J. B. Coyne, K.C., P. G. Denison for Winnipeg Board of Trade, and G. R. Geary, K.C., for the City of Toronto, certain other interests also having counsel at the hearing. The position taken by the appellants can be best set forth by quoting from the presentation made by Mr. Symington, counsel for Manitoba, at the hearing on Nov. 22:—

"This is an application for a suspension of the increase in freight rates granted by the Board under order 308, or in the alternative that the order be varied reducing the increase from Fort William west by 15%. Shortly, the facts connected with the application are as follows:—On Sept. 9, 1920, the Board issued order 308, effective Sept. 13 (four days later); an appeal was taken to the Governor in council at the earliest possible moment and on Oct. 6, they issued a judgment. Under that judgment, to which I wish to refer the Board, certain findings and principles were laid down, to which I shall ask the Board to direct some attention."

In presenting his case to the Board, Mr. Symington adduced, under 12 heads, his interpretation of the findings reached in the judgment of the Governor in council, but as his rendering of a number of these points differed very considerably from the actual text of the judgment, I do not think that any good object would be served by reproducing his version here. As a matter of fact, he devoted his attention, during the course of the hearing, to practically four points, namely:—(1) A general criticism of the methods followed by the Board in fixing fair and reasonable rates; (2) that the Board, in reaching its decision as to increase in rates, took into consideration the requirements of the Canadian National Rys.; (3) the necessity of the equalization of eastern and western rates; (4) the alleged injustice of the additional 5% imposed upon freight rates for the period between Sept. 13 and Dec. 31, 1920.

It is, I think, unnecessary to deal further with the question of the legality or otherwise of the course followed by the Governor in council in referring order 308 back to the Board. It is evident that the Governor in council, failing to find in the order anything which would justify its variation or recission, and feeling nevertheless that, in view of the representations made by the appellants, certain of its features might be open to criticism, decided to refer it back to the Board, with the suggestion, in no sense of the word an order, that these features should be again considered, and, if deemed necessary or advisable, be further dealt with. The record of the hearing on the appeal sustains this view, inasmuch as at the close of the discussion between the Chief Commissioner and Mr. Symington, with which the hearing opened, the latter admitted the soundness of the position taken by the former, his final statement in this connection being as follows:—

"What I say is this, that on this application I am coming before this Board saying that they ought to do a thing, not that they must. I am not arguing it from a legel standpoint, I am taking the position that the Board ought to do it."

Mr. Symington, in my opinion, read into the judgment of the Governor in council, a number of objections to the Board's judgment, not in any way justified by the language of the first mentioned document. This criticism applied to his attack on the methods followed by the Board in arriving at a decision as to what constitutes fair and reasonable rates. His contention that the application of a general rate increase on a percentage basis was faulty and unfair, inasmuch as, except in regard to a few articles, specially treated, no effort was made to ascertain how the new rates would affect individual classes of goods shipped, was in no sense justified by the findings of the Governor in council. To serve his purpose in this instance, he merely took from the preamble of the judgment of the Governor in council the statement that one of the duties of the Board is "to fix fair and reasonable rates," and proceeded to hang upon this phrase an argument against a certain line of action taken by the Board, to which no reference whatever was made in the said judgment. Apart from the fact that, for the reasons above stated, this argument had no place in the case now before the Board, it is answered by the statement that the rates in force prior to the application of the railway companies had all been for many years carefully considered and adjusted to the requirements of each particular line of traffic; that the application of the railway companies was for a general percentage increase, to enable them to meet the augmented cost of operation and material; that every interest was at liberty to appear and present its case at the hearing; that a number of interests did so appear and that, of these, several received consideration. Moreover, the judgment in no way prejudices the established right of any interest, which may deem the rates affecting it unfair or unreasonable, to apply to the Board for an adjustment.

Further, eliminating the special pleading which has been so prominent a feature of the attacks on the Board's judgment in the railway rates case, and applying common sense principles, it is, I think, quite clear that one of the most important factors to be considered in reaching a decision as to what are fair and reasonable rates, is that of the ability of the railway to carry on. The fact that under the law, the railways, as public utilities, are required to have their rates approved by the Board, does not justify the view that they should therefore be compelled to do business at a loss. Further, if the rates fixed are not fair and reasonable to the railways, as well as to the public, the public will suffer, inasmuch as no railway compelled to operate on a non-paying basis can furnish either efficient service or adequate facilities for the handling of traffic.

In his second count, namely, that the Board in its judgment took into consideration the requirements of the Canadian National Rys., Mr. Symington is on better footing, inasmuch as the judgment of the Governor in council states that this should not have been done. Here, however, there seems to be a general misunderstanding as to the real position of the Board in that connection, and particularly as to the basis of the calculations on which the findings of the Board in the railway rates case were actually arrived at. While admitting that the language used by the Chief Commissioner in his judgment might be interpreted as conveying the impression that the Board took into consideration the unfortunate financial position of the Canadian National Rys., it is scarcely necessary to point out that all the calculations as set forth in that judgment are based on the figures submitted by the Canadian Pacific Ry., and that, as a matter of fact, that company was the only criterion by which the Board could reach a conclusion as to the increase of rates which would be required to enable a properly equipped and efficiently managed railway to maintain operation on a reasonably remunerative basis. On the course to be followed in this connection there was no difference of opinion among the members of the Board, and it is regrettable that the Governor in council, as well as some members of the general public and of the press, attached to the language of this portion of the judgment of the Chief Commissioner a greater measure of importance than they did to the definite statements of facts and figures submitted a little further on, and on which the actual findings were based.

With reference to the third point dealt with by Mr. Symington, viz., the equalization of eastern and western rates, it should not be forgotten that its interjection to the rates case was purely incidental, and that the Board would not have been justified in attempting to deal with so important a question at such short notice, even in face of the statements made by Mr. Symington at the hearing in August, which indicated that the operating rates and train tonnage were much more favorable to the railways in Western Canada than in the east. It is also well to bear in mind that the factors which first led to the establishment of these differing rates, viz., water competition, and that offered by the railway lines of the Eastern United States, have been for some years in an abnormal and unsettled condition, and that their future influence on rates in Eastern Canada is an entirely unknown and unguessable quantity.

Much has been made of the fact that the Chief Commissioner, in his judgment, stated that the rates in Western Canada averaged from 15% to 18% higher than those in the east, and that he, nevertheless, made a difference of only 5%. It should not be forgotten, however, that the disparity in favor of the east, for reasons well known and fully understood has long been recognized as an established, and, until very recently, accepted condition. Under these circumstances, therefore, the Board took

the ground that, pending future full enquiry and investigation, and until the whole question has been considered from the standpoint of things as they are, and as they are likely to be in the future, it would not be justified in going further than it did in the matter of reducing western rates. As stated at the hearing on the appeal, the Board is prepared, in compliance with the request of the Governor in council, to take up this question at once, and arrangements are in progress for the early inauguration of a full and exhaustive enquiry into all the circumstances bearing upon it, with a view to reaching, at the earliest possible date, a definite understanding as to a fair and proper basis of equalization.

The fourth point raised by Mr. Symington was that the additional 5% imposed upon freight rates for the period between Sept. 13 and Dec. 31, 1920, inflicted an unfair burden upon shippers, such shippers being largely in Western Canada. It is a matter of common knowledge that the Board's action in granting the special temporary additional rate, was taken with the view of enabling the railways to provide approximately $23,000,000 required to meet the unexpected demands of their employes in the matter of wage increases, which as a result of the United States wage award, had been made retroactive to May 1, 1920. Without discussing the justice or otherwise of the attitude assumed by the railway employes in the matter of this wage award, the Board was faced with the alternative of a general strike if their demands were not met. In view of the then very alarming situation as regarded coal supply for the approaching winter, and the outstanding importance of ensuring the movement of the western grain crop, the Board, after carefully considering all the circumstances, and especially the fact that the expenditure was of an abnormal and temporary character, decided that it would be in the public interest to grant a slightly higher rate for the remainder of the current calendar year.

It was strongly urged in the argument in the appeal to the Governor in council that this portion of the Board's order imposed an unfair burden on western shippers, inasmuch as the period in question was coincident with the heaviest part of the grain movement from western points. The attitude of the western shipper in regard to this phase of the question is readily understandable, especially in view of the serious fall which has since taken place in the prices of grain and other farm produce. On the other hand, the Board felt that the busiest season of the year, and the season at which the traffic on western lines most closely approximated in volume that of the east, was that during which this abnormal burden would be most easily borne and most evenly distributed. The claim advanced by Mr. Symington on behalf of the appellants that the Board had disregarded the decision of the Governor in council is not borne out by the language of the judgment on this point, which is as follows:—

"There can be no doubt that the fair distribution over all of Canada of any necessary burdens is a principle that must to the utmost be adhered to, and the Committee recommend that if it seems to the Board practicable by way of diminution of the extra percentage and if absolutely necessary its extension over a longer period, it meet as far as possible the objection above set out."

There is nothing mandatory in these words, the matter being left unreservedly in the hands of the Board, which, after careful consideration, has been unable to see its way to change the terms of the order, especially in view of the confusion which such a change would involve, and the close proximity of the date when this extra burden on the shipper will be removed.

In the judgment of the Governor in council, the only reference to passenger rates is as follows:—

"It was urged in argument, as well as very generally by the applicants, that the increase in passenger rates should not be diminished or discontinued before a reduction in freight rates is ordered. This is a matter, however, which seems properly a subject for the disposition of the Board, and the terms of the order are such that effect may be given to the contention, if, in the judgment of the Board, the public interest is served thereby."

At the hearing on the appeal before the Board, Mr. Symington presented as his version of the findings of the Governor in council on this point, the following:—

"That in their judgment all such railway freight rates should be decreased earlier than passenger rates."

but otherwise referred only incidentally to this phase of the question. As a matter of fact, any discussion of passenger rates which took place at the hearing on the appeal, was merely incidental to the presentation of financial statistics and estimates by the Canadian Pacific and Grand Trunk Railways, when it was developed that since the Board's order came into effect, there has been a considerable falling off in receipts from this source. While this decrease may be due in part to the general decline in business activity, it may also be in part attributable to the higher rates, and to that extent the provision of the Board's order for a reduction on Jan. 1, 1921, is justified.

In his judgment in the railway rates case, the Chief Commissioner, after referring to certain figures furnished him by the C.P.R., and which he had used for the purpose of ascertaining the extent to which the proposed increases would affect the financial position of that company, incidentally made the statement that, with the entire increase asked for in the application, viz., 40% on all freight rates and 20% on passenger rates, the C.P.R. would have an estimated surplus for the year 1921 of $15,064,500. Although the judgment subsequently set forth that, under the rates actually allowed, subject as these were to many exceptions and time limitations, this estimated surplus, based as it was on an essentially different calculation, had absolutely no bearing on the situation, much adverse criticism, founded on this incidental statement has been directed at the Board. When the appeal in the railway rates case was before the Governor in council, the C.P.R. was required to furnish an estimate of revenue and expenditure for the year 1921, based on the increase as actually authorized by the Board's order. This statement, a copy of which signed by W. J. Moule, Assistant Comptroller, C.P.R., and by Alex. Macdonald, traffic expert for the appellants, was attached to the judgment of the Governor in council, indicated that for the next fiscal year (1921), the C.P.R. would, under the increased rates, as allowed by the Board's order, have a deficit of $800,277. At the present hearing, the same company submitted a revised estimate for 1921, based on the actual operations for the first nine months of 1920 and the last three months of 1919, which indicates that with the increased rates, the C.P.R. will, in all probability, have a deficit of $415,000. In order to further dispel the apparently widespread impression that the increased rates, as allowed by the Board's order, will provide a large annual surplus for the railways, and as in my opinion the public is entitled to the fullest possible information on this phase of the subject, additional statements, submitted at the hearing on the appeal by the C.P.R., are herewith given in full, as follows:—

A.—Statement of revenue and expenditures for 1921 (estimated), based on same volume of traffic 1920 (9 months) and 1919 (3 months), with increased rates added to revenue.

Revenue without increased rates:—		
Freight, Eastern lines	$61,200,000	
Freight Western lines	71,100,000	
Passenger	44,000,000	
Sleeping and parlor cars	4,600,000	
Excess baggage	400,000	
Mail	1,500,000	
Express	7,000,000	
All other earnings	7,850,000	
		$197,650,000
Estimate of increase in revenue due to increased rates:—		
35% on Eastern Lines freight, except coal and wood 34%	$20,808,000	
30% Western Lines freight, except coal and wood, 28%	19,628,000	
10% Passenger, 6 mos. in 1921	1,920,000	
32½% Express revenue (except passenger fares)	2,100,000	
50% Sleeping and parlor cars	2,300,000	
20% Excess baggage	80,000	
		$ 46,836,000
Gross revenue for 1921 based on traffic of 1920		$244,486,000
Expenditure:—		
Annual expenses to Sept. 30, 1920, taken as basis first 10 months of 1921	$128,280,000	
Estimate of expenses, Oct. to Dec. inclusive, assuming same operating ratio as 1919	43,154,000	
Wage increase, Jan. to June, and Oct. to Dec. (allowing for smaller traffic Oct. to Dec.)	15,000,000	
Increase in cost of fuel for locomotives	7,250,000	
Increase in cost of fuel, other purposes	1,000,000	
Misc. material, allowing for three months already in, actually at higher costs	7,000,000	
Ties, 5,000,000 at 15c	750,000	
Rails, 100,000 tons at $10	1,000,000	
Expense necessary to restore maintenance of way forces to pre-war basis, 134 days per mile of line	6,225,000	
		$209,659,000
Net revenue		$ 34,827,000
Less, fixed charges and pension fund		11,350,000
		$23,477,000
Income tax, 10½%		2,465,000
		$21,012,000
Dividends		21,427,000
Estimated net deficit, 1921, with revenue based on increased rates		$ 415,000

B.—Statement of revenue and expenditure for 1920 (estimated). Revenue based on increased rates from Sept. 13 to Dec. 31, 1920, as allowed by Board's order 308.

Revenue:—		
Actual gross earnings for first 10 months of 1920 were	$172,227,403	
Approximate earnings first 2 weeks Nov., 1920	11,400,000	
Estimated gross earnings for balance of Nov. and for Dec. 1920, assuming same freight traffic and decrease of 15% in passenger traffic	25,503,000	
Estimate of increase in revenue due to increased rates:—		
Estimate of increased rates, freight and passenger, Nov. 15 to Dec. 31	7,857,000	
Estimate on sleeping car and commutation rates now in effect	117,000	
Gross revenue 1920		$ 217,104,403
Expenditures:—		
Actual operating expenses Jan. to Sept. 1910	$128,280,263	
Estimated operating expenses for Oct., Nov. and Dec., based on ratio for last 3 mos. 1919, without added wages or material costs	41,640,600	
Add advance in cost, fuel	2,170,000	
Add advance in cost, material and supplies	3,056,000	
Sales tax	200,000	

Wage award, May, June, Oct., Nov. and Dec. (July Aug. and Sept. already included in operating expenses) . .	8,700,000	
Total expenditure (approximated)		$184,046,863
Estimated net revenue for 1920		33,057,540
Less fixed charges and pension fund		11,282,700
Estimated net income		$ 21,774,840
Less income tax, 10½%		2,286,358
Net after deduction income tax		$ 19,488,482
Dividends . .		21,427,277
Estimated deficit for 1920, with revenue based on increased rates, Sept. 13 to Dec. 31		$ 1,938,795

C.—Statement of revenue and expenditure for 1920 (estimated), without th eincrease in revenue due to increased rates, in force from Sept. 13 to Dec. 31.

Revenue:—		
Estimate of gross revenue, as shown in statement B (including increase)		$217,104,403
Less estimate of revenue from increased rates, Sept. 13 to Dec. 31—		
September . .	$1,955,000	
October . .	5,840,000	
November (1st 2 weeks)	2,740,000	
Balance of year, see statement B .	7,857,000	
		$ 18,392,000
Gross revenue without increased rates		$198,712,403
Expenditure:—		
Estimate of operating expenses as shown in statement B		$184,046,863
Net revenue .		$ 14,665,000
Less fixed charges and pension fund		11,282,700
Net income .		$ 3,382,300
Less income tax 10½%		355,141
		$ 3,027,159
Dividend requirements .		$ 21,427,277
Estimated deficit for 1920, if increased rates had not been granted		$ 18,400,118

These estimates, while worked out with the greatest previsional exactitude, are, especially in view of the business depression which is apparently at hand, liable to be seriously affected by circumstances, now entirely unforeseen, and against which it is impossible to guard. On their face value, however, they furnish a fair indication that the C.P.R. is not likely to do much more than pay its way during the coming year, if indeed it succeeds in avoiding a deficit. It will, I think, be admitted that an honestly organized and efficiently managed railway should be in a position to earn annually over and above its operating expenses and costs of maintenance, such a sum as will enable it to pay its interest and other proper charges, and generally to maintain its credit and standing in the financial world. In this connection it is well to remember that as provided by the Board's order 308, the Canadian Pacific, Grand Trunk and Canadian Northern Railways are furnishing to the Board monthly statements of their operating revenues and that the Board reserves to itself the right to, at any time on notice, readjust the rates to meet conditions as they arise.

The hearing on his appeal furnished an excellent opportunity for a general review of the whole situation created by the Board's order, authorizing the increases in freight and passenger rates. While it would perhaps be too much to expect the public to accept with equanimity the heavy but unavoidable burden imposed by the order, it is a matter of some satisfaction to the Board that the further ventilation and discussion afforded by the hearing on the appeal have shown that notwithstanding the criticism to which they have been subjected, its findings cannot, on the most searching analysis, be fairly characterized as other than just and reasonable. I am of opinion that the application should be refused.

Canadian Pacific Railway Construction, Betterments, Etc.

Douglas St. Viaduct.—The St. John, N.B., City Council is reported to have approved plans for an overhead viaduct to carry street traffic over the C.P.R. crossing of Douglas Ave. at the eastern approach to the new bridge across the St. John River. The estimated cost of the work is said to be $100,000, and the council proposes to ask the Board of Railway Commissioners to apportion the cost of the work between the C.P.R., the bridge company, the New Brunswick Power Co. and the city.

St. John River Bridge.—Representatives of St. John, N.B., shipping interests are reported to have waited on the city council Dec. 7, to ask that efforts be continued to have the height above water level of the new C.P.R. bridge increased from that of the existing bridge.

Ottawa.—A press report states that about 300 acres of farm land in the vicinity of Cyrville, near Ottawa, have been bought by the C.P.R., at an approximate cost of $30,000, the price varying from $50 to $200 an acre. The company, it is said, will build a locomotive house and repair shop, etc.

Timiskaming, Que., District. — The Board of Railway Commissioners has approved location of the Interprovincial & James Bay Ry., from mile 48.2 on the main line from Kipawa to Quinze River falls, to mile 7.8 on the branch to Ville Marie, Que.

Galt Freight Shed.—The 200 ft. freight shed at Galt, Ont., has been removed 40 ft. from the former one, to provide a new right of way for the Grand River Ry.

Winnipeg River Bridge.—The Board of Railway Commissioners has authorized the use for traffic of the new bridge, 1.17, over the west branch of Winnipeg River, Keewatin Subdivision.

Manitoba Branch line.—We are officially advised that during 1920 the company had under construction an extension of the branch running northerly from Binscarth to Russell, for 5.8 miles and that 6.5 miles of track was expected to be laid by Dec. 31, 1920.

Saskatchewan Branch Lines.—We are officially advised that construction work was in progress during 1920 on the following branch lines in Saskatchewan:—Extension from Consul, on the Moose Jaw Southwesterly line, easterly, 58.5 miles. Wymark-Archive line, 25 miles. A line from Milden, on the Hawarden-Kerrobert line, to Empress, on the Swift Current-Bassano line, 59 miles. A line from Rosetown, where the Hawarden-Bassano line crosses the Canadian Northern Ry., southeasterly 43.2 miles; and a line from Leader, mile 94 on the Swift Current-Bassano line southeasterly 9.2 miles.

We are further officially advised that track was expected to be laid by Dec. 31 on the following branch lines or grading completed prior to the beginning of 1920, or completed during 1920 as follows:—Lanigan, on Portage la Prairie-Yorkton-Saskatoon line, northerly for 50 miles; from Consul easterly 1.5 miles; from Leader southeasterly 26 miles.

We are officially advised that the branch line, described in the act authorizing its building, as the Leader southeasterly line, runs from Leader, on the Swift Current-Empress-Bassano line, southwesterly, crossing into Alberta near mile 30, and turning easterly near mile 50, recrosses the Alberta-Saskatchewan boundary near mile 60 and runs almost due east to the north shore of Bigstick Lake, mile 90. During 1919 some grading was done on the line and during 1920 a further distance of 9.2 miles in Saskatchewan, and 14.8 miles in Alberta has been graded, and 26 miles of track was laid in Saskatchewan.

In a statement made in the Saskatchewan Legislature recently as to branch line construction in the province, the Minister of Railways is reported to have given the following information in regard to the lines mentioned above:—

Consul easterly.—Grading, mile 0 to 30, completed in October; grading contract on an additional 30 miles let in August, and 8% of work completed in October.

Wymark-Archive. — Grading contract only 55% completed on 25 miles let in 1919, and work closed down in September, owing to shortage of labor.

Milden to Empress.—Grading 55% completed on 34 mile contract let in 1919, and work closed down for season. Grading 31% complete don 25 mile contract, mile 34 to 59, let in Feb., 1920.

Rosetown southeasterly. — Grading completed on 25 miles, mile 20 to 45, let in 1919, and grading 12% completed on 20 miles, mile 45 to 65, let Feb., 1920.

Leader southeasterly.—Grading completed Oct., 1920, mile 0 to 25, and 8% of grading completed on mile 25 to 50, let August, 1920.

Alberta Branch Lines.—We are officially advised that construction was in progress on the following branch lines during 1920:—Leader, Sask., southeasterly line, 14.8 miles. Acme-Empress section of line from Langdon north, 18.8 miles. From Allawan, westerly, on Weyburn-Stirling line, 18.9 miles. We are further advised that it was expected to have 18.5 miles of track laid on the Acme-Empress line by Dec. 31, 1920.

The Board of Railway Commissioners has approved revised location plans for a portion of the extension of the Langdon North Branch, Acme to Empress, Alta., mile 39.03 to 59.94.

Acme to Drumheller.—In connection with the reported extension of the line from Acme into the Drumheller coal areas of Alberta, we are officially advised that grading is being gone on with on a line from Acme in the direction of Drumheller. It is expected that it will be completed to the latter point early next summer. It is the company's intention then, in conjunction with the Canadian National Rys., to build a joint line down the Red River valley to the mouth of Bull Pound Creek. The C.P.R. has a charter, obtained from the Dominion Parliament in 1919, to build a line from the mouth of Bull Pound Creek to Duchess or Rosemary, on its Bassano-Empress line. (Dec., 1920, pg. 651.)

G.T.R. Suit Against U.S. Government. The case of the Grand Trunk Western Ry. vs. the Secretary of the U.S. Treasury, which was heard in the District of Columbia Supreme Court, Dec. 16, is a claim for $500,000 under the guarantee provision of the Transportation Act, which gives carriers a 6% return up to Sept. 1, 1920. The U.S. Treasury ruled recently that further payments to railway companies must be withheld until complete statements are submitted by the companies of amounts due to them. It is stated that other companies have claims on a similar basis, aggregating $400,000,000.

Railway Rolling Stock Orders and Deliveries.

The C.P.R. has ordered 2 vans to be built at its Winnipeg shops.

The G.T.R. is reported to be asking price on 175 steel underframes for refrigerator cars.

The C.P.R. is reported to have 18 locomotives under construction at its Angus shops, Montreal.

The Timiskaming & Northern Ontario Ry. has received two 8-wheel switching locomotives from Montreal Locomotive Works.

The Canadian Locomotive Co., between Nov. 15 and Dec. 15, delivered 10 six-wheel switching locomotives to Canadian National Rys.

The Reid Newfoundland Co. has, as mentioned in our last issue, ordered 5 locomotives from Baldwin Locomotive Works. They will be of the Prairie (2-6-2) type, and will be delivered about February or March.

The C.P.R., between Nov. 18 and Dec. 13, 1920, received the following rolling stock: 199 box cars, 60½ tons capacity, from Canadian Car & Foundry Co., Fort William, Ont.; 87 refrigerator cars and 11 flangers from Angus shops, Montreal.

The Railway Car Manufacturers Association, New York, states that figures of output supplied by 23 car building companies, during Oct. 1920, reached the highest level recorded during the first 10 months of the year, the total number delivered being 6,667.

The Railways and Canals Department, Ottawa, which received tenders to Nov. 1, 1920, for a new or second hand 4-wheel switching locomotive, for Welland Ship Canal construction work, advised us recently that no action had been taken on the tenders received.

The United States War Department's Director of Sales announced recently that 44 decapod locomotives, a portion of those built for the Imperial Russian Government, 100 of which had been sold to U.S. railways, would be sold at $25,000 each.

The G.T.R., between Nov. 15 and Dec. 15, received the following rolling stock: 3 six-wheel switching locomotives from its Point St. Charles shops, Montreal; 2 eight-wheel switching locomotives from Canadian Locomotive Co., and 222 automobile cars, 80,000 lb. capacity, from American Car & Foundry Co.

The British War Mission, New York, N.Y., offered for sale by tender recently approximately 4,000 steel box cars, in knock down shape, 5 ft. gauge, lying at New Glasgow, N.S., Montreal, and Vancouver, B.C. These cars were ordered during the war for use in Russia, and delivery was held up on account of the revolution in that country.

Krupps, of Germany, are reported to have been the lowest tenderers recently for 83 electric locomotives for Java State Rys. It is suggested in an English paper that the depreciation of the mark may have enabled Krupps to put in the lower tender, but the fact that the German factory is able to take such a large contract at a reasonable price is particularly commenced upon.

The G.T.R. has, a press dispatch says, built a Pacific type locomotive at its Battle Creek, Mich., shops, for passenger train service between Port Huron and Chicago. It is said to have been built entirely of miscellaneous parts and odds and ends of material, by regular employes of the locomotive repair shop when repair work was slack. This is said to be the second one to have been built under these conditions.

Canadian Car & Foundry Co., between Nov. 15 and Dec. 15, delivered the following rolling stock:—14 baggage car frames, 13 compartment car frames from Montreal; 199 box cars from Fort William, Ont., and 212 refrigerator cars from Amherst, N.S., to C.P.R.; 18 flat cars, from Amherst, N.S., to Anglo-Newfoundland Development Co.; 15 frames and bogies and 2 extra bogies, from Montreal, to Dorado Extension Ry. (South America), and 150 bogies from Montreal for South African Rys.

Canadian National Rys. rolling stock receipts to Dec. 4, 1920, on account of orders placed early in that year, were as follows:—25 Santa Fe locomotives, from Montreal Locomotive Works, order completed; 30 six-wheel switching locomotives, from Canadian Locomotive Co., order completed; 351 refrigerator cars from Canadian Car & Foundry Co., out of an order for 600; 821 box cars, from National Steel Car Corporation, out of an order for 1,500; 18 cabooses, from Preston Car & Coach Co., out of an order for 20; and 30 cabooses built at C.N. R. Transcona shops.

Canadian Locomotive Co.'s Deliveries during 1920.

	No.	Type.	Engine weight in working order, lb.	Cylinders.
Canadian National Rys.	30	0-6-0	154,400	21x26 in.
Canadian National Rys.	15	2-8-2	280,800	27x30 in.
Grand Trunk Ry.	10	0-8-0	242,750	26x30 in.
Jamaican Government Rys.	3	4-8-0	137,500	19x26 in.
Jamaican Government Rys.	7	4-8-0	148,300	19x26 in.
Pacific Great Eastern Ry.	3	2-8-2	210,100	22x28 in.
Timiskaming & Northern Ontario Ry.	4	2-8-2	258,000	25x30 in.
Timiskaming & Northern Ontario Ry.	4	4-6-2	252,500	23x28 in.

All the locomotives were equipped with brick arches and all but three 4-8-0 type for the Jamaican Government Rys., engine weight 137,500 lb., have superheaters. Three of the Canadian National Rys. 2-8-2 type have mechanical stokers.

Timiskaming & Northern Ontario Railway Locomotives.

The Timiskaming & Northern Ontario Ry., as mentioned in our last issue, has ordered 4 Pacific type (4-6-2) locomotives, equipped with superheaters and boosters, from Canadian Locomotive Co. The chief details are as follows:—

Weight on drivers	155,000 lb.
Weight on front truck	50,000 lb.
Weight on rear truck	47,500 lb.
Weight, total, of engine	252,500 lb.
Weight of tender	156,000 lb.
Weight, total, engine and tender	408,500 lb
Wheel base, driving	12 ft.
Wheel base, engine	32 ft. 6 in.
Wheel base, engine and tender	60 ft. 3¼ in.
Heating surface, tubes	1,860 sq. ft.
Heating surface, flues	856 sq. ft.
Heating surface, firebox	187 sq. ft.
Heating surface, arch tubes	30 sq. ft.
Heating surface, total	2,933 sq ft.
Superheating surface equivalent	694 sq ft.
Driving wheels, diar.	69 in.
Driving wheel centers	Cast steel
Driving journals	10 x 13 in.
Cylinders, diar. and stroke	23 x 28 in.
Boiler, type	Radial stayed
Boiler pressure	200 lb.
Tubes, no. and diar.	160—2¼ in.; 32—5½ in.
Tubes, length	18 ft. 8 in.
Arch tubes, no. and diar.	4—3 in.
Boiler, outside diar. at waist sheet	71 in.
Boiler, outside diar. at dome course	78 in.
Firebox, length and width	96 x 75¼ in.
Grate area	50 sq. ft.
Maximum tractive effort	36,600 lb.
Factor of adhesion	4.23
Additional tractive effort due to booster	10,700 lb.
Ratio tractive effort booster to weight on rear truck	4.5
Tender, type	Water bottom, vestibule attachment
Truck, type	4-wheel Commonwealth
Cab	Vestibule type, all steel
Water capacity	6,500 imp. gall.
Coal capacity	12 tons
Tender wheels, diar.	36 in.
Tender wheels, type	Steel tired, cast steel center
Tender journals	5½ x 10 in.
Brake beams	Simplex high speed
Superheater	Superheater Co.'s type A
Injectors	Ontario
Steam heat system	Canadian Gold Car Heating & Lighting Co.
Firebox door	Franklin Railway Supply Co.
Lubricators	Detroit 5-feed
Valve gear	Young
Reverse gear	Ragonnet, type B
Headlight	Pyle National, type E2
Air brakes	Westinghouse American
Draft gear	Cardwell friction
Couplers	Tower, with Miner coupler centering arrangement
Buffer	Franklin Railway Supply Co., radial
Wheel tires	Canadian Steel Tire & Wheel Co.
Journal boxes	McCord
Booster	Franklin Railway Supply Co.

S. B. Clement, Chief Engineer and Superintendent of Maintenance, T. & N. O. Ry., has favored Canadian Railway and Marine World with the following information as to the reasons for using the booster on these locomotives:—"The operation of boosters on passenger locomotives on the New York Central Rd. was carefully investigated, and we were favorably impressed by this recent development in locomotive design. The increased number and weight of cars used in through passenger service necessitates heavier power than that which has handled our passenger trains successfully in the past. Local traffic and physical conditions on the T. & N.O.R. are such that additional tractive effort is required to start and accelerate these trains at certain station stops that are on appreciable grades, and to haul them over a number of short ruling grades. To obtain the necessary tractive effort from the three driving axles of the Pacific type locomotive, it would be necessary to increase the axle loads above what I consider good practice for our rail, ballast and other track conditions. By the use of the locomotive booster, this additional tractive effort can be obtained, without increasing our present maximum axle loads, and as we only require this additional tractive effort over a short distance of track, I believe that the locomotive booster is the best solution of our problem.

"The ruling gradients on the T. & N.O. R. are 1½% north bound and 1¼% south bound, between North Bay and New Liskeard, 113 miles, there being several short ones from a mile to a mile and a half long. They are so short, and so much steeper than the average gradient, that I believe the locomotive booster is well adapted to furnish the additional tractive effort required to surmount them."

Loading Rules.—The American Railway Association, Mechanical Division, has issued its revised loading rules, effective Dec. 1, 1920, which have been rearranged by placing all rules governing the particular classes of lading in groups as follows:—Group 1—Lumber, logs, ties, fence posts, tan bark and similar products. Group 2—Structural material, plates, billets, castings, wheels, pipe and similar products. Group 3—Mining cars, locomotives, boiler shells, machinery, derricks and similar commodities. Group 4—Concrete culvert pipes, brick, stone, building tile and similar products. Group 5—Automobiles.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry. — The Premier of Alberta, on returning to Edmonton recently from a trip over the line, is reported to have said that the Government's efforts, since taking over the line in Aug., 1920, have resulted in a great improvement. New ties have been put in and some ballasting has been done, about 20 miles of the track remaining to be lifted and ballasted in 1921. The betterments already done and still in progress are being carried out by the Northern Construction Co.

Survey parties are reported to be in the field preparing the work for the 1921 season, and in endeavoring to find a better route than the one previously located, down the Athabasca hills to McMurray. The distance between the present railhead and McMurray is stated to be about 18 miles, and it is hoped to have this completed by the end of 1921.

It is said that 300,000 ties will be got out during this winter, particularly for repairs on the section from Carbondale Jct. to Lac la Biche. (Nov., 1920, pg. 606.)

Columbia River Lumber Co. has been authorized by the Board of Railway Commissioners to build its logging railway across the C.P.R. at mile 52.89, Mountain Subdivision, B.C.

Dolly Varden Mines Ry.—A press report states that P. W. Racey, speaking before the Institute of Mining and Metallurgy's Vancouver Branch recently, described the Dolly Varden Mines Ry. as a high grade narrow gauge line, extending from the company's mines to Alice Arm. In order to carry on traffic during the winter a hard sled road had been built over it so that ore could be taken down to tidewater on sleds. (June, 1920, pg. 297.)

The Dominion Atlantic Ry. has, we are officially advised, under construction a branch line from mile 39.77 Yarmouth Subdivision, near Weymouth, N.S., to the Sissiboo Pulp & Paper Co.'s dam and mill, 2.5 miles. W. Cooke, North Sydney, N.S., is the contractor. (Nov., 1920, pg. 606.)

Edmonton, Dunvegan & British Columbia Ry.—The Board of Railway Commissioners has recommended the Governor in council to sanction an agreement between the Edmonton, Dunvegan & British Columbia Ry. and the Central Canada Ry. as to the use of tracks between McLennan and Wenagami Jct., Alta.

Esquimalt & Nanaimo Ry.—Construction is reported to have been started, Dec. 2, on the substructure for the new Johnson St. bridge, Victoria, B.C. The City Engineer put in a tender for the work, amounting to $177,376, which, it is reported, was 15% less than the lowest tender from an outside contractor, and he was given the work to do. (Dec., 1920, pg. 645.)

Essex Terminal Ry.—We are officially advised that there is no foundation for a recent press report stating that the United States Steel Corporation had voted $291,420 to build spur lines into the Canadian Steel Corporation's plant at Ojibway, Ont., in connection with the Essex Terminal Ry. (Dec., 1920, pg. 645.)

Flinflon Mining District.—As stated in Canadian Railway and Marine World for Dec., 1920, the Manitoba Government has arranged with the Canadian National Rys. to have a survey made from the Hudson Bay Ry., near Pas., Man., to the Flinflon mining district. A Pas press report states that the survey was started on Dec. 7 at mile 7 from Pas and that the route lies along a gravel ridge to Lake Athapapuskow, 53 miles, and then along the north side of the lake to the Flinflon mining areas, 32 miles, a total of 85 miles. The report also states that a four mile spur line from the Hudson Bay Ry. is already built along the proposed route.

A. U.S. syndicate has an option on the Flinflon mining areas up to Mar. 31, and on whether this is exercised or not the going on with railway construction will largely depend.

A Winnipeg press report of Dec. 17 states that an undertaking has practically been obtained from the Canadian National Rys. management for the operation of the railway when it is built. The suggestion is that the C.N. Rys. pay a flat rate of interest on the amount to be expended by Manitoba upon the construction of the line, under a lease for a long term of years. It is further stated that the Manitoba Government will ask the mining company to make a deposit of $1,000,000 as a guarantee until the smelters and plant are installed at the mines to provide tonnage for the railway. (Dec., 1920, pg. 645.)

Grand Trunk Pacific Ry.—The Dominion Privy Council has granted the G.T. Pacific Branch Lines Co. letters patent for its right of way for its Alberta Coal Branch, partly within and partly without the Brazeau Division, Rocky Mountain forest reserve, 68.10 acres, for $1. (Dec., 1920, pg. 645.)

Kettle Valley Ry.—We are officially advised that the branch of about two miles from South Penticton to Dog Lake, B.C., described in Canadian Railway and Marine World, Aug. 1920, pg. 528, and Sept., 1920, pg. 489, has been completed. The line leaves the company's main line just west of South Penticton yard and runs south to Dog Lake, through the Indian reserve in a flat country. The grading was light, about 19.000 cu. yd. The heaviest gradient is 0.8%, and there are three curves, one on leaving the main line and one turning to the dock at Dog Lake. The grading and bridging was let to P. J. Salvas, Penticton, B.C. We are further advised that a contract has been let to Joe McDonald for the erection of car docks at the north and south ends of Dog Lake, and that the work is in progress. The docks will require about 150,000 ft. b.m. of timber and 17,000 lin. ft. of piling. (Dec., 1920, pg. 645.)

Mayo Valley Ry. Ltd.—The Dominion Parliament will be asked to incorporate a copy with this title to build a railway from near the junction of the Mayo and the Stewart Rivers, Yukon Territory, northerly following the Mayor River, Duncan Creek, Lightning Creek and Crystal Creek valleys to the McQuesten Crystal Creek valleys to the McQuestin River, and thence to connect with and include the valleys of the McQuesten, Ladue and Beaver Rivers; or in the alternative from near Gordon's Landing on the Stewart River, via Janet Lake to the junction of the Mayor River and Duncan Creek; and also build branch lines. R. B. Young, Ottawa, is solicitor for applicants.

Pacific Great Eastern Ry.—An inspection trip was made at th eend of Nov. 1920, as far as the Deep Creek viaduct, which had just been completed. Deep Creek is about 320 miles from Squamish, and the line is under construction thence to Prince George, work being gone on with from both ends. It was expected to complete track laying to Quesnel from Deep Creek by Dec. 31, and it is expected to have the line finished into Prince George next autumn.

Prime Minister Oliver, in the course of his recent election campaign, is reported to have stated that it is the Government's intention to take up the question of the extension of the line from North Vancouver, now terminating at Whytewood, to Squamish, and to connect it with the line to Fort George. (Dec., 1920, pg. 645.)

Quebec & Chicbougamau Ry.—A press report states that tenders will be invited in April for the construction of about 120 miles of this line from St. Felicien to Chicoutimi, Que., and for 130 miles of line from Chicoutimi to Quebec.

A map of the projected route of the line from Quebec to Lake Chibougamau has been issued. It shows a line from Quebec along the valley of the Montmorency River, and then almost due north, crossing the Malbaie River to Chicoutimi, thtence across the Saguenay River, proceeding northerly and westerly and crossing the Peribouka River, to Dolbeau, where the Mistassini River will be crossed, and then on more northerly than westerly to Lake Chibougamau. The line is located from Dolbeau to St. Felicien. The line proposed to be built first is from Chicoutimi to Dolbeau, and thence to St. Felicien. (Dec., 1920, pg. 655.)

Quebec Central Ry.—We are officially advised that the company is building a line from Scotts, Beauce County, to Diamond Jct., near St. Jean Chrysostowe, Levis County, Que., 19.33 miles. The contractors are J. T. and J. F. Davis, Quebec. (June, 1920, pg. 297.)

Reid Newfoundland Co.—A press report states thta work on the improvements of the terminals for the railway and steamships at Port Aux Basques, Nfld., is practically completed, and that work will be started on repairs to the wharf at North Sydney, N.B., in January.

The Argentia terminal project is reported to be progressing towards completion, but it is not expected to have it ready for use during this winter. Track has been laid from Argentia Jct. to Argentia, 3½ miles.

The Reid Newfoundland Co.'s railway and steamships are now being operated by the Newfoundland Railway Commission. (Dec., 1920, pg. 645.)

Timiskaming & Northern Ontario Ry. The Premier of Ontario, replying to a resolution regarding unemployment, at a meeting in the Legislative Buildings, Toronto, on Dec. 15, is reported to have said it is proposed to clear the pulpwood and trees on the right of way of the projected T. & N.O. Ry. to 25 miles north of Cochrane, and that the bush along the sides of the existing line from North Bay to Cochrane will probably be cleared up to prevent danger from fire. The Government would, he said, obtain reports within a few days as to the work. Dec. 1920, pg. 645.)

Toronto, Hamilton & Buffalo Ry.—The Board of Railway Commissioners has authorized the company to change the alignment of its westbound main track at the corner of John and Hunter Sts., Hamilton, Ont. (Nov., 1920, pg. 607.)

The Kettle Valley Railway's Copper Mountain Branch.

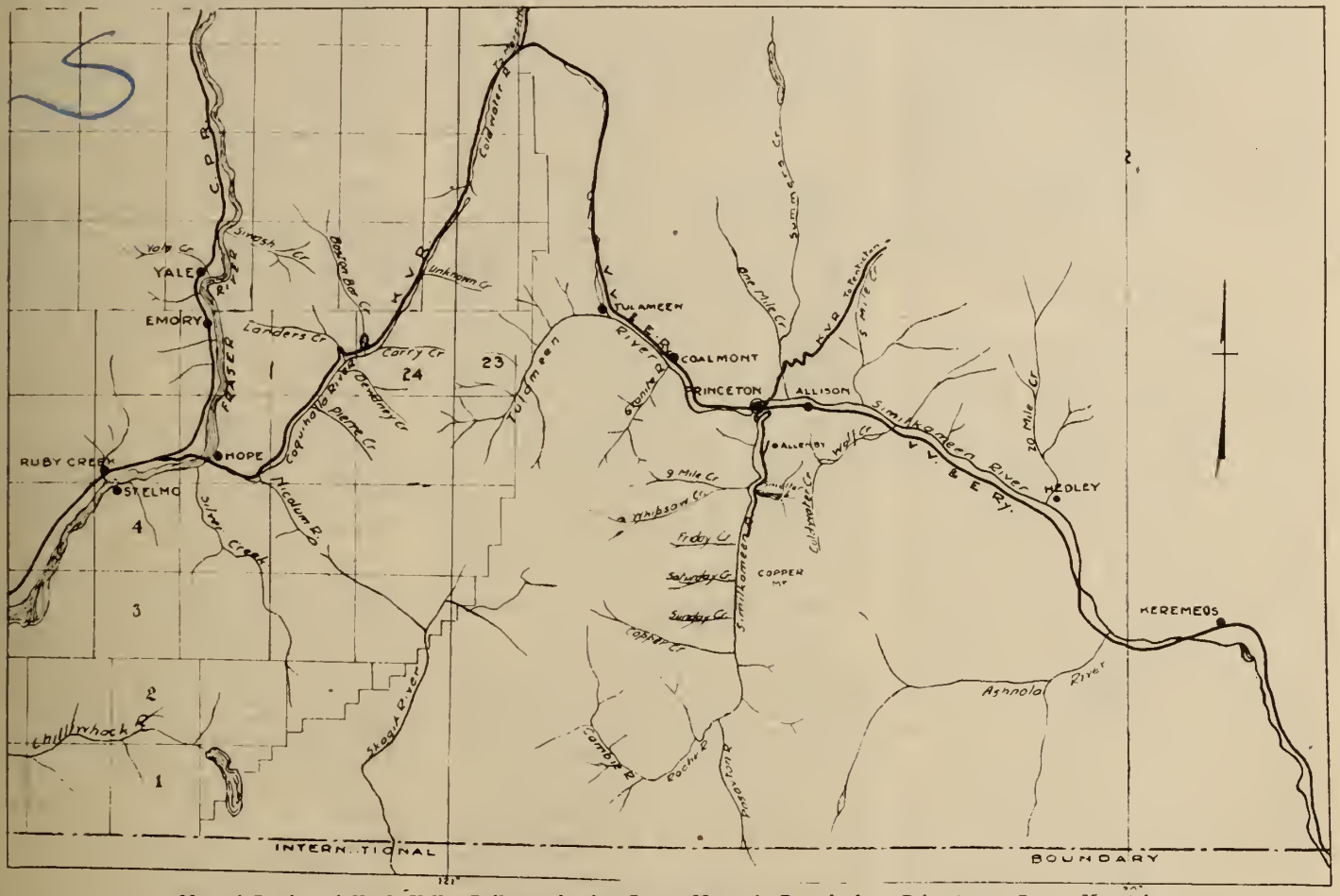
The K.V.R. Co.'s Copper Mountain Branch, which has been practically completed, the first ore from the mine to the concentrator having been handled on Oct. 18, 1920, leaves the K.V.R. and Vancouver, Victoria & Eastern Ry. joint line at the west end of Princeton yard, and extends southward along the Similkameen River for 13.7 miles to the Canada Copper Co.'s working tunnel at Copper Mountain, with a branch, or spur, 1.6 miles long, from mile 8 on the main branch to the Canada Copper Co.'s concentrator, and side tracks at Copper Mountain and at the concentrator.

The mileage is numbered from the south end at Copper Mountain to the main line at Princeton. At the south end of the track there is quite a town called Copper Mountain, built by the Canada Copper Co. At the concentrator, at mile 8, there is also quite a town, Allenby, built by the same company. The accompanying plan gives the location of the railway and of the two stations—Copper Mountain and Allenby.

The elevation of the track leaving Princeton yard is 2,123, and at the ore bunkers at Copper Mountain it is 3,020. The elevation of the working tunnel at the mine is 3,170. The country is rough, miles 0 to 4 being a very steep rocky slope, with the roadbed 300 to 400 ft. higher than the river. The balance is rolling country, sloping to the river, with big points projecting out from the hillside to the river, necessitating a great deal of curvature and heavy work, all sorts of material having been encountered, solid rock, boulders, hardpan, gumbo and sand. Maximum grades, of 2.2%, compensated for curvature at the rate of four one hundredths per degree of curve were used. The maximum curvature is 15 degrees. The quantities moved in grading were 1,026,000 cu. yd., of which 360,000 were solid rock.

Embankments are 16 ft. wide at profile grade; cuttings 20 ft. wide, with slopes according to kind of material.

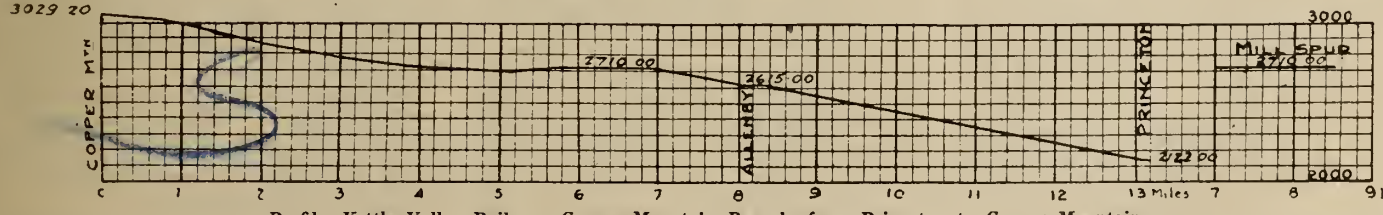
The ties are standard fir and tamarac, hewn. The rails for one half the mileage are 80 lb.; for the other half 85 lb. section. Tie plates are used on curves. The ballast is gravel, from a deposit at mile 12.



Map of Portion of Kettle Valley Railway, showing Copper Mountain Branch, from Princeton to Copper Mountain.

The grading and bridge and trestle work was done by contract by W. P. Tierney; the tracklaying, ballasting and surfacing by the company's forces.

The line was built to handle the output of the Canada Copper Co.'s mines, this company having done a great deal of development work on the mountain.



Profile, Kettle Valley Railway, Copper Mountain Branch, from Princeton to Copper Mountain.

There is one bridge across the Similkameen River, at mile 13.2, consisting of one Howe truss span, 150 ft. long, and one Howe truss span, 100 ft. long, both spans on concrete foundations. There are 20 thestles, containing 2,000,000 ft. b. m. of timber. Eighteen of these trestles are on miles 0 to 4. There are four tunnels of a total length of 882 lin. ft., between mile 2.8 and 3.3. Two of them are through very hard rock and did not require lining. Two are lined throughout with timber.

It is reported that the development has shown up 12,000,000 tons of copper ore. This ore will be hauled to Allenby, 8 miles, where the Canada Copper Co. has a concentrator of 2,000 tons capacity a day, and will there be reduced to about one fifteenth of the original weight, and in the form of concentrates will be hauled to a smelter, presumably at Trail. A transmission line nearly 200 miles long, carrying electrical power from Bonnington Falls to the mines, has been built by the West Kootenay Power Co.

Traffic Orders by Board of Railway Commissioners.

Charge for Milling Grain in Transit.

General order 319. Nov. 30, 1920.—Re complaint of Premier Milling Co., Portage la Prairie, Man., against increase, on Aug. 26, 1920, of charge for milling grain in transit in Canada in connection with the international movement, from 1c. to 1½c. per 100 lb. Upon its appearing that the Canadian Pacific and the Grand Trunk Pacific Railways on Oct. 25, 1920, and the Canadian National Rys. on Nov. 1, 1920, voluntarily reduced the charge for milling grain in transit in Canada to 1c. per 100 lb.; upon reading what is alleged in support of the complaint and on behalf of the Winnipeg Board of Trade and the C.P.R., and upon the report and recommendation of the Board's Chief Traffic Officer, it is declared that the proper charge for milling-in-transit, within Canada, of grain, the product of which is reshipped to the United States, was 1c. per 100 lb. on and after Aug. 26, 1920.

Express Rates on Pasteurized Cream.

General order 320. Dec. 9, 1920.—Re application of National Dairy Council of Canada, for an order requiring the carriage of pasteurized cream by express at the rates for ordinary cream. Upon hearing the application at Ottawa, Nov. 3, 1920, the applicants, the Express Traffic Association of Canada, and the Dominion and Canadian Express Companies being represented at the hearing, and what was alleged, the Board orders that pasteurized cream be carried by express companies at the same rates as ordinary cream; and that the Express Classification for Canada No. 4, and special tariffs published and filed to apply on "Cream," be amended accordingly.

Chief Commissioner Carvell gave the following judgment in this matter:—This case was heard by the Board on Nov. 3, 1920, and it seems that, in some cases, the express companies have been treating pasteurized cream as coming under the classification "Cream, condensed or otherwise manufactured or prepared," which carries the 1st class rate, whereas ordinary cream moves under the 2nd class rate, the contention being that the pasteurized cream is a preparation of some kind, which would place it in the first class. As explained to the Board, the pasteurization of cream simply means that it has been heated to about 145°, held at that temperature for about 30 minutes, and quickly reduced to a temperature below 50°. It is simply a process of exterminating, for the time being, any bacteria which might be in the article, and, if it can be kept below 50° upon ice, it arrives at its destination without the presence of bacteria to any extent. It is claimed that it is the same cream as it was before the treatment, with no change in bulk or ingredients, excepting that a certain amount of bacteria has been removed therefrom. In view of these facts, which were not denied, I consider it should be carried at the same rates as ordinary cream.

Reduced Standard Passenger Fares.

General order 323, Dec. 14, 1920.—Re application of railway companies for approval of reduced standard passenger fares, to become effective Jan. 1, 1921. Whereas supplements to standard passenger tariffs have been filed by the undermentioned railway companies, to become effective Jan. 1, 1921, on the reduced basis prescribed by the Board's judgment of Sept. 6, 1920, and general order 308, Sept. 9, 1920, the Board orders that the following supplements to standard passenger tariffs be approved; the said supplements to be published in at least two consecutive weekly issues of the Canada Gazette, preceded by the following notice:—

"The undermentioned supplements to standard passenger tariffs, effective Jan. 1, 1921, having been filed for the approval of the Board of Railway Commissioners for Canada, and having been found by the Board to be in accordance with its judgment, dated Sept. 6, 1920, and its general order 308, dated Sept. 9, 1920, and having been aproved by its general order 323, dated Dec. 14, 1920, the same are hereby published."

	C.R.C. no.
Boston & Maine Rd., Supplement 2 to	305
Canadian National Rys., Supplement 2 to Canadian Northern	E-1064
Canadian National Rys., Supplement 3 to Canadian Northern	W-1492
Canadian National Rys., Supplement 2 to H. & S.W.	P-77
Canadian Pacific Ry., Supplement 2 to	E-3187
Central Vermont Ry., Supplement 3 to	502
Dominion Atlantic Ry., Supplement 2 to	404
Fredericton & Grand Lake Coal & Ry., Supplement 2 to	4
Glengarry & Stormont Ry., Supplement 3 to	2
Grand Trunk Pacific Ry., Supplement 3 to	660
Grand Trunk Ry., Supplement 3 to	E-2669
Great Northern Ry., Supplement 3 to	1161
Maine Central Rd., Supplement 3 to	214
Michigan Central Rd., Supplement 3 to	2441
Napierville Junction Ry., Supplement 3 to	92
New Brunswick Coal & Ry., Supplement 2 to	4
New York Central Rd., Supplement 4 to	191
Northern Pacific Ry. (Midland Ry. of Manitoba), Supplement 2 to	317
Pere Marquette Ry., Supplement 2 to	580
Quebec Central Ry., Supplement 2 to	174
Toronto, Hamilton & Buffalo Ry., Supplement 2 to	1209
Wabash Ry., Supplement 2 to	996

Reduced Standard Freight Tariffs of Maximum Mileage Tolls.

General order 324, Dec. 14, 1920.—Re application of railway companies for approval of reduced standard freight tariffs of maximum mileage tolls, to become effective Jan. 1, 1921. Whereas standard freight tariffs have been filed by the undermentioned railway companies, to become effective Jan. 1, 1921, on the reduced basis prescribed by the Board's judgment of Sept. 6, 1920, and general order 308, Sept. 9, 1920, the Board orders that the following standard freight tariffs of maximum tolls be approved; the rate scales of the said tariffs to be published in at least two consecutive weekly issues of the Canada Gazette, preceded by the following notice:—

"The undermentioned standard freight tariffs having been filed for the approval of the Board of Railway Commissioners for Canada, and having been found by the Board to be in accordance with its judgment, dated Sept. 6, 1920, and its general order 308, dated Sept. 9, 1920, and having been approved by general order of the Board no. 324, dated Dec. 14, 1920, the rate scales thereof are hereby published."

	C.R.C. no.
Algoma Central & Hudson Bay Ry.	556
Algoma Eastern Ry.	287
Atlantic, Quebec & Western Ry.	83
Boston & Maine Rd.	2047
British Columbia Electric Ry.	164
Canadian National Rys.	E-177, E-178, W-110
Canadian Pacific Ry.	E-3796, W2545
Central Vermont Ry.	1549
Cumberland Ry. & Coal Co.	13
Dominion Atlantic Ry.	643
Esquimalt & Nanaimo Ry.	468
Essex Terminal Ry.	553
Fredericton & Grand Lake Coal & Ry	103
Glengarry & Stormont Ry.	149
Grand Trunk Ry.	E-4366
Grand Trunk Pacific Ry.	424
Great Northern Ry.	1627, 1628, 1629, 1630
Kettle Valley Ry.	251
Maine Central Rd.	C-1945
Michigan Central Rd.	2978
Napierville Junction Ry.	233
New Brunswick Coal & Ry.	70
New York Central Rd.	2269, 2270
Pere Marquette Ry.	2316
Quebec Central Ry.	744
Quebec Oriental Ry.	101
Temiscouata Ry.	413
Thousand Island Ry.	381
Toronto, Hamilton & Buffalo Ry.	1295

British Columbia Electric Railway Freight Rates.

30,376. Nov. 29, 1920.—Re application of British Columbia Electric Ry. under sec. 331 of the Railway Act, 1919, for approval of its standard freight mileage tariff, supplement 1 to C.R.C. 132. Upon the report and recommendation of the Board's Chief Traffic Officer, it is ordered that the said tariff, to become effective Dec. 6, 1920, be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Chatham, Wallaceburg & Lake Erie Ry. Passenger Tariff.

30,382. Nov. 30, 1920.—Re application of Chatham, Wallaceburg & Lake Erie Ry., under sec. 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff, C.R.C. 42. Upon reading the submissions filed in support of the application, the Board orders that the said tariff, to become effective Dec. 6, 1920, be approved; the said tariff, with a reference to this order, to be published in at least two consecutive weekly issues of the Canada Gazette.

The judgment on which this order was based is published in full, farther on in this issue, under "Increases in Electric Railway Freight and Passenger Rates."

Chatham, Wallaceburg & Lake Erie Railway's Freight Tariff.

30,383. Nov. 30, 1920.—Re application of Chatham, Wallaceburg & Lake Erie Ry., under sec. 331 of the Railway Act, 1919, for approval of its standard freight mileage tariff, supplement 1 to C.R.C. 576. Upon reading the submissions filed in support of the application, the Board orders that the said tariff, to become effective Dec. 6, 1920, be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Windsor, Essex & Lake Shore Rapid Railway's Freight Tariff.

30,392. Nov. 30, 1920. — Re application of Windsor, Essex & Lake Shore Rapid Ry., under sec. 331 of the Railway Act, 1919, for approval of its standard mileage freight tariff, C.R.C. 269. Upon the report and recommendation of the Board's Chief Traffic Officer, and reading the submissions filed in support of the application, the Board orders that the said tariff, to become effective Dec. 6, 1920, be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

The Assistant Chief Commissioner's memorandum, on which this order was based, is given fully, in the Electric Railway Department, farther on in this issue, under "Increases in Electric Railway Freight and Passenger Rates."

Demurrage During Influenza Epidemic.

30,403. Nov. 30, 1920.—Re application of Dominion Canners, Limited, for an order requiring the G.T.R. to refund demurrage which accrued during the influenza epidemic of 1918. Upon reading the submissions filed, the Board orders that the application be refused.

The judgment in this case was given by Assistant Chief Commissioner McLean, as follows:—Application is made by the Dominion Canners, Ltd., of Hamilton, Ont., respecting certain claims for refund of demurrage charges, which ac-

crued on G.T.R. lines during the influenza epidemic. The Board, on May 31, 1919, issued a notice that the special treatment given in respect of influenza conditions was to terminate on June 15, 1919. This notification at the same time set out that it did not in any way affect claims then under consideration, or claims in respect of relief under the judgment in the matter of car demurrage rules, influenza epidemic, which might be filed prior to June 15, 1919.

The situation, in brief, is that claims were filed with the G.T.R. on or about Jan. 22, 1919. Correspondence took place between the Canadian Car Demurrage Bureau and the applicant, pointing out that certain particulars were necessary. Applicant was asked to supply receipted expense bills, also to file an affidavit to the effect that the total amount of demurrage so charged was a direct result of the epidemic, or, in the alternative, the affidavit to state just what proportion of the amount charged was directly attributable to this cause. The sum involved amounts to $111. Under date of Mar. 12, 1919, applicant furnished information as to the number of men employed immediately previous to the epidemic period and also during the period of epidemic.

The judgment provides as follows:—

"Applicants for relief under the Board's order, so that the question can properly be disposed of, not only as between the railways and the merchants, but as between merchants themselves, and by affidavit or declaration, giving the following particulars:—

"1. The number of men employed immediately previous to the epidemic.

"2. The number of men employed during the continuance of the epidemic and at the time the company interested, evidence in writing, either so that all may be treated on a like basis and without discrimination, should file with the Car Service Bureau, or with the immediate railway default in question took place.

"3. Any special or auxiliary efforts made to release the cars during such period, such as by taking men when possible from otber branches of the firm's activities, or securing them from outside sources, such as the services of outside carters when available, or showing that no men were available in other branches of the applicant's business.

"4. What action, if any, was taken to stop further shipments to the plant until tbe epidemic had ceased.

"5. If no action was so taken, to show whether, in the course of trade and having regard to the dates of shipments, any such action was possible."

As the treatment given was special in its nature, it follows that rigid compliance with the regulations above quoted is absolutely essential. As pointed out, the evidence was to be supplied in writing, either by affidavit or statutory declaration. The various particulars called for under nos. 1 to 5 above set out were not, according to the material filed, set out in the affidavits or declarations. The Board has before it copies of statutory declarations by G. Gibbs, of Simcoe, made June 22, 1920; by T. E. Puzey, of Simcoe, made April 5, 1920; and by O. Uptgrove, of Brantford, made April 5, 1920. These declarations set out, in the case of Gibbs, that he had charge of the unloading of tin plate at the Dominion Canners Ltd. factory at Simcoe, and that between Oct. 29 and Nov. 20, 1918, both inclusive, there was a delay at the factory in the unloading of certain cars specified; and that the delay was caused through illness of various hands at the factory or of their respective families from Spanish influenza, which was epidemic throughout the town at that time; and it was, therefore, impossible to load cars promptly during that period. Puzey's declaration sets out that he was engaged as a shipper at the Dominion Canners Ltd. factory at Simcoe, and in this capacity had charge of the unloading of certain railway cars at the factory during the autumn of 1918, and that in the case of one car specifically mentioned the delay in unloading was due to influenza conditions. The declaration of Uptgrove, who was Manager of the evaporator at Simcoe during the autumn and winter of 1918-19, states that there were delays between Oct. 29 and Nov. 20, 1918, in respect of the unloading of specified cars, and that the delay was due to influenza conditions.

In the claim as filed with the Board, it is stated that—

"We would advise that our factory at Simcoe informs us that the delay in forwarding documents was due to the fact that one who should have made affidavit was not in our employ, and it took considerable time to locate him. In the meantime, they held up the balance of the information, so that it could be all placed before tbe carriers at one time."

Reference is made to one affidavit; it is not clear why the other declarations were delayed. The regulations as to what was required and the way in which the information was to be submitted, and the time when the information was to be submitted, are all specifically set out in the judgment above referred to. The judgment was issued as a result of some difficulties which had arisen in connection witih the construction of the Board's judgment in the same matter, which issued a month previous to the judgment herein concerned; and it was with a knowledge of the difficulties which had arisen that the specific requirements, already set out, were provided for. The judgment provides for the initiation of the claim by the filing of an affidavit or declaration setting out the requisite particulars. As already set out, the declarations were not made until a considerable period had elapsed after the termination of the period set for filing of claims. The declarations were supplied to Mr. Collins on July 8, 1920. Further, the declarations as made do not follow the detailed requirements of the judgment. The whole question narrows down to this—has the applicant complied with the requirements of the judgment? It has to be held that it has not.

This judgment was concurred in by Chief Commissioner Carvell and Commissioner Boyce.

British Columbia Electric Railway Passenger Fares.

30,409. Dec. 2, 1920.—Re application of British Columbia Electric Ry., under sec. 334 of the Railway Act, 1919, for approval of supplement 1 to its standard tariff of maximum fares, C.R.C. 8. Upon the report and recommendation of the Board's Chief Traffic Officer, it is ordered that the said supplement be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Revised Reconsigning Rules.

30,411. Dec. 6, 1920.—Re application of E. Morris, Chairman, Central Freight Association, Chicago, for permission to file on one day notice, certain revised reconsigning rules on all freight in open cars, and coal and coke in all cars. Upon it appearing that the Interstate Commerce Commission, by its special permission 51,143, Nov. 26, 1920, has authorized the filing of the said revised rules upon one day notice, and it being desirable that there shall be uniformity of rules on international traffic, and upon the recommendation of the Board's Traffic Department, the Board orders that E. Morris, Chairman, Central Freight Association, Chicago, as agent for various railways, also all other railways publishing reconsignment rules on international traffic, be permitted to file with the Board upon one day notice supplements or tariffs containing revised reconsigning rules and charges within the United States, applicable on all freight in open cars, and coal and coke in all cars.

Illegal Shipping of Whiskey.

30,413. Dec. 7, 1920.—Re application of C.P.R., under sec. 428 of the Railway Act, 1919, for leave to prosecute Wm. Scott, for alleged violation of the provisions of the said section. Upon its being represented to the Board that on Dec. 1, 1920, Wm. Scott checked as baggage two trunks from Medicine Hat, Alta., to Yellow Grass, Sask., which upon examination were found to contain whiskey, in contravention of the provisions of sec. 428 of the Railway Act, 1919; in pursuance of the powers thereby conferred and upon reading what was alleged in support of the application, the Board orders that leave be granted the C.P.R. to prosecute the said Wm. Scott for such alleged violation.

Express Rates on Fish from Manitoba to United States.

30,446. Dec. 17, 1920.—Re consideration of express rates of fresh fish, in carloads, from Gimli, Man., to United States destinations. Upon hearing the matter at Winnipeg, Oct. 26, 1920, the Riverton Fish Co., the Express Traffic Association, the Canadian and Dominion Express Companies, and the fishing industry of Manitoba being represented at the hearing, and what was alleged, the Board orders that the express rates applicable on fresh fish, in carloads of the minimum weight of 20,000 lb. classification basis, from Riverton and Gimli, Man., to destinations in the United States included in the present tariff, be amended as follows: (a) From Riverton so as not to exceed the rates concurrently in effect from Winnipegosis, Man. (b) From Gimli, so as not to exceed 58.33% of the difference between the rates concurrently in effect from Riverton and Selkirk, Man., added to the rates from Selkirk. And it is further ordered that the schedule to give effect to this order be published and filed to come into effect on Jan. 15, 1921, or so soon thereafter as the Interstate Commerce Commission may permit.

Suspension of Rate Increases.

30,481. Dec. 23, 1920.—Re application of the Saskatoon Board of Trade and Saskatchewan Associated Boards, Calgary Board of Trade, Winnipeg Board of Trade Toronto Board of Trade, Toronto Board of Control, in support of western boards of trade and trade organizations, the City of Toronto and hydro municipalities, the Manitoba and Saskatchewan Governments, for an order suspending the railway rate increases as granted by general order 308, Sept. 9, 1920; or, in the alternative, varying the order by reducing the increases thereby granted on railway lines west of Fort William to 15%. Upon hearing the applications at Ottawa, Nov. 22, 1920, the applicants, Montreal Board of Trade, Canadian Manufacturers' Association, Canadian Railway Association, Canadian Pacific, Grand Trunk, Toronto, Hamilton & Buffalo and Canadian National Railways, Michigan Central Rd., Brotherhood of Locomotive Engineers, Department of Agriculture, Fruit Division, and the International Harvester Co. being represented at the hearing, and what was alleged, it is ordered that the applications be refused.

The Victoria, Australia, Government railways have raised their rates.

Mainly About Railway People Throughout Canada.

W. R. Baker, C.V.O., formerly Secretary, C.P.R. Co., has been re-elected President, Royal Montreal Golf Club.

Aubrey Cecil Barker, whose appointment as Superintendent, Moncton Division, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B., was announced in our last issue, was born at Lacadie, Que., Aug. 5, 1878, and entered railway service Oct. 1, 1895, since when he has been, to April 1900, agent and operator at various points, Eastern Division, C.P.R.; May 1900 to Oct. 1913, dispatcher and Chief Dispatcher consecutively, Lake Superior Division, C.P.R., Chapleau, Ont.; Oct. 1913 to Oct. 1916, Inspector of Stations, Trains and Train Dispatching, Canadian Government Rys., Moncton, N.B.; Oct. 1916 to Sept. 1917, Supervisor of Telegraph and Time Service, and from Sept. 1917 to Dec. 1, 1920, also Assistant to General Superintendent, Maritime District, Canadian National Rys., Moncton.

E. W. Beatty, K.C., President, C.P.R., has presented a silver cup to the C.P.R. Amateur Athletic Association, for competition annually in a 10 mile open road race.

Adam Brown, father of Sir Geo. McLaren Brown, European General Manager, C.P.R., retired recently from the Postmastership at Hamilton, Ont., after occupying it for 30 years. Mr. Brown, who is 94 years of age, was one of the principal promoters of the Wellington, Grey & Bruce Ry., now part of the G.T.R. System. He is still a director of the Great North Western Telegraph Co.

Lafayette S. Brown, whose appointment as Assistant General Manager, Eastern Lines, Canadian National Rys., Montreal, was announced in our last issue, was born at Nelson, N.B., Oct. 19, 1864, and entered Intercolonial Ry. service Jan. 15, 1880, since when he has been, to Dec. 20, 1881, cleaning locomotives, and machinist helper, Newcastle, N.B.; Dec. 20, 1881, to Sept. 5, 1882, shunting in Newcastle yard and learning telegraphy; Sept. 5, 1882, to Nov. 25, 1883, assistant agent, Newcastle, N.B.; Nov. 26, 1883, to Oct. 4, 1898, train dispatcher, Moncton and Ste. Flavie District, Campbellton, N.B.; Oct. 4, 1898, to April 30, 1912, Chief Dispatcher, New Glasgow, N.S.; May 1, 1912, to July 31, 1913, Assistant Superintendent, Moncton and Ste. Flavie and Fredericton to Loggieville, N.B., Newcastle, N.B.; Aug. 1, 1913, to June 1, 1917, Superintendent, Truro, Sydney and Oxford District, I.R.C., afterwards District 4, Intercolonial Division, Canadian Government Rys., New Glasgow, N.S.; June 1 to Sept. 17, 1917, Assistant General Superintendent, Eastern Lines, Canadian Government Rys., Moncton, N.B.; Sept. 17, 1917, to Dec. 1918, General Superintendent, Eastern Lines, Canadian Government Rys., Moncton, N.B.; Dec. 1918 to Dec. 1, 1920, General Superintendent, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B.

Sir Geo. Bury has been visiting his sisters, the Misses Bury, in Montreal.

Lady Cartwright, widow of Sir Richard Cartwright, and mother of A. D. Cartwright, Secretary, Board of Railway Commissioners, died at Kingston, Ont., Dec. 24, aged 84.

Wm. Ashley Cole, former Chairman of the New York State Railway Commission and at one time City Editor, New York Herald, died Dec. 24, 1920, at West Pittston, Pa. He was born in England in 1841, moved to Canada in 1851 and went to New York City in 1860. He served throughout the Civil War.

W. Roberts Devenish, whose appointment as General Superintendent, Ontario District, Canadian National Rys., Toronto, was announced in our last issue, was born in County Tipperary, Ireland, Nov. 21, 1882, and entered transportation service in 1903, serving with the C.P.R. for eight years in various capacities in the Engineering and Maintenance of Way Departments, from rodman to Assistant Division Engineer, Lake Superior Division. He was appointed Division Engineer, Intercolonial Ry., Moncton, N.B., in Sept. 1913, and for a time prior to that he acted as Assistant Engineer with the National Transcontinental Ry. Investigating Commission. From Nov. 1915 to Aug. 31, 1916, he was Superintendent,

W. R. Devenish, C.E.,
General Superintendent, Ontario District, Canadian National Railways.

District 2, I.R.C., Campbellton, N.B.; Aug. 31, 1916, to Dec. 1, 1920, Superintendent, District 3, Intercolonial Division, Canadian Government Rys., now Moncton Division, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B.

L. V. Druce, who has been appointed Travelling Traffic Represenative, Canadian National-Grand Trunk Pacific Rys., Seattle, Wash., was born at London, Eng., Oct. 20, 1873, entered railway service in Aug. 1896 at Los Angeles, Cal., and was, from Mar. 1897 to Aug. 1904, Agent, Seatttle, Wash.; Aug. 1904 to May 23, 1910, Commercial Agent, Seattle, Wash.; May 23, 1910 to Dec. 21, 1916, Commercial Agent, G.T.R., G.T.P. R. and G.T.P. Coast Steamship Co., Vancouver, B.C.; Dec. 21, 1916 to Nov. 1920, Division Freight Agent, Grand Trunk Pacific Ry., and latterly Commercial Agent, Canadian National-Grand Trunk Pacific Rys., Edmonton, Alta.

Anthony C. Egan, who has been appointed General Auditor, Canadian Northern Ry. System and Grand Trunk Pacific Ry., Toronto, was born at Winnipeg, Oct. 6, 1883, and entered railway service in 1901, since when he has been, to 1904, accountant, C.P.R., Winnipeg; 1904 to 1909, in accounting department, Canadian Northern Ry., Winnipeg; 1909 to 1911, Chief Travelling Auditor, same road, Winnipeg; 1911 to Dec. 31 ,1918, Auditor of Agencies, same road, Winnipeg; Jan. 1 to Jan. 13, 1919, Auditor of Agencies, same road, Toronto; Jan. 13, 1918, to Dec. 1, 1920, Assistant Comptroller, Canadian Northern Ry., Toronto.

John M. R. Fairbairn, President elect, Engineering Institute of Canada, was born at Peterborough, Ont., June 30, 1873. He graduated from the School of Practical Science, Toronto, in 1893, and until Aug. 1901, was engaged in survey and construction work, since when he has been, to Nov. 1902, Assistant Engineer, Maintenance Department, Eastern Lines, C.P.R.; Nov. 1902 to Aug. 1904, Resident Engineer, District 4, C.P.R., Ottawa; Aug. 1904 to Aug. 1905, Assistant Engineer, Chief Engineer's office, C.P.R., Montreal; Aug. 1905 to Mar. 1906, acting Division Engineer, Eastern Division, C.P.R., Montreal; Mar. 1906 to Nov. 1907, Division Engineer, Ontario Division, C.P., R., Toronto; Nov. 1907 to Oct. 1908, Division Engineer, Eastern Division, C.P.R., Montreal; Oct. 1908 to Oct. 1910, Principal Assistant Engineer, Eastern Lines, C.P.R., Montreal; Oct. 1910 to Feb. 1911, Engineer of Maintenance of Way, Eastern Lines, C.P.R., Montreal; Feb. to Sept. 1911, acting Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal; Sept. 1911 to July 1, 1918, Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal; and since July 1, 1918, Chief Engineer, C.P.R., Montreal. He will be the guest of the Engineering Institute of Canada's Ottawa branch at luncheon on Jan. 6 and will address the members.

Mrs. Girouard, who died at Ottawa, Dec. 4, was the widow of the late Mr. Justice Girouard of the Supreme Court of Canada, and mother of Major General Sir Percy Girouard, K.C.M.G., D.S.O., London, Eng., who was at one time in C.P.R. engineering service and later was engaged in railway service in Egypt and South Africa during the Boer War, and in France and Belgium for some time during the recent European war.

Grant Hall, Vice President, C.P.R., was entertained at dinner at Boston, Mass., by the New England Railroad Club, Dec. 14, and spoke on some phases of railway operation in Canada. Other speakers were:—F. L. Wanklyn, General Executive Assistant, C.P.R.; J. H. Walsh, General Manager, Quebec Central Ry.

Miss Madeleine Hall, daughter of Grant Hall, Vice President, C.P.R., was married at Montreal, Dec. 29, to Stockwell Day, of Montreal.

Frank L. Hutchinson, who has resigned as Manager in Chief of Hotels, C.P.R., Montreal, as forecast in a previous issue, was born at London, Ont., Aug. 10, 1869, and first entered C.P.R. service in 1908, since when he has been, to 1910, Manager, Chateau Frontenac, Quebec, Que.; 1911, Assistant to Manager in Chief of Hotels, C.P.R.; 1912 to 1913, Superintendent of Hotels in Alberta and British Columbia, C.P.R.; Aug. 1913 to Mar. 1915, Manager, Windsor Hotel,

Montreal; Mar. 1915 to Dec. 1920, Manager in Chief of Hotels, C.P.R. Prior to entering the C.P.R. service, he was for 4 years a member of the Montreal Stock Exchange, and for 13 years prior to that was with the Bank of Montreal. He is reported to have bought a 260 acre farm near Chemainus, B.C.

R. C. Jennings, who died at Toronto, Dec. 2, 1920, aged 78, and who was formerly in the Canadian Bank of Commerce service, was father of R. B. Jennings, Division Engineer, Canadian National Rys., Toronto.

William A. Kingsland, whose appointment as General Manager, Eastern Lines, Canadian National Rys., Montreal, was announced in our last issue, was born at New York, N.Y., Jan. 5, 1869, and entered transportation service in 1887, since when he has been, to 1889, billing clerk, Delaware, Lackawanna & Western Ry., New York; 1889 to Oct. 26, 1900, clerk, Audit Department, New York Central Rd., New York; Oct. 26, 1900 to 1904, Auditor, Great Northern Ry. of Canada, Quebec, Que.; 1904 to Sept. 10, 1915, Auditor, Canadian Northern Quebec Ry., and also from Mar. 24, 1908 to Sept. 10, 1915, Auditor, Quebec & Lake St. John Ry., Quebec, Que.; Sept. 10, 1915, to Nov. 21, 1918, General Superintendent, Canadian Northern Ry., Montreal; Nov. 21, 1918, to Dec. 1, 1920, Assistant General Manager, Eastern Lines, Canadian National Rys., Montreal.

Edward Langham, who retired recently from the position of General Purchasing Agent, Canadian National Rys., Toronto, was born in England in 1852, and entered transportation service in 1875, since when he has been, to 1877, handling material on construction, New York Central Rd., Rochester, N.Y.; 1877 to 1878. on construction of small coal roads in Pennsylvania; 1878 to 1882, handling construction and general material, Chicago, Ill.; 1882 to 1886, handling construction material, C.P.R., Winnipeg; 1886 to 1888, handling construction material, C.P.R., in Maine; 1888 to 1891, handling construction material, C.P.R., Calgary, Alta.; 1891 to 1895, handling construction material, Toronto Ry. (electric), Toronto; 1895 to 1898, Purchasing Agent, Birmingham Tramways, Birmingham, Eng.; 1898 to 1902, Material Agent, Canadian Northern Ry., Winnipeg; 1902 to Feb. 1917, Purchasing Agent, C.N.R., Winnipeg; Feb. 1917 to Dec. 1, 1920, General Purchasing Agent, Canadian National Rys., Toronto. Mr. Langham was entertained at dinner at the National Club, Toronto, on Dec. 17, when D. B. Hanna, President, C.N.R., presided, and presented him with a gold watch and chain on behalf of the C.N.R. officers and officials. Other friends outside the service gave him a wardrobe trunk, club bag and steamship rug. Mr. Langham intended to sail from Vancouver on Jan. 5, with M. H. MacLeod, Vice President, Construction, C.N.R., on the Canadian Government Merchant Marine s.s. Canadian Highlander, but fell and received injuries which necessitated going to St. Michael's Hospital, Toronto, and his doctor would not let him undertake the journey.

Vernon L. Lawson, who has been appointed secretary to Chief Engineer, Railway and Canals Department, Ottawa, was born at Battersea, Ont., Jan. 12, 1883, and has been, from Aug. 1, 1900 to Dec. 1, 1901, clerk, Stationery Department, C.P.R., Montreal; Dec. 1, 1901 to May 31, 1903, clerk, Stationery Department, C.P.R., Winnipeg; June 1 to Oct. 15, 1903, stationery agent, Canadian Northern Ry., Winnipeg; Nov. 1 to Nov. 30, 1903, clerk, Car Accountant's office, G.T.R., Montreal; Dec. 1, 1903 to May 31, 1906, clerk, Passenger Department, C.P.R., Montreal; June 1 to Sept. 30, 1906, accountant, O'Brien & Mullarkey, railway contractors, Montreal; Oct. 1, 1906 to May 31, 1908, ticket delivery and refund clerk, C.P.R., Montreal; June 1 to Aug. 31, 1908, recorder, shop production, Canadian Car & Foundry Co., Montreal; Sept. 1, 1908 to Dec. 1, 1912, seed grain accountant, Interior Department, Ottawa; Dec. 1, 1912 to Aug. 1914, secretary, Chief Engineer's office, Railways and Canals Department, Ottawa; Aug. 1914 to Oct. 31, 1920, correspondence clerk, Interior Department, Ottawa.

G. T. Maley, who died at Western Hospital, Montreal, Dec. 30, 1920, aged 82, as the result of an accident a few weeks

John M. R. Fairbairn,
Chief Engineer, Canadian Pacific Ry., and President elect, Engineering Institute of Canada.

previously, was father of Mrs. Grant Hall, wife of the Vice President, C.P.R. The funeral took place at Kempville, Ont., where he was born.

John D. McAuley, who has been appointed Soliciting Freight Agent, Canadian National-Grand Trunk Rys., Montreal, was born in Plantagenet, Ont., June 11, 1884, and entered railway service Oct. 1904, since when he has been, to Dec. 1908, in Local Freight Department, G.T.R., Montreal; Dec. 1908 to June 1911, in Freight Claims Department, G.T.R., Montreal; June 1911 to Sept. 1913, in Foreign Freight Department, G.T.R., Montreal; Sept. 1913 to Sept. 1914, City Freight Agent, Grand Trunk Pacific Ry., Vancouver, B.C.; Sept. 1914 to Mar. 1, 1916, City Freight Agent, G.T.P.R., Regina, Sask.; Mar. 1 to Dec. 21, 1916, Travelling Freight and Passenger Agent, G.T.P.R., and G.T.P.C.S. Co., Juneau, Alaska; Dec. 21, 1916 to Nov. 1920, Commercial Agent, Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., Prince Rupert, B.C.

Lorne McCutcheon, whose appointment as Foreign Freight Agent, Canadian National Rys., Vancouver, B.C., was announced in our last issue, was born there, Mar. 19, 1893, and entered railway service July 21, 1907, since when he has been, to Nov. 30, 1908, junior clerk, C.P.R., Nelson, B.C.; Dec. 1, 1908 to Oct. 15, 1909, secretary to Superintendent, C.P.R., Nelson, B.C.; Oct. 19, 1909 to Apr. 1911, secretary to Manager, British Columbia Electric Ry., New Westminster, B.C.; May 1911 to Aug. 15, 1916, chief clerk to General Freight and Passenger Agent, B.C.E.R., New Westminster and Vancouver, B.C.; Sept. 1, 1916 to June 15, 1918, chief clerk to Division Freight Agent, Canadian Northern Ry., Vancouver; June 16, 1918 to Jan. 31, 1920, Travelling Freight Agent, Canadian National Rys., Vancouver; Feb. 1 to Oct. 18, 1920, Export and Import Freight Agent, Canadian National Rys., Vancouver.

Alexander John McDougall, District Passenger Agent, Illinois Central Rd., Birmingham, Ala., died there suddenly, Dec. 1. He was born at Waterloo, Ont., Feb. 6, 1866, and entered railway service in 1888, and was ticket agent, G.T.R., Berlin, Ont., until Mar. 1890, when he entered Illinois Central Rd. service, continuing in it until his death, as follows: Mar. 1890 to Apr. 1891, Travelling Passenger Agent, Berlin, Ont.; Apr. 1891 to July 1900, Assistant General Eastern Agent, New York; July 1900 to Jan. 1903, General Eastern Passenger Agent, New York; Jan. 1903 to Mar. 1911, Division Passenger Agent, New Orleans, La.; Mar. 1911 to Mar. 1914, District Passenger Agent, Indianapolis, Ind.; Mar. 1914 to Feb. 1918, District Passenger Agent, St. Paul, Minn.; Feb. to Sept. 1918, District Passenger Agent, Chicago, Ill.; Sept. 1918 to Jan. 1919, Passenger Agent, Memphis, Tenn.; Jan. 1919 to the time of his death, District Passenger Agent, Birmingham, Ala. The funeral took place Dec. 3 from his sister's house at Galt, Ont.

D. J. McKeown, insurance and real estate agent, North Bay, Ont., was found dead in his office there Dec. 26, 1920. He went to North Bay, about 30 years ago, as station agent, C.P.R.

M. H. MacLeod, Vice President, Construction, Canadian National Rys., and E. Langham, who retired from the position of General Purchasing Agent, recently, will not sail from Vancouver, by the Canadian Government Merchant Marine s.s. Canadian Highlander, early in January, for a trip to Australia and New Zealand, as stated in Canadian Railway & Marine World for December, Mr. Langham having sustained a fall which necessitated his entering a hospital, and his doctor not considering it advisable for him to undertake the proposed journey.

Harry C. Meachem, whose appointment as Import Freight Agent, Canadian National Rys., Montreal, was announced in our last issue, was born at Brantford, Ont., Aug. 11, 1863, and entered railway service Oct. 1, 1882, since when he has been, to July 1909, in various positions from junior clerk to chief clerk and Contracting Agent for the fast freight lines connected with the Grand Trunk-Great Eastern Line at Boston, Mass., and Detroit, Mich., Ontario Despatch at Chicago, Ill., Commercial Express at St. Paul, Minn., and National Despatch at cago, Ill.; May 1, 1910 to Oct. 15, 1920, Soliciting Freight Agent, G.T.R., Chicago, Ill.; Ma 1, 1910 to Oct. 15, 1920, Assistant to Foreign Freight Agent, dealing with import traffic, G.T.R., Montreal.

G. A. McNicholl, Assistant General Passenger Agent, Canadian National

Rys., Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Prince Rupert, B.C., returned there, Nov. 30, from Montreal, where he had been to attend the funeral of his father, Jas. McNicholl, who died there, Nov. 6.

John Duncan MacNutt, whose appointment as Assistant Superintendent, Halifax Division, Maritime District, Eastern Lines, Canadian National Rys., Truro, N.S., was announced in our last issue, was born at Stewiacke, N.S., Feb. 8, 1873, and entered Intercolonial Ry. service in 1889, since when he has been, to 1890, telegraph operator, Stewiacke, N.S.; 1890 to 1891, relieving agent; 1891 to 1893, operator in dispatcher's office, Truro, N.S.; 1893 to 1896, dispatcher, Truro; 1896 to 1898, dispatcher, Moncton, N.B.; 1898 to 1900, dispatcher, New Glasgow, N.S.; 1900 to 1904, Chief Dispatcher, Sydney, N.S.; 1904 to 1906, Chief Dispatcher, Fredericton, N.B.; 1906 to 1909, Chief Dispatcher, Newcastle, N.B.; 1909 to Mar. 15, 1917, dispatcher, and acting Chief Dispatcher, Truro, N.S.; Mar. 15, 1917 to Dec. 1, 1920, Inspector of Train Dispatching, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B.

John Millward, who died at Toronto, Dec. 4, aged 82, is said to have been fireman on the Lady Elgin, the first locomotive which ran between Toronto and Meaford, on the Northern Ry., later incorporated into the G.T.R. system.

H. H. Norman, Secretary, Grand Trunk Ry. Co., London, Eng., died there, Dec. 21. He has been in the company's service for about 50 years.

John C. O'Donnell, whose appointment as General Superintendent, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B., was announced in our last issue, was born at Cobden, Ont., Dec. 17, 1879, and entered railway service, Sept. 15, 1899, since when he has been, to Sept. 1, 1901, freight brakeman, C.P.R., Chapleau, Ont.; Sept. 1, 1901, to May 1, 1902, freight conductor, C.P.R., Chapleau, Ont.; June 10, 1902, to May 1, 1905, brakeman and conductor, C.P.R., Cranbrook, B.C.; May 5 to July 2, 1905, brakeman, Canadian Northern Ry., Kamsack, Sask.; July 2, 1905, to Nov. 1, 1909, conductor, C.N.R., Battleford, Sask.; Nov. 1, 1909, to Feb. 20, 1911, Trainmaster, C.N.R., Dauphin, Man.; Feb. 20, 1911, to June 30, 1912, Trainmaster, C.N.R., Winnipeg, Man.; July 1, 1912, to July 1, 1914, Trainmaster, C.N.R., Rainy River, Ont.; July 1, 1914, to Oct. 31, 1916, Superintendent, District 3, Western Division, C.N.R., Edmonton, Alta.; Oct. 31, 1916, to Dec. 1, 1920, Superintendent, Districts 2 and 3, Central Division, Canadian Northern Ry., now Manitoba Division, Central District, Canadian National Rys., Winnipeg.

R. Preston, who has been appointed Superintendent of Motive Power, Eastern Lines, C.P.R., Montreal, was born at Toronto, July 28, 1863, and entered G. T.R. service there, as machinists' apprentice, and finished his apprenticeship with the Toronto, Grey & Bruce Ry., subsequently absorbed by the C.P.R., since when he has been, from May 1887 to May 1890, locomotive foreman, C.P.R., Havelock, Ont.; May 1890 to Aug. 1894, locomotive foreman, C.P.R., London, Ont.; Aug. 1894 to Oct. 1897, locomotive foreman, C.P.R., Smiths Falls, Ont.; 1897 to Aug. 1898, locomotive foreman, C.P.R., Montreal; Aug. 1898 to May 1901, locomotive foreman, C.P.R., Toronto; May, 1901 to Oct. 1903, Master Mechanic, Lake Superior Division, C.P.R., North Bay, Ont.; Oct. 1903 to Feb. 1908, Master Mechanic, Ontario Division, C.P.R., Toronto; Feb., 1908 to June 21, 1909, Shop Superintendent, C.P.R., Toronto; June 21, 1909 to Feb. 1914, Master Mechanic, Central Division (now Manitoba District), C.P.R., Winnipeg; Feb. 1914 to Dec. 31, 1920, Assistant Superintendent of Motive Power, Western Lines, C.P.R., Winnipeg.

R. A. Pyne, who has been appointed Superintendent of Motive Power, Western Lines, C.P.R., Winnipeg, was born at Toronto, April 10, 1874, and entered C.P.R. service in July 1887, since when he has been to May 1893, apprentice, Winnipeg; May 1893 to Dec. 1898, fitter and lathe hand, and Dec. 1898 to July 1899, ang foreman there; July1899 to Mar. 1901, shop foreman, Winnipeg locomotive house; March 1901 to July 1902, erecting shop foreman, Winnipeg repair shop; July 1902 to Jan. 1903, general foreman, Calgary, Alta.; Jan. 1903 to Oct. 1906, locomotive foreman, Brandon, Man.; Oct. 1906 to April 1909, District Master Mechanic, Moose Jaw, Sask.; April 1909 to March 1910, District Master Mechanic, Nelson, B.C.; March 1910 to Jan. 1912, Master Mechanic, Alberta Division, Calgary; Jan. 1912 to Aug. 31, 1916, Superintendent of Shops, Winnipeg; Aug. 31, 1916 to Dec. 31, 1920, Superintendent of Motive Power, Eastern Lines, Montreal.

Wilmer Herbert Sample, who has retired from the position of General Superintendent of Motive Power and Car Departments, lines east of Detroit and St. Clair Rivers, and Consulting Engineer, Motive Power and Car Departments, Grand Trunk Western Lines, Montreal, was born at Altona, N.Y., Aug. 20, 1864, and entered railway service Aug. 20, 1882, since when he has been, to 1887, fireman, Central Vermont Ry., St. Albans, Vt.; 1887 to 1890, locomotive man, Atcheson, Topeka & Santa Fe Ry., Albuquerque, N.M.; 1890 to 1901, locomotive man, Central Vermont Ry., St. Albans, Vt.; 1901 to 1906, Road Foreman of Locomotives, Central Vermont Ry., St. Albans, Vt.; 1906 to 1911, Superintendent of Motive Power and Car Department, Northern Ry. of Costa Rica (United Fruit Co.), San Jose, Costa Rica; Mar. 15, 1911 to Oct. 1914, Master Mechanic, G.T.R., Ottawa; Oct. 1914 to Oct. 1916, Master Mechanic, G.T.R., Battle Creek, Mich.; Oct. 1916 to Sept. 1, 1917, Master Mechanic, Eastern Lines, G.T.R., Montreal; Sept. 1, 1917 to Aug. 26, 1918, Superintendent of Motive Power, G.T.R., Montreal; Aug. 26 to Oct. 1918, Superintendent of Motive Power and Car Departments, Grand Trunk Western Lines Rd. (U.S.R.A.), Detroit, Mich.; Oct. 1918 to Dec. 31, 1920, General Superintendent of Motive Power and Car Departments, G.T.R., lines east of Detroit and St. Clair Rivers, and from April to Dec. 31, 1920, also Consulting Engineer, Motive Power and Car Departments, Grand Trunk Western Lines, Montreal.

John Scott, a civil engineer, who died at Winnipeg, Dec. 6, was associated with railway construction in the west, chiefly in connection with bridge building.

Lord Shaughnessy, Chairman, C.P.R., has given $10,000 to a fund being raised in Montreal to build an English speaking Roman Catholic high school there.

Capt. Jesse Springett, whose appointment as Agent for Holland, C.P.R., Rotterdam, was announced in a recent issue, was born at Eastbourne, Eng., July 20, 1879, and entered transportation service at Vancouver, B.C., in 1903. He has been, from Apr. 19, 1906, to Mar. 14, 1916, in Freight Department, C.P.R., London, Eng.; Mar. 14, 1916 to Nov. 15, 1919, in military service in Northern Russia; Nov. 15, 1919 to Sept. 30, 1920, in Freight Department, C.P.R., London, Eng.

J. G. Swalwell, heretofore Auditor of Revenue, Grand Trunk Pacific Ry., Winnipeg, who has been appointed Auditor of Miscellaneous Accounts, Canadian Northern Ry. System and Grand Trunk Pacific Ry., Toronto, was presented with a case of pipes, by a number of friends, of leaving Winnipeg, Dec. 14.

C. H. Temple, who has been appointed Chief of Motive Power and Rolling Stock, C.P.R., Montreal, was born there in 1862, and entered railway service in 1874, since when he has been, to 1881, office boy and apprentice, G.T.R., Belleville, Ont.; 1881 to 1886, mechanic and mechanical clerk in Mechanical Superintendent's office, G.T.R., Montreal; in 1886 he was appointed Foreman, C.P.R. shops at Yale, B.C., and subsequently, to 1902, he acted as Foreman at Kamloops, Vancouver, Revelstoke and North End, B.C.; 1902 to Jan. 1905, Master Mechanic, Pacific Division, C.P.R.; Jan. 1905 to June 1909, Master Mechanic, Central Division, C.P.R., Winnipeg; June 1909 to Oct. 1911, Assistant Superintendent of Motive Power, Western Lines, C.P.R., Winnipeg; Oct. 1911 to Dec. 31, 1920, Superintendent of Motive Power, Western Lines, C.P.R., Winnipeg.

H. P. Timmerman, Industrial Commissioner, C.P.R., was the guest of the Goderich, Ont., Board of Trade at dinner Dec. 8.

Carelessness in Giving Hand Signals.

The Railway Association of Canada has issued the following circular:—To member lines: In connection with accidents to employes resulting from misinterpretation of hand, lamp or flag signals, attention has been called to careless methods of certain employes in giving such signals. It is recommended to member lines that a circular should be issued to their employes in accordance with the following, and that the matter be followed up vigorously, with a view to correcting improper methods of giving hand, flag, and lamp signals:

"It has been reported that many trainmen, yardmen, switchmen, signalmen, and others, are careless in giving hand, flag and lamp signals. In some cases employes are using both arms in giving signals, which is not authorized. All concerned are advised that signals must be given in strict conformity with rule 12, General Operating Rules."

The Canadian Export Paper Co.'s Traffic Department at Montreal, which is under Guy Tombs, formerly of the Canadian Northern Ry., as Traffic Manager, directs all traffic matters for that company, also Belgo-Canadian Pulp & Paper Co., Brompton Pulp & Paper Co., Laurentide Co., Price Bros. & Co., St. Maurice Paper Co., St. Maurice Valley Pulpwood Co., Eastern Pulp Co. of Canada, Maguire, Paterson & Palmer (Canada) Ltd., Canada Carbide Co., Canadian Electroproducts Co., and the Menjobagoes Lumber Co.

The C.P.R.'s exhibit of Canadian natural resources, which has been maintained for some years in Windsor St. station, Montreal, has been overhauled and renovated and again thrown open to the public.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, JANUARY, 1921

PRINCIPAL CONTENTS

Appointments, Transportation	24
Birthdays of Transportation Men	4
Board of Railway Commissioners,—	
Orders by, Summaries of	9
Traffic Orders	18
Canadian National Rys. Construction, Etc.	11
Canadian Pacific Ry., Construction, Etc.	14
Conversion of Locomotives to Coal Burning	28
60 ton Hopper Bottom Box Cars	25
Cuba Rd., How Sir William Van Horne built the	1
Electric Railway Department	30 to 38
British Columbia Electric Ry. Buys Western Canada Power Co.	37
Grand River Ry. Equipment Orders	35
Notes	38
Ontario Hydro Radial Railway Enquiry	35
Ottawa Electric Ry., Proposed Purchase	37
Personal	38
Projects, Construction, Etc.	36
Rate Increases.	33
Toronto Civic Ry. Report	34
Toronto Ry. Co's Subsidiaries Sold to Ontario Hydro Electric Commission	30
Track Laid in 1920	37
Winnipeg Electric Ry. Improvement Expenditures	36
Express Companies, Among the	28
Freight and Passenger Traffic Notes	23
Grain in Store at Elevators	28
Mainly About Railway People	20
Marine Department	39 to 56
Canadian Government Merchant Marine Shipbuilding, Operation, Etc.	40
Canadian Recruit, Salvaging of	48
Canadian Pacific Ocean Services' s.s. Montrose Launched	50
Canal Statistics	49
Dominion Shipbuilding & Repair Co.'s Affairs	42
Personal	53
Prince Rupert, Salvaging of	54
Sault Ste. Marie Canals Traffic	51
Ships Registered in Canada	50
Toronto Harbor Contracts Litigation	53
United States Shipping Board Scandal	44
Vancouver Harbor Development Work	46
Winter Moorings of Canadian Steamships	54
Wreck Commissioners' Enquiries and Judgments	50
Railway Blacksmith Shop Tools	5
Railway Development	16
Railway Track Laid in 1920	23
Railway Rolling Stock Orders and Deliveries	15
Telegraph, Telephone and Cable Matters	29

Freight and Passenger Traffic Notes.

The Grand Trunk and Wabash Rys. have been ordered by the Board of Railway Commissioners to stop Wabash trains 2 and 3, at Cayuga, Ont., until further notice.

The Edmonton, Dunvegan & British Columbia Ry.'s freight and passenger traffic offices have been moved from Jasper Ave. to the C.P.R. building in Edmonton, Alta.

The Board of Railway Commissioners has approved standard freight mileage tariff C.R.C. no. B-11 for the Western Power Co. of Canada's Stave Lake railway in British Columbia.

The Great Northern Ry. put a new time schedule in operation on Dec. 1, under which train 359, previously leaving Vancouver, B.C., at 9.30 a.m., leaves at 8 a.m., and arrive in Seattle, Wash., at 1.15, and Portland, Ore., at 8.10 p.m.

The Board of Railway Commissioners has ordered the Vancouver, Victoria & Eastern Ry. & Navigation Co. to build a station at Crescent, B.C., and to appoint an agent during June, July and August in each year, and a caretaker for the rest of the year.

The C.P.R. is reported to be arranging for running a special train through Canada to exhibit samples of French manufactures specially suitable for the Canadian market, with a view to developing trade between Canada and France. Senator Beaubien has been in France in this connection with a C.P.R. representative.

The Canadian National Rys. and Grand Trunk Pacific Ry. have changed the name of trains 1 and 2, operating between Montreal, Ottawa, Winnipeg, Saskatoon, Edmonton and Vancouver from "The National" to "Continental Limited." Trains 3 and 4, operating between Toronto and Winnipeg, are now known as "The National."

A Calgary, Alta., press dispatch of Dec. 2 said that up to that date the C. P.R. alone had handled out of Alberta about 25,000 cars of the 1920 grain crop, representing approximately 32,500,000 bush., the major portion of which was wheat. For the same month in 1915, the bumper year, 16,000 cars were dispatched, carrying 20,800,000 bush. of grain.

J. H. Walsh, General Manager, Quebec Central Ry., is reported to have telegraphed the Quebec Board of Trade recently that the company had arranged with the Canadian National Rys. to receive carload freight at the Parent St. terminal, Quebec, Que., for Quebec Central Ry. points via Bridge and Carrier Jct., Q.C. Ry. existing rates to be protected.

A press report states that the question of the St. John & Quebec Ry. running rights over the C.P.R. from Westfield to St. John, N.B., are under consideration, that the Canadian National Rys., which operates the St. J. & Q. Ry. has refused to assume any responsibility for the cost of the service over the C.P.R., and that the New Brunswick Government, which owns the railway, will probably have to enter into a separate agreement with the C.P.R.

The Alberta & Great Waterways Ry. is operating a train leaving Edmonton at 9.30 on Mondays, Wednesdays and Fridays, arriving at Lac la Biche at 19.10 o'clock on the same days, and returning therefrom at 7.30 on Tuesdays, Thursdays and Saturdays, arriving in Edmonton at 17 o'clock on the same days. An occasional train is run from Lac la Biche to the end of the track, on the Clearwater River, carrying passengers and freight.

Canadian Railway and Marine World for Oct., 1920, contained the Chief Railway Commissioner's judgment on the Railway Association of Canada's application, on behalf of its member railway companies, for an increase in freight and passenger rates, and the Board's orders issued in connection therewith. Under the terms of the orders certain reductions were to be made on Jan. 1 in the increased rates authorized to be charged. The railway companies have filed standard freight tariffs and standard passenger rates, in accordance therewith, which have been approved by the Board. The order is given on another page, under "Traffic Orders by Board of Railway Commissioners."

Steam Railway Track Laid in 1920.

Following is a preliminary tabulation showing the additional main line track laid on steam railways in Canada during 1920. In some cases the figures are exact, as work has been suspended for the winter, while in the case of the C.P.R. the length of new track given is that which was estimated to be laid by Dec. 31, 1920.

	Miles.	Miles.
Canadian Government Rys.—		
Halifax Ocean Terminals to Halifax & S. Western Ry. Jct.	0.68	
Moncton cut off, mile 1.36, St. John Subdivision, to mile 3.5, Newcastle Subdivision, N.B.	3.86	
		4.54
Canadian National Rys., Eastern Lines—		
St. Marc, Canadian Northern Quebec Ry., to St. Marc, National Transcontinental Ry.	2.00	
St. Prosper connection, same line	0.50	
	2.50	
Canadian National Rys., Western Lines—		
Saskatchewan—		
Melfort-Humboldt line	33.40	
Thunderhill extension	8.30	
Jackfish Branch	10.00	
Swift Current extension	6.70	
Alsask Southeasterly	20.60	
	79.00	
Alberta—		
Red Deer spur	6.40	
Hanna-Medicine Hat line	10.00	
Olive-St. Paul de Metis line	23.10	
Onoway branch	18.10	
	57.60	
Canadian Northern Pacific Ry.—		
Vancouver Island line, mile 52.5 to 74.5	22.00	
		161.10
Canadian Pacific Ry.—		
Manitoba—		
Russell Northerly	6.50	
Saskatchewan—		
Consul easterly	1.50	
Lanigan northeasterly	50.00	
Leader southeasterly branch	26.00	
	77.50	
Alberta—		
Langdon northerly, Acme-Empress	18.50	
		102.50
Kettle Valley Ry.—		
Copper Mountain Branch—		
Allenby to Copper Mountain	8.00	
Mile 7to concentrator	1.06	
		9.06
Pacific Great Eastern Ry.—		
Deep Creek to Australian Creek, B.C.		34.50
		311.70

In addition to the above mileage of additional new main track laid, the Canadian National Rys. report having laid 4.70 mile of a diversion near St. Rosalie, Que., and second track on 30.76 miles as follows: Springfield Jct. to Maccan, N.S., 9.13 miles; Truro to Belmont, N.S., 7.69 miles; Bagot to St. Rosalie, Que., 10.94 miles, and near Munson, Alta., 3 miles.

In Newfoundland, the Reid Newfoundland Co. have laid 3.5 miles of new track, from Argentia Jct. to Argentia.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Government Merchant Marine Ltd.—H. E. KANE has been appointed Port Agent, St. John, N.B., vice J. P. Doherty, whose appointment as Export Agent, Montreal, was announced in a previous issue.

Canadian National Express Co.—See "Among the Express Companies," on another page of this issue.

Canadian National Telegraphs. — See under "Telegraph, Telephone and Cable Matters," on another page of this issue.

Canadian National Rys. — F. F. CAREY, heretofore Assistant Master Mechanic, Campbellton, N.B., has been appointed Assistant Master Mechanic, St. Maurice Division, Quebec, Que., as reported in our last issue.

LIEUT.-COL F. F. CLARKE, D.S.O., Chief Land Surveyor, has been appointed head of the newly formed Land Surveys Department, which, for the present, is attached to the Legal Department. He reports to the General Counsel. Office, Toronto.

A. DEVINE has been appointed Assistant Master Mechanic, Campbellton, N.B., vice F. F. Carey, transferred, as reported in our last issue.

L. V. DRUCE, heretofore Commercial Agent, Edmonton, Alta., has been appointed Travelling Traffic Representative, Canadian National-Grand Trunk Pacific Rys., Seattle, Wash.

GUY C. DUNN, heretofore Engineer of Construction, Grand Trunk Pacific Ry., Winnipeg, has been appointed Office Engineer, Chief Engineer's office, Eastern Lines, Canadian Northern Ry., Toronto.

A. C. EGAN, heretofore Assistant Comptroller, Canadian Northern Ry., Toronto, has been appointed General Auditor, Canadian Northern Ry. System and Grand Trunk Pacific Ry., vice J. D. Morton, appointed Special Auditor. Office, Toronto.

R. M. FLETT has been appointed Equipment Supervisor, Sleeping, Dining and Parlor Car Department, his duties covering the recording of all rolling stock of this department, with full description and history, following up shopping, assigning of cars on all divisions, and inspection of all new equipment received from builders. Office, Toronto.

L. A. GUTHRIE has been appointed Signal Supervisor, Central District, C. N.R., and Grand Trunk Pacific Ry. lines between Winnipeg and Watrous, Sask. Office, Winnipeg.

G. A. HARRISON, General Agent, Passenger Department, G.T.R., Portland, Me., will also act in the same capacity for C.N.R.

R. KING, heretofore relieving Superintendent, has been appointed Superintendent, Saskatoon Division, Saskatchewan District, vice W. I. Munro, transferred to Winnipeg. Office, Saskatoon.

H. L. JOHNSTON, heretofore Division Engineer of Construction, Kamloops-Kelowna-Vernon-Lumby Branch, has been appointed District Engineer in charge of Construction and Surveys, Vancouver Island lines. Office, Victoria, B.C.

D. O. LEWIS, heretofore District Engineer in charge of Construction and Surveys, Vancouver Island lines, Victoria, B.C., has been appointed Assistant Engineer, Maintenance of Way Department, Eastern Lines, Canadian Northern Ry., at Toronto.

J. D. LIFE has been appointed Assistant Staff Recorder, at Winnipeg, a branch of the Staff Record Bureau having been established for Western Lines there, where copies of the records of employes of all departments will be kept. He reports to W. L. Pinkney, Staff Recorder, Staff Record Bureau, Toronto.

J. D. McAULEY, heretofore Commercial Agent, Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Prince Rupert, B.C., has been appointed Soliciting Freight Agent, Canadian National-Grand Trunk Rys., Montreal.

J. D. MORTON, heretofore General Auditor, Canadian Northern Ry. System, Toronto, has been appointed Special Auditor, Canadian National Rys. Office, Toronto.

W. I. MUNRO, heretofore Superintendent, Division 2, Prairie District, Saskatoon, Sask., has been appointed Superintendent, Manitboa Division, Central District, Western Lines, vice J. C. O'Donnell, whose appointment as General Superintendent, Maritime District, Eastern Lines, Moncton, N.B., was announced in our last issue.

W. N. RIPPEY, whose appointment as Superintendent of Transportation, Maritime District, Eastern Lines, Moncton, N.B., was announced in our last issue, has had his jurisdiction extended to cover telegraphs, telephone, time service, vision and other matters, formerly under A. C. Barker, Superintendent of Telegraph and Time Service, Eastern Lines, whose appointment as Superintendent, Moncton Division, Maritime District, was announced in our last issue.

H. W. SHERIDAN has been appointed outside passenger and ticket agent, G. T.R.; passenger agent, Oshawa Ry.; and agent, Canadian Express Co., and Canadian National Express Co., Oshawa, Ont., vice N. R. Duetta, resigned.

J. G. SWALWELL, heretofore Auditor of Revenue, Grand Trunk Pacific Ry., Winnipeg, has been appointed Auditor of Miscellaneous Accounts, Canadian Northern Ry. System and Grand Trunk Pacific Ry. Office, Toronto.

W. W. SWINDEN has been appointed Assistant to General Superintendent, Sleeping, Dining and Parlor Cars and News Service. Office, Toronto.

Canadian Pacific Ry.—ANDREW ALLERTON, heretofore Manager, Algonquin Hotel, St. Andrews, N.B., and Place Viger Hotel, Montreal, has been appointed General Superintendent, C.P.R. Hotels, vice F. L. Hutchinson, Manager in Chief of Hotels, resigned. Office, Montreal.

H. H. HAMILTON has been appointed Travelling Passenger Agent, St. John, N.B., vice H. R. Matthewson, whose appointment as Assistant General Agent, Passenger Department, Chicago, Ill., was announced in our last issue.

J. W. JACKSON, heretofore Locomotive Foreman, west locomotive house, Calgary, Alta., has been appointed Locomotive Foreman, Alyth locomotive house, Calgary, Alta., vice H. M. Allan, transferred.

R. PRESTON, heretofore Assistant Superintendent of Motive Power, Western Lines, Winnipeg, has been appointed Superintendent of Motive Power, Eastern Lines, vice R. A. Pyne, transferred to Winnipeg. Office, Montreal.

R. A. PYNE, heretofore Superintendent of Motive Power, Eastern Lines, Montreal, has been appointed Superintendent of Motive Power, Western Lines, vice C. H. Temple, promoted. Office, Winnipeg.

J. W. SINDALL has been appointed Locomotive Foreman, west locomotive house, Calgary, Alta., vice J. W. Jackson, transferred.

A. STURROCK, heretofore Master Mechanic, British Columbia District, Vancouver, B.C., has been appointed Assistant Superintendent of Motive Power, Western Lines, vice R. Preston, promoted. Office, Winnipeg.

C. H. TEMPLE, heretofore Superintendent of Motive Power, Western Lines, Winnipeg, has been appointed Chief of Motive Power and Rolling Stock. Office, Montreal.

Grand Trunk Ry.—T. E. DUNSMORE, heretofore on the Board of Railway Commissioners' staff at Ottawa, Ont., is reported to have been appointed private secretary to General Superintendent, Eastern Lines, G.T.R., Montreal.

J. C. GARDEN, heretofore Superintendent Motive Power, Shops, Stratford, Ont., has been appointed acting General Superintendent, Motive Power and Car Departments, lines east of Detroit and St. Clair Rivers, and Consulting Engineer, Motive Power and Car Departments, Grand Trunk Western Lines, succeeding W. H. Sample, retired. Office, Montreal.

JNO. ROBERTS, heretofore General Foreman, Erecting Shop, Stratford, Ont., has been appointed acting Superintendent, Motive Power, Shops there, vice J. C. Garden, promoted.

W. H. SAMPLE, General Superintendent of Motive Power and Car Department, is retiring from the service.

Grand Trunk Ry.-Wabash Ry.—H. W. MATTHEWS, heretofore Superintendent of Terminals, Sarnia Tunnel, Port Huron, Mich., has been appointed Joint Superintendent, St. Thomas Division, G.T.R.-Wabash Ry., vice J. C. Crombie, transferred. Office, St. Thomas, Ont.

Oshawa Ry.—H. W. SHERIDAN, outside passenger and ticket agent, G.T.R., and agent, Canadian Express Co. and Canadian National Ex. Co., Oshawa, Ont., has also been appointed passenger agent, Oshawa Ry., vice N. R. Duetta, resigned.

Railways and Canals Department.—V. L. LAWSON, heretofore correspondence clerk, Interior Department, Ottawa, and formerly in C.P.R. service, has been appointed private secretary to Chief Engineer, Railways and Canals Department, Ottawa.

Reid Newfoundland Co. — The Reid Newfoundland Government Railway Commission, which is operating this company's railway and steamships, consists of five members, Hon. W. F. Coaker, a member of the Newfoundland Government, being Chairman, and T. A. Hall, Secretary. The other three are officials of the Reid Newfoundland Co., viz., H. D. Reid, President; R. G. Reid, Vice President; and J. P. Powell, Superintendent.

Canadian Transfer Co. Ltd., incorporated under Dominion charter, has been licensed, under the Ontario Companies Act to do business in Ontario. The capital to be used in Ontario is not to exceed $100,000. John Thomson, Toronto, is its attorney.

Sixty-Ton Hopper Bottom Cars, Canadian Pacific Railway.

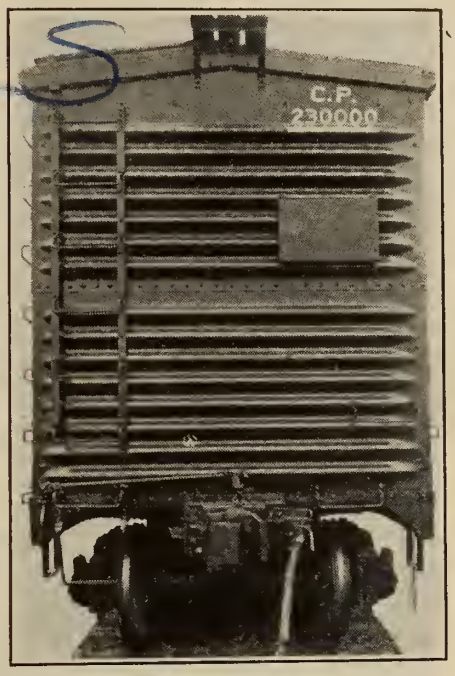
Canadian Railway and Marine World for August contained a description of the 3,500 sixty-ton hopper bottom box cars which the C.P.R. is having built, the orders having been given last spring, viz., for 2,000 to Canadian Car & Foundry Co., which are being built at its Fort William, Ont., plant; 500 to Eastern Car Co., New Glasgow, N.S., and 1,000 to National Steel Car Corporation, Hamilton, Ont. Up to the time of our last advice, Canadian Car & Foundry Co. had only delivered 199 cars, neither of the other car building companies having delivered any.

The serial numbers of these cars are as follows:—230,000 to 230,999, being built by National Steel Car Corporation; 231,000 to 232,499, by Canadian Car & Foundry Co.; 232,500 to 232,999 by Eastern Car Co.; 233,000 to 233,499 by Canadian Car & Foundry Co.

Since the data referred to was published we have received an outline drawing and some additional photographs, illustrations from which are given on this and on pages——

Some additional information has also been furnished us as follows:—

60-Ton Hopper Bottom Box Car, C.P.R. Hopper door open.



60-Ton Hopper Bottom Box Car, C.P.R. End view.

Type of underframe, 12 in. 32.7 lb. channel center sills; 9 in. 17.5 lb. channel side sills; 6 x 4 x ⅜ in. angle end sills.

Length, over end sills, 40 ft. 9 in.; over buffers, 42 ft. 1½ in.; inside, 40 ft. 6 in.

Width, over side sills, 8 ft. 9 in.; over eaves, 9 ft. 3¼ in.; inside, 8 ft. 6 in.

Height, from top of rail to top of brake mast, 14 ft. 2¼ in.; from top of rail to top of car eaves, 12 ft. 10 7/16 in.; inside (clear), 9 ft.

Side doors opening 6 ft.

Axle capacity, in accordance with latest A.R.A. recommendations, is 169,000 lb. From this the tare weight of 48,300 lb. is deducted, giving a total carrying capacity of 120,700 lb.

Air brakes, Westinghouse, K.C. 1012.

Angle cock holder, Western.

Axles, A.R.A. 5½ x 10 in. journals .

Bolsters, Simplex.

Brake beams, Simplex.

Couplers, A.R.A. type D. 6 x 8 shank, with 6½ x 1⅝ in. slot.

Door fixtures, Camel; with starters.

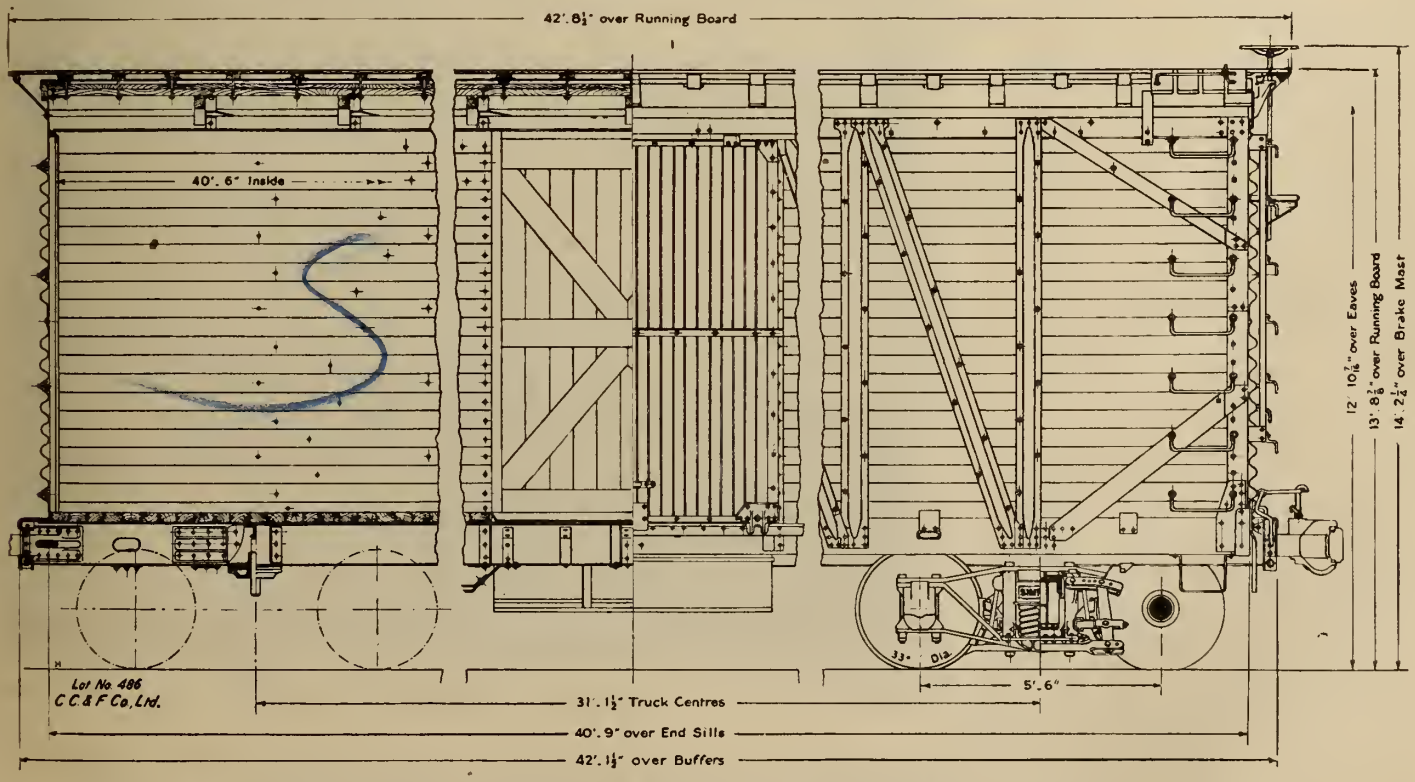
Draft gear, Murray friction, type H., class 25.

Draw bar yoke, Universal cast steel.

Draft springs, Special 3-coil to suit Murray friction gear.

Drop doors, Burnett hoppers, with grain doors.

Ends, Murphy, all steel, in 2 pieces.


42'. 8½" over Running Board
40'. 6" Inside
12' 10⅞" over Eaves
13' 8⅜" over Running Board
14' 2¼" over Brake Mast
Lot No 486
C C & F Co, Ltd.
33" Dia
5'. 6"
31'. 1½" Truck Centres
40'. 9" over End Sills
42'. 1½" over Buffers

Sixty-Ton Hopper Bottom Box Car, Canadian Pacific Railway, showing main dimensions.

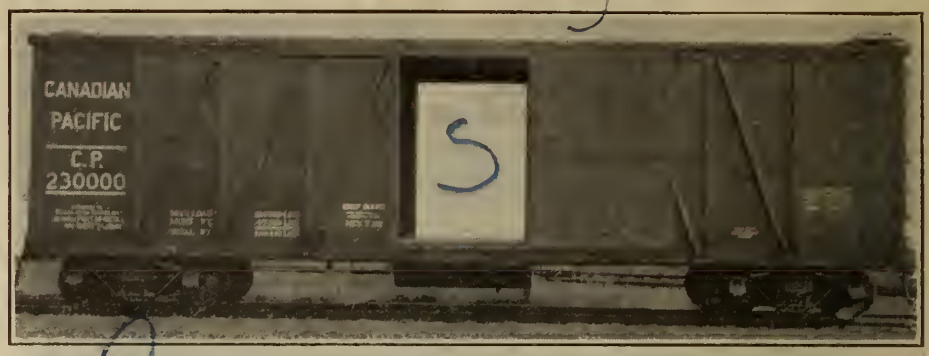
Journal boxes, McCord, 5½ x 10 in., with pinless type lid.
Roof, single boards with outside metal roof, Murphy type X.L.A. flexible no. 2.
Side bearings, Stucki on 500 cars, Woods on 1,500 cars.
Truck frames, arch bar type, A.R.A. standard.
Truck springs, A.R.A. class D.
Uncoupling arrangement, Imperial, type B.
Wheels, 33 in., 725 lb., cast iron, chilled tread.

Payment of Freight Charges to Canada in United States Curreney.

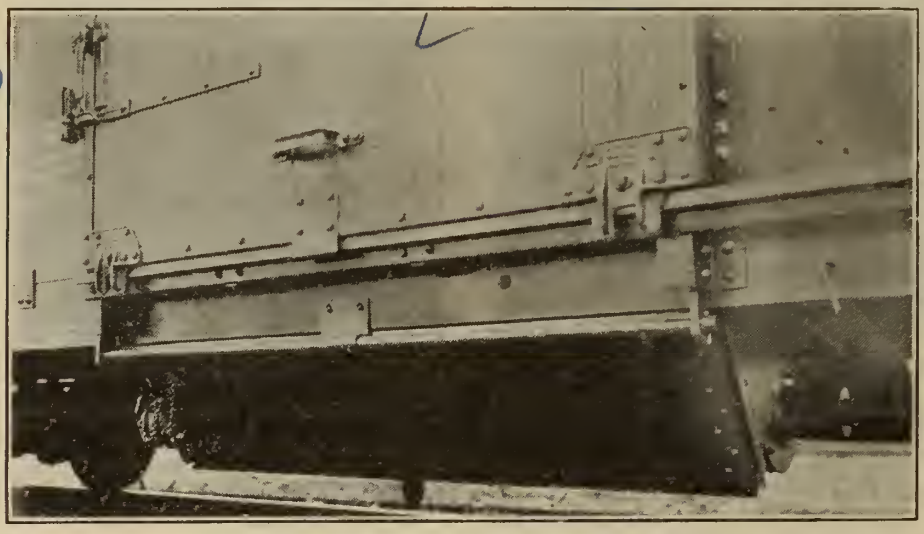
Commissioner Hall, of the U.S. Interstate Commerce Commission, gave the following decision Nov. 17, 1920, re payment of charges on shipments to Canadian points:—These proceedings have been consolidated because they involve the same general subject matter, and will be disposed of in one report. By the schedules under suspension in no. 1191 and no. 1191—no. 2, issued by Agent Gomph, a rule is proposed requiring payment in U.S. currency of the rates published therein, including joint rates to points in Canada. Since the hearings the suspended portions of the schedules enumerated in our first and second supplemental orders in no. 1191, and in our order in no. 1191—no. 2, have been cancelled under permission from us. By the schedules under suspension in no. 1196, issued by Agent Leland and Agent Kelly, a rule is proposed requiring prepayment of charges on shipments into Canada. Prepayment in this country would normally and lawfully be in U.S. currency. Both proposed rules would, therefore, have the effect of requiring payment of the through charges in U.S. currency. The proposed rules are intended to protect the carriers operating in the U.S. from the present depreciation in value of Canadian currency as compared with U.S. currency of the same denomination, and to ensure their receiving in lawful money of the U.S. the full amount of their charges or divisions accruing for that part of the transportation which takes place within the U.S.

In Gamble-Robinson Com'n v. Chicago & N. W. Ry. Co., 168 Fed., 161, the Circuit Court of Appeals for the Eighth Circuit said at page 164:—

"Prior to the enactment of the act of Feb. 24, 1887, to regulate commerce among the states, interstate railway traffic was regulated by the principles of the common law, and under those principles common carriers had the right to require the prepayment of charges for freight of one or more persons or corporations, and to give credit for such charges to other persons or corporations similarly situated. That act left common carriers free to exercise to their full extent all the rights and privileges they had under the common law, as far as these rights and privileges and their exercise were not rendered unlawful by the provisions of that act."



60-Ton Hopper Bottom Box Car, C.P.R. Hopper door closed.

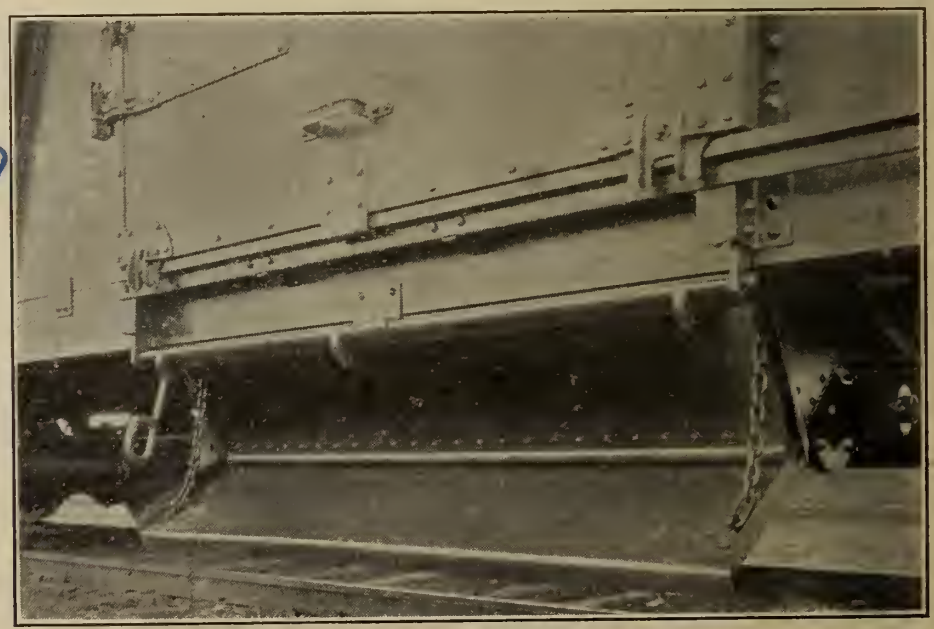


60-Ton Hopper Bottom Box Car, C.P.R. Floor door in place, and hopper door closed, to receive lading. See article on page 25.

Protestants object to the proposed rules, not on the ground that the carriers are not entitled to demand prepayment of their charges for such portion of the transportation as takes place in the U.S., or that the rules are unduly prejudicial to them and unduly preferential of others, but on the ground that they would result in the carriers receiving an overpayment for that part of the transportation which takes place in Canada to the extent of the difference in the exchange values of U.S. and Canadian money. Our jurisdiction over transportation to or from a foreign country is limited to that part of the transportation which takes place within the United Sates. Interstate Commerce Act, section 1, paragraph (2); International Paper Co. v. D. & H. Co., 33 I. C. C., 270. We cannot, therefore, undertake to pass upon the proposed rules in so far as they affect charges for transportation beyond the borders of the U.S., but will leave their validity and propriety to be determined under the laws in force where the transportation takes place.

We find that the proposed rules have been justified in so far as they affect the charges for interstate transportation wholly within the U.S., and the charges or divisions accruing for that part of the transportation between the U.S. and a foreign country which takes place within the U.S.

It is ordered, that the order heretofore entered in this proceeding suspending the operation of said schedules be vacated and set aside as of Nov. 29, 1920, and that this proceeding be discontinued.



60-Ton Hopper Bottom Box Car, C.P.R. Floor door still in position, but hopper door released, for discharging outside track. See article on page 25.

The halibut catch in water adjacent to Prince Rupert, B.C., in Sept. 1920, totalled 1,989,785 lb., and the salmon catch 16,061,197 lb.

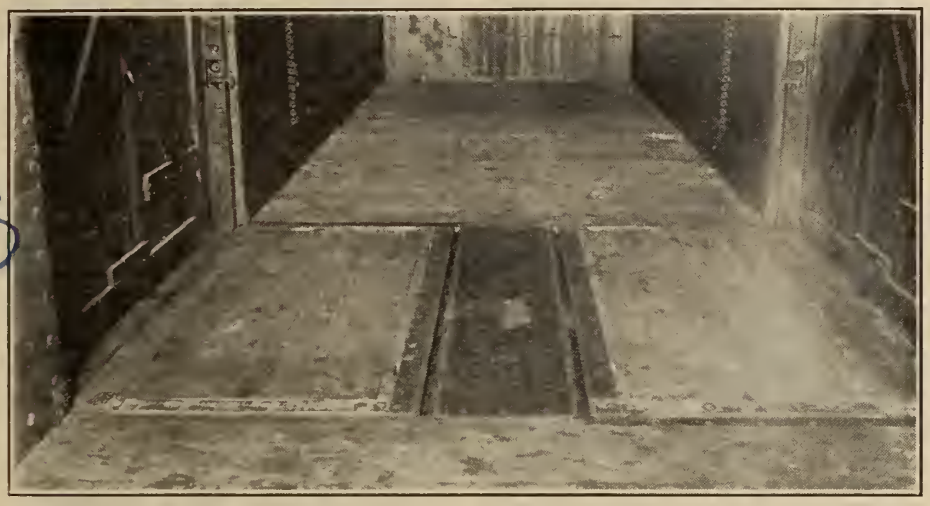
Mr. Crerar on Railway Debts and Freight Rates.

Hon. T. A. Crerar, M.P. for Marquette, Man., who was recently elected leader of the new National Party, heretofore the Farmers Party, in Dominion politics, is reported to have said, in speaking at Winnipeg Dec. 10:—"When we have eventually acquired the Grand Trunk Ry. as we will acquire it, the people of Canada should revalue the whole system of Government roads, taking into full account the losses that have arisen through extravagance in building, or through needless duplication of lines for which we are now responsible; put the whole thing down to a fair business basis as a business man would do under similar circumstances, charge the difference to the debt of the country, because we are responsible for it in any case, and then upon this basis, proceed to build up the national railway business of Canada."

He is also reported to have said that intimately bound up with this question is the one of freight rates. In his judgment, the recent increase in rates was a mistake. He held the Government open to severe censure for not having suspended the rates immediately, pending further hearing of the case, and added: "These freight rates cannot continue at the point they are now; they must be reduced, otherwise the business of the country will stagnate."

Rotatable Coal Hopper for Locomotives.

A rotatable coal hopper that has been invented for tenders is so planned that the coal is kept handy at the firing deck, making it an easy matter for the fireman to reach the coal, without shovelling from the rear of the tender or using power apparatus. This special hopper is in the form of a great segmental tub, or drum, having a diameter thta is the approximate width of the tender. This drum is inclined toward the firing deck; it is so mounted on a ball bearing center plate as to turn readily. In its outer wall are openings, one for each segment, through which the coal falls by gravity. As soon as the coal is emptied from the segment, the brake that controls the drum is released. Naturally the greater weight above the center of the drum makes it rotate, bringing the next loaded segment into position.



60-Ton Hopper Bottom Box Car, C.P.R. Interior, with hopper closed. See article on page 25.

Australian Railway Gauges.

Approval has been given to a proposal to give a uniform gauge of 4 ft. 8½ in. on the railways connecting the capital with the mainland Australian states from Brisbane to Perth. It is estimated that this will cost $120,000,000, of which the Commonwealth is to contribute one-fifth, the five states concerned finding the rest on a per capital basis. The Commonwealth line from Port Augusta to Kalgoorlie, 1,057 miles, which is one of the main links in the connection, is already on the 4 ft. 8½ in. gauge, as are the New South Wales lines. Western Australia would have to convert 375 miles of 3 ft. 6 in. line, Victoria 200 miles of 5 ft. 3 in., and South Australia several hundred miles of 5 ft. 3 in. and 3 ft. 6 in., while Queensland would have to build 100 miles of new 4 ft. 8½ in. line. It is also proposed to build several hundred miles of new line in New South Wales and South Australia, in order to shorten the distance by rail from Brisbane to Perth, now 3,300 miles, by 469 miles. The conversion of the other lines in Australia to the 4 ft. 8½ in. gauge would be done later in piecemeal fashion. There are 22,046 miles of railway on the mainland of Australia, the proportion in the different gauges being 5 ft. 3 in., 5,149 miles; 4 ft. 8½ in., 5,881 miles; 3 ft. 6 in., 10,866 miles; under 3 ft. 6 in., 150 miles. The cost of converting to the 4 ft. 8½ in. gauge all the lines not provided for in the $120,000,000 scheme recently adopted has not been estimated but would probably amount to $500,000,000.

60-Ton Hopper Bottom Box Car, C.P.R. Floor section raised for grain loading. See article on page 25.

Saskatchewan Railway Guarantees.—In speaking on the provincial finances in the Saskatchewan Legislature, Dec. 6, Hon. C. Dunning, Provincial Treasurer, is reported to have said:—The Canadian Northern Ry. had never defaulted in the payment of its bonds, but the Grand Trunk Pacific Ry. did, with the result that the province had to meet interest instalments amounting to $810,000. After prolonged negotiations between the Dominion and Saskatchewan Governments, this debt had been liquidated, with the exception of a small amount of interest on the moneys advanced by the province. There is always the remote danger of default in the future, and for this reason it is necessary to regard these guarantees as contingent liabilities.

Mackenzie River Oil Fields.—In connection with discoveries of oil in the neighborhood of Fort Norman, in the Mackenzie River valley, the Dominion Parliament is being asked to incorporate the Mackenzie River Petroleum Co. Ltd., with all powers incident to the production and storage of oil and natural gas and the marketing and transportation thereof, except by rail, and in particular for the construction of a pipe line or lines for the transportation of oil and gas from near the mouth of Rat River at its junction with Perl River, a tributary of the Mackenzie River, northwesterly in the Rat River valley to its junction with the Porcupine River, a tributary of the Yukon River, thence down the Porcupine River valley to the boundary between Canada and Alaska. Pringle, Thompson, Burgess & Cote, Ottawa, are solicitors for applicants.

Conversion of C.P.R. Locomotives from Oil Burners to Coal Burners.

As stated in Canadian Railway and Marine World for December, on account of the uncertainty of oil supply, the C.P.R. is converting its oil burning locomotives in British Columbia to coal burners. The following are the numbers of each type to be converted:—

No.	Type.	No.	Type.	No.	Type.
1	A2	1	D3	14	D4G
6	D5	5	D6	19	D9
8	G2	1	J2	3	L3
16	M4	16	N3	31	R3
6	U3	4	V1	7	S2

Included in the above are 14 locomotives leased to the Esquimalt & Nanaimo Ry., viz., 6—D4; 5—D5; 3—L3.

The locomotives mentioned above, which are in direct use by the C.P.R., are being operated between Lake Louise and Vancouver, B.C.

With the exception of 35 R-3 and 7 of the S-2 locomotives which were built as oil burners, the others mentioned above were built originally to use coal. Four of the R-3 type were converted to coal burners a few weeks ago. The work of conversion from oil burners to coal burners consists of the removal of the oil tanks, burners and fire pan bricking, and the application of ashpans, grates, front end plates, nettings, etc., as well as Franklin firedoors on the larger type of locomotives. The conversion of the locomotives used on the C.P.R. lines is being done at different points on the British Columbia District, and in the Ogden shops at Calgary. The 14 locomotives leased to the Esquimalt & Nanaimo Ry. are being converted at that company's shops, under the supervision of its Master Mechanic. We were advised Dec. 10 that 30% of those to be converted at Victoria had been completed, and that the remainder should be completed during January.

Among the Express Companies.

H. W. Sheridan, town ticket agent, G. T.R., and passenger agent, Oshawa Ry., Oshawa, Ont., has also been appointed express agent, Canadian Ex. Co., and Canadian National Ex. Co., there, vice N. R. Duetta, resigned.

The Board of Railway Commissioners passed order 30,446, Dec. 17, fixing express rates on fresh fish in car loads, from Gimli and Riverton, Man., to points in the United States. This order is given in full, on an earlier page of this issue, under "Traffic Orders by Board of Railway Commissioners."

The Board of Railway Commissioners passed order 320, Dec. 9, 1920, directing express companies to carry pasteurized cream at the same rates as ordinary cream. The order, and the Chief Commissioner's judgment on which it was based, are given in full, under "Traffic Orders by Board of Railway Commissioners," on an earlier page of this issue.

The Interstate Commerce Commission has, according to a Washington, D.C., press dispatch, authorized the permanent consolidation of the transportation business and properties of the Adams, American, Wells Fargo and the Southern Express Companies into the American Railway Express Co. The Commission stated that the public will be best served by one consolidated company giving all line equal rates.

Harold R. Hauch, who has been appointed Assistant Superintendent, Eastern Division, Canadian National Express Co., Toronto, was born at Berlin (now Kitchener), Ont., Dec. 9, 1894, and entered Canadian Northern Ex. Co.'s service Apr. 3, 1913, since when he has been, to June 8, 1915, clerk, agent's office, Toronto; June 9, 1915 to May 31, 1916, clerk, Superintendent's office, Toronto; June 1 to Oct. 1, 1916, agent, Valcartier Camp, Que.; Nov. 1, 1916 to Mar. 31, 1917, clerk, Superintendent's office, Toronto; Apr. 1 to May 31, 1917, agent, Camp Mohawk, Ont.; June 1 to Aug. 18, 1917, clerk, Superintendent's office, Toronto; Aug. 19, 1917 to Aug. 14, 1919, chief clerk to Superintendent, Toronto; Aug. 15, to Nov. 14, 1919, special representative for reorganization of express department, Halifax & South Western Ry., Halifax, N.S.; Nov. 15, 1919 to May 31, 1920, chief clerk to Superintendent, Canadian National Ex. Co., Toronto; Apr. 1 to Oct. 31, 1920, chief clerk and claim agent, Superintendent's office, Toronto.

Canadian National Express Co.

W. C. Muir, heretofore General Superintendent, has been appointed General Manager. Office, Winnipeg.

G. E. Bellerose, heretofore Traffic Supervisor, has been appointed Assistant to General Manager. Office, Winnipeg.

B. A. Latta, heretofore Travelling Agent, has been appointed Traffic Supervisor, vice G. E. Bellerose, promoted. Office, Winnipeg.

C. L. Bowles, heretofore Inspector of Agencies, has been appointed Assistant Superintendent, Western Division. Office, Winnipeg.

Harold R. Hauch, heretofore chief clerk and Claim Agent, Superintendent's office, Eastern Division, has been appointed Assistant to Superintendent, Eastern Division. Office, Toronto.

The office at McDiarmid, Ont., was closed Nov. 22, 1920.

The company's service was extended beyond Spedden, on the Coronado Subdivision, Alta., Dec. 20, the stations being Ashmont, open; Baffin, star; and St. Paul, open. An agent has been appointed at Sunnyneck, Alta., on the Sheerness Subdivision.

Additional Bridge for Montreal.—The Montreal City Council on Dec. 13 adopted the following resolution by a vote of 11 to 7:—"That this council is in favor of the erection of an additional bridge between Montreal and the south shore, and would be pleased if this project were carried out by the competent authorities." The Mayor, in opposing the resolution, stated that if the bridge was built it would have the effect of decreasing the population of the city, and the value of property in the city, and that the project was being put forward by land speculators on the south shore.

Station Limits.—The Board of Railway Commissioners passed general order 322, Dec. 10, 1920, directing railway companies to withdraw from their respective working timetables, Special Instruction E, and to observe the Uniform Code of Rules for Canadian Railways, approved by general order 42, July 12, 1909, the necessary changes and instructions to employes to become effective June 1, 1921.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Statistics, Internal Trade Division.

Week ended Dec. 3, 1920:	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William						
C.P.R.	1,973,936	630,944	152,364	.....	134,695	2,891,939
Consolidated Elevator Co.	1,186,471	18,817	6,972	25,403	.....	1,237,663
Ogilvie Flour Mills Co.	369,830	74,107	77,982	.....	1,158	523,077
Western Terminal Elevator Co.	1,074,070	112,845	21,464	40,446	14,876	1,276,701
G. T. Pacific	1,399,010	737,811	68,877	85,213	37,394	2,328,305
Grain Growers' Grain Co.	771,806	536,157	111,571	.....	34,681	1,454,215
Fort William Elevator Co.	373,420	133,645	71,669	53,079	24,244	656,057
Northwestern Elevator Co.	469,405	16,477	10,133	43	*29	496,029
Port Arthur—						
Port Arthur Elevator Co.	2,376,371	797,200	314,589	675	42,496	3,531,331
Sask. Co-op. Elevator Co.	3,077,517	291,790	26,374	62,383	19,133	3,477,197
Canadian Government Elevator	348,827	457,964	94,504	306,514	25,744	1,233,553
Davidson and Smith	121,202	15,230	5,139	.....	2,999	144,570
Total Public Terminal Elevators	13,541,865	3,822,987	961,638	573,756	337,391	19,237,637
Total Private Terminal Elevators	863,084	361,632	152,443	121,625	33,854	1,532,638
Saskatoon: Can. Gov't Elevator	23,996	35,287	181	1,654	.....	61,118
Moose Jaw: Can. Gov't Elevator	33,828	56,276	.....	2,455	130	92,689
Calgary: Can. Gov't Eleveator	181,990	479,563	38,695	634	1,015	701,897
Vancouver, B.C.: Can. Gov't Elevator	5,171	22,839	1,694	.....	.....	29,704
*Total Interior Terminal Elevators	244,985	593,965	40,570	4,743	1,145	885,408
Midland—						
Aberdeen Elevator Co.	478,677	109,875	.....	.....	.....	588,552
Midland Elevator Co.	612,792	423,019	.....	.....	70,280	1,106,091
Tiffin, G.T.P.	1,356,113	495,490	102,754	.....	17,724	1,972,081
Port McNicoll	838,967	1,071,829	122,620	133,550	.....	2,166,966
Goderich—						
Elevator and Transit Co.	473,949	209,497	92,844	.....	.....	776,290
West Can. Flour Mills Co., Ltd.	529,458	.....	.....	.....	.....	529,458
Toronto: Campbell Flour Mills Co.	32,006	26,479	.....	.....	.....	58,485
Kingston—						
Commercial Elevator Co.	1,738	17,792	2,903	.....	.....	22,433
Port Colborne—						
Dom. Gov't Elevator	123,466	.....	.....	.....	.....	123,466
†Maple Leaf Milling Co., Ltd.	893,587	.....	.....	.....	.....	893,587
Montreal—	256,597	413,068	64,048	.....	.....	733,713
Harbor Commissioners No. 1 and 2	12,314	.....	.....	15,965	.....	28,279
Montreal Warehousing Co.	428,385	.....	.....	.....	.....	428,385
Ogilvie Flour Mills Co.	.....	74,289	.....	.....	.....	74,289
St. John, N.B., Can. Nat. Rys.	262,061	11,486	48,015	.....	.....	321,562
Quebec Harbor Commissioners	128,232	.....	.....	.....	.....	128,232
Wesst St. John, N.B., C.P.R.						
Total Public Elevators	6,428,342	2,852,824	433,184	149,515	88,004	9,951,869
*Total Country Elevators	28,719,845	9,074,445	2,078,228	1,709,624	.....	41,582,142
U.S. Atlantic Seaboard Ports—						
Baltimore, Md.	599,985	.....	.....	.....	72,825	672,810
Total U.S. Atlantic Seaboard Ports	599,985	.....	.....	.....	72,825	672,810
Total Quantity in Store	50,398,106	16,705,853	3,666,063	2,559,263	533,219	73,862,504

†Week ending Nov. 26th.
*Overshipped.

Telegraph, Telephone and Cable Matters.

Arthur Descombes, who had been in the Great North Western Telegraph Co.'s service, as Morse operator, since June 1916, died at Quebec, Que., recently.

G. D. Perry, General Manager, Great North Western Telegraph Co., was presented with a gold mounted fountain pen, engraved with his initials, by the Toronto staff, Dec. 6, on the staff being transferred to new offices.

The Dominion Government wireless telegraph station at Triangle Island, B.C., will, it is reported, be dismantled early this year, and replaced by a new station to be erected at Bull Harbor, Hope Island, off the north of Vancouver Island. The new station will, it is stated, be of the same power as the one on Triangle Island, and will handle traffic from ships and northern stations.

The Great North Western Telegraph Co.'s General Manager, Secretary and Auditor, Treasurer, Commercial Superintendent, Traffic Superintendent, Plant Superintendent, and Superintendent of Supplies, have removed from Wellington and Scott Sts., Toronto to the World Building, Richmond St., their former offices having been added to those of the Toronto local staff.

The following representatives of Canadian and allied companies are among those who have been elected members of technical committees of the American Railway Association, Telegraph and Telephone Section:—Committee 1, construction and maintenance, outside plant, E. Kenward, Superintendent, Railway Telegraph Service, Great North Western Telegraph Co., Toronto; W. J. Rooney, Plant Superintendent, Great North Western Telegraph Co., Edmonton, Alta. Committee 2, construction and maintenance, inside plant, C. E. Davies, General Traffic Superintendent, Great North Western Telegraph Co., Toronto; T. Rodger, Superintendent of Telegraphs, Grand Trunk Ry., Montreal. Committee 3, protection against electrolysis, J. R. Larocque, Chief Inspector of Telegraphs, Grand Trunk Ry., Montreal; G. H. Mayer, Superintendent of Telegraphs, Minneapolis, St. Paul & Sault Ste. Marie Ry., Stevens Point, Mich. Committee 6, message traffic, A. P. Linnell, Traffic Supervisor of Telegraphs, Grand Trunk Ry., Montreal. Committee 10, technical training, W. E. Bell, Assistant to Manager of Telegraphs, Grand Trunk Ry., Montreal.

Canadian National Telegraphs.

The Canadian National Railways' telegraph and telephone service, on Canadian Northern Ry., eastern and western lines; Intercolonial Ry. lines west of Moncton, except Fredericton Subdivision; National Transcontinental Ry., Moncton to Winnipeg; and Quebec & Saguenay Ry. has been re-organized and merged with the Great Northwestern Telegroph Co., which now constitutes the C.N.R. Telegraph Department, under G. D. Perry, General Manager, and is designated Canadian National Telegraphs. The department, as re-organized, has charge of, and is responsible for, the construction and maintenance of telegraph and through telephone plant and equipment. It has full charge of all staff employed in connection with operation of all telegraph services, except the folowing, who remain under the jurisdiction of railway superintendents, viz., train dispatchers and operators in dispatching offices, agents and operators at way stations and yard offices, also ordinary railway terminals where railway business predominates. At large terminals, where the same staff handles both railway and commercial business in the same office, such staff are under the telegraph department's jurisdiction, but, where separate offices are maintained, those handling railway work exclusively remain under the railway superintendent. Dispatchers, agents and operators remaining under railway superintendents' jurisdictions are carried on railway pay rolls; all others employed in connection with telegraph and through telegraph service are carried on telegraph department pay rolls. Railway agents and operators, who also handle commercial telegraph business, receive commissions for such service from the telegraph department direct.

Special arrangements may be made whereby the telegraph department will construct and maintain local telephone systems, otherwise such systems will be looked after by the railway district electrical forces. Special arrangements may also be made whereby the telegraph department will construct and maintain automatic signal wire circuits only.

G. D. Perry, General Manager, issued the following circular Dec. 23, 1920:—Effective Jan. 1, 1921, the telegraph business at present carried on under the name of the Great North Western Telegraph Co. will be conducted in the name of Canadian National Telegraphs. Readjustment of our relations with the Canadian National Rys. has made it necessary to change the organization of the telegraph company, and the dshrdluc telegraph company. The details of the new organization are as follows:—

Executive Officers:—Geo. D. Perry, General Manager; A. C. McConnell, Secretary and Auditor; D. E. Henry, Treasurer.

Commercial Department: — General Commercial Superintendent, W. G. Barber, Toronto, in charge of commercial matters throughout system.

District Commercial Superintendents: L. S. Humes, Montreal, in charge of all offices in New Brunswick and Quebec and offices in Ontario east of a line drawn from a point immediately east of Kingston to a point immediately west of Petewawa, and including all offices on the National Transcontinental Ry. from Moncton to Quebec-Ontario boundary line.

J. G. Davis, Toronto, in charge of all offices in Ontario west of a line drawn from a point immediately east of Kingston to a point immediately west of Petewawa, and extending to, but not including, Port Arthur, Ont., also all offices on the National Transcontinental Ry. from Quebec-Ontario boundary line to, but not including, Superior Jct., Ont.

J. F. McTaggart, Winnipeg, in charge of Port Arthur and all offices west thereof in Ontario and all offices in Manitoba and Hudson Bay Jct. in Saskatchewan; also all offices on the National Transcontinental Ry. from and including Superior Jct., Ont., to Winnipeg, Man.; and on branch line from Superior Jct. to Port Arthur, Ont.

G. H. Stead, Saskatoon, in charge of all offices in Saskatchewan, excepting Hudson Bay Jct., and all offices in Alberta and British Columbia.

Traffic Department:—General Traffic Superintendent—C. E. Davies, Toronto, in charge of traffic and inside plant throughout system.

Superintendents of Railway Telegraph Service—E. Kenward, Toronto, lines east of Port Arthur; R. MacMillan, Winnipeg, lines west of Port Arthur.

District Traffic Superintendents—G. H. Walters, Montreal, lines east of Port Arthur; B. S. Round, Winnipeg, lines west of Port Arthur.

Plant Department:—District Plant Superintendents—W. J. Duckworth, Toronto, in charge of outside plant east of Port Arthur; W. Girard, Winnipeg, in charge of outside plant west of, and including, Port Arthur to, and including Saskatoon; W. J. Rooney, Edmonton, in charge of outside plant west of Saskatoon.

Supply Department: — Superintendent of Supplies—Geo. Watt, Toronto.

Commercial News Department:—Superintendent of Reports—R. H. Hathaway, Toronto.

The company has a large number of competent, faithful and loyal employes, nad I have no doubt they will use their best efforts towards making the National Telegraphs a great success. On account of the National system being under Government control, we will be subject to keen criticism when we are at fault, and I ask your hearty co-operation in striving for a perfect service. I shall be glad to receive suggestions from time to time, and they will have careful consideration. I wish to thank all employes for their assistance in the past in promoting the business of the Great North Western Company, and I feel sure that they will do their part in building up the new Canadian National Telegraphs.

Grain Inspected at Western Points.

The following figures, compiled by the Dominion Bureau of Statistics' Internal Trade Division, show the number of cars of grain inspected at Winnipeg and other points on the Western Division, during Nov. 1920, and for three months ended Nov. 30, 1920 and 1919:—

	Nov. 1920	3 mos. to Nov. 30, 1920	3 mos. to Nov. 30, 1919
Canadian National Rys.	8,588	24,452	22,593
Canadian Pacific Ry...	23,164	58,366	36,890
Grand Trunk Pacific Ry.	3,538	8,185	10,056
Great Northern Ry.....	14	131	413
Totals	35,304	91,134	69,952

Approval of Railway Route Maps and Location Plans.—The Board of Railway Commissioners passed general order 321 Dec. 2, 1920, as follows:—Re secs. 167 and 170 of the Railway Act, 1919, and the question of the form of evidence of the Board's approval of route maps or location plans thereunder shall take. The matter having been considered at a meeting of the Board in the Chief Commissioner's office, Nov. 30, 1920, at which were present the Chief Commissioner, the Assistant Chief Commissioner, the Deputy Chief Commissioner, and Commissioners Boyce and Rutherford, it was decided that all route map and location plans approved and sanctioned by the Board be signed by the Chief Commissioner. The Board accordingly so orders and declares.

Transportation Service Ltd. has been incorporated under the Ontario Companies Acts, with authorized capital of $40,000 and office in Hamilton, Ont., to carry on among other things the business of customs brokers and forwarders, and to act as auditors and adjusters in connection with transportation business. The provisional directors are:—G. F. Elliott, H. Van E. Johnston, F. A. Anstie and G. Austin.

Electric Railway Department

Sale of Toronto Railway Co.'s Subsidiary Companies to Hydro Electric Power Commission of Ontario and the City of Toronto.

After more than a year's negotiations, an agreement was arrived at, Dec. 3, 1920, between R. J. Fleming, General Manager, Toronto Ry., and Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, for the sale to the Commission of all the so-called Mackenzie interests" in electric power, light and interurban railways in and around Toronto, except the company's street railway in Toronto. The following letter, from Mr. Fleming to Sir Adam, gives the terms in full:—

"On behalf of the Toronto Railway Co., subject to the approval of the shareholders, I am authorized to make the following proposals to you: The Toronto Ry. Co. will sell to the Hydro Electric Power Commission of Ontario: All of the issued capital stock of the Toronto Power Co., of par value of $3,000,000. All of the issued capital stock of the Toronto & York Radial Ry. Co. All of the capital stock of the Schomberg & Aurora Ry. Co., which three companies control the property commonly known as the Toronto Power Co., the Toronto-Niagara Power Co., the Electrical Development Co. of Ontario, the Toronto Electric Light Co., and the Toronto & York Radial Ry. Co.; also the Schomberg & Aurora Ry. Co.

"The sale, if made, to take effect as from Dec. 1, 1920, as of which date all taxes, insurance and other necessary adjustments are to be made. The consideration to be $32,734,000, payable to the Toronto Ry. Co. as follows:—

"Approximately $6,971,295 in 6% 20-year bonds of the City of Toronto, dated Dec. 1, 1920.

"Approximately $2,375,000 of 20-year 6% bonds of the Commission, dated Dec. 1, 1920, secured by first mortgage on the properties of the Toronto & York Radial Ry. Co. outside the City of Toronto, which bonds are to be guaranteed by the Province of Ontario as to principal and interest and issued under the terms of the Hydro Radial Act.

"Approximately $612,528 of 20-year 6% bonds of the Hydro Commission, dated Dec. 1, 1920, guaranteed as to principal and interest by the Province of Ontario.

"The assumption by the Commission of the underlying bonds and the interest and sinking funds thereon of the Toronto Power Co., as follows:

"First mortgage 5% bonds of the Electrical Development Co. of Ontario, secured by trust deed dated Mar. 1, 1903, now outstanding in the hands of the public, $4,335,000;

"Four and a half per cent. 30-year debenture stock and bonds of the Toronto Power Co., now outstanding, amounting to $13,558,917;

"Five per cent. mortgage bonds maturing July 1, 1924 (secured on preferred stock of Electrical Development Co.), $4,103,200;

"Three-year 6% promissory notes of the Toronto Electric Light Co., secured by first mortgage bonds of that company on which there is due for principal $840,000;

"Outstanding shares of Electrical Development Co. of Ontario, $13,100;

"Total, $22,850,217, less sinking fund aggregating approximately $75,040, $22,775,177.

"Summary:—

"Total purchase price	$32,734,000
"Bonds to be delivered	9,958,823
"Obligations to be assumed	22,775,177

"The Toronto Power Co., subject to its bond issues above referred to, owns:

"All of the issued capital stock of the Toronto Electric Light Co;

"All except $13,100 par value of the issued capital stock, preferred and common, of the Electrical Development Co. of Ontario.

"The last named company, subject to its bond mortgage above referred to, owns all of the stock and all of the bonds of the Toronto & Niagara Power Co.

"The Toronto Power Co. owns a debt of the Toronto Electric Light Co., a security for which it holds $3,000,000 of second mortgage bonds of the Toronto Electric Light Co.

"The Toronto Power Co., through its ownership of all of the stock of the Toronto Electric Light Co., owns the note of the Toronto & Niagara Power Co., for $4,212,100, representing the balance of the purchase price for the Toronto Electric Light Co.'s property, and in addition the Toronto & Niagara Power Co. has assumed the payment of the first and second mortgage bonds of the Toronto Electric Light Co., aggregating $4,000,000.

"The Toronto & York Radial Ry. Co. owns the radials running east, north and south from Toronto, known as the Scarborough Division, the Metropolitan Division, and the Mimico Division. It has an existing bond issue of approximately $1,640,000, which will be discharged when the purchase is closed. The Schomberg & Aurora Ry. is owned by the company of that name, all of whose shares are owned by the Toronto Railway Co., and will be transferred as aforesaid.

"It is understood that with respect to the Toronto Power Co., the Toronto & Niagara Power Co., the Electrical Development Co., the Toronto & York Radial Ry. Co., and the Schomberg & Aurora Ry. Co., current assets consisting of cash and bills and accounts receivable and the assets referred to in the schedule annexed hereto are to be taken out from the assets of the respective companies and are not to pass under the proposed sale. The current liabilities of the said companies accrued due up to Dec. 1, 1920, other than intercompany liabilities and those to be assumed as aforesaid, to be paid or provided for by the vendors and not to form a liability of the said company on the said date.

"The Toronto Ry. Co. being liable as guarantors in respect of the two issues of bonds of the Toronto Power Co., your Commission is to agree to indemnify and save the said company harmless under its said guarantees and to agree to enter into a direct covenant with the trustees of the said issues for the purpose of guaranteeing the bonds of the said issues and the interest and sinking fund thereon in consideration of the Toronto Ry. Co. being relieved from its guarantees in connection therewith, provided this can be arranged with the bondholders and the trustees of the said issues.

"The power supply of the Toronto Ry. to continue under the existing contract until such time as the city takes over the street railway.

"The Gas Processes, Ltd., has erected and is occupying a building in the Scott St. property of the Toronto & Niagara Power Co. and is also occupying portions of the building of the Toronto & Niagara Power Co. and the said property. It is understood that they are to be allowed to remain without rental for a reasonable time, not to exceed six months, and then to be entitled to remove their property, including the building.

"As the transaction, if consummated, will involve handing over the entire control and management of the companies in question, owing to the difficulty in transferring the actual assets, comprising the distribution system in Toronto at this time, it is understood that all transactions shown by the books of the respective companies up to Dec. 1, 1920, are to be considered as having been confirmed by the shareholders of the companies respectively, and are not to be questioned by the purchasers as shareholders or otherwise. All books, records and documents of the respective companies necessary in the opinion of G. T. Clarkson, in connection with the operations of the companies are to be handed over to the purchasers. All other books, records and documents to remain in the possession and be the property of the Toronto Railway Co.

"If the proposal is accepted, a formal agreement is to be entered into between the Toronto Ry. Co. and the Commission. It is a term of this proposal that the Ontario Legislature shall confirm the

Canadian Electric Railway Association.

Honorary President, Lieut.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co.

Honorary Vice President, Acton Burrows, Proprietor and Editor, Canadian Railway and Marine World.

President, A. Gaboury, Superintendent, Montreal Tramways Co.

Vice President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Honorary Secretary-Treasurer, pro tem, A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.

Executive Committee, The President, Vice President, and F. D. Burpee, Manager, Ottawa Electric Railway Co.; C. C. Curtis, Manager, Cape Breton Electric Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.; Geo. Kidd, General Manager, British Columbia Electric Railway Co.; M. W. Kirkwood, General Manager, Grand River Railway Co. and Lake Erie & Northern Railway Co.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Railway Co.; R. M. Reade, Superintendent, Quebec Railway Light & Power Co.; Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Railway Co.; C. L. Wilson, Assistant Manager, Toronto & York Radial Railway Co.

Official Organ—Canadian Railway and Marine World, Toronto.

sale and the terms of the formal agreement above referred to, and the issue by the City of Toronto and the Commission of the bonds forming part of the purchase price.

"I have tried to set out in the limited time available the proposals, but may have overlooked something essential within the terms of our general understanding. If so, this can be added later."

What the City of Toronto Will Acquire.

The following letter from Sir Adam Beck, to the Mayor and City Council of Toronto gives the terms agreed upon between him and the city Board of Control for the acquisition by the city of the Toronto Electric Light Co., and certain portions of the Toronto & York Radial Ry.:—"After investigation by Hydro Electric Power Commission of Ontario's engineers and accountants of the properties and businesses of the Toronto Power Co., the Electrical Development Co., the Toronto Electric Light Co., the Toronto & Niagara Power Co., the Toronto & York Radial Ry. Co. and the Schomberg & Aurora Ry. Co., and after negotiations extending over a period of more than a year with the Toronto Ry. Co., which owns or controls the same, the company has signified its willingness to dispose as of Dec. 1, 1920, of the undertakings of the said companies, free from liability except certain assets and liabilities specified by the vendors to the Hydro Electric Power Commission acting for and on behalf of the municipalities comprising the Niagara system and the City of Toronto for $32,734,000. This involves the purchase of the following properties:—

"1. For and on behalf of the municipalities comprising the Niagara system:

"The Electrical Development Co.'s generating plant at Niagara Falls. The Toronto & Niagara Power Co.'s transformer stations and transmission lines and the steam plant, lands and property in Toronto, at a total price of $32,547,705, to be paid by the assumption of the outstanding securities of the Toronto Power Co. and the Electrical Development Co., amounting to approximately $21,935,177, and by the issue of bonds of the Hydro Electric Power Commission guaranteed by the Province of Ontario for the balance.

"2. For and on behalf of the City of Toronto:

"(a) The distribution system of the company in Toronto for $7,226,295, and the section of the Metropolitan Division of the Toronto & York Radial Ry. Co. within the city (limited to what lies on the highway), for $585,000, or a total of $7,811,295, to be paid by the assumption by the city of 6% bonds against the property of the Toronto Electric Light Co. to the extent of approximately $840,000, due $30,000 every three months until 1922, when the balance thereof matures, and by the issue of 20-year 6% bonds of the City of Toronto for the balance; provided that the city will transfer to the Commission the right of way and the physical assets it now owns within the city on the Kingston Road to the Woodbine, and on the Lake Shore Road from the Humber to Sunnyside. Owing to the inability of the Toronto Power Co. to free the Toronto Electric Light Co.'s properties from bond mortgages given by the Toronto Power Co., the said properties must remain subject thereto until the bonds of the Toronto Power Co. are paid off, when the said properties will pass to the city; and in the meantime the right of the city to receive the properties upon payment of the said bonds is to be confirmed by act of the Legislature.

"(b) The properties of the Toronto & York Radial Ry. Co., including the Metropolitan Division (except the section on the highway within the city limits), the Scarborough Division and the Mimico Division, for $2,375,000 to be paid by the issue of bonds of the Hydro Electric Power Commission, secured, as provided under the Hydro Electric Railway Act, by the issue and deposit by the City of Toronto of an equivalent amount of debentures, and guaranteed by the Province of Ontario. As to these railways, it will be necessary that the agreement to be entered into should provide that the municipalities interested therein will

The Toronto & York Radial Railway's Three Divisions, Metropolitan, Mimico, and Scarboro.

be given an opportunity of voting under the Hydro Electric Railway Act to acquire their proper interest and their acceptance will proportionately reduce the amount to be now assumed by the City of Toronto.

"The Ontario Government has given its approval and has stated that it will pass such orders in council and submit such legislation as may be necessary to carry out and validate the transaction.

"After due consideration, the Commission has decided to recommend, subject to such further investigation as is thought advisable by counsel for the Commission, and to the preparation of a satisfactory formal agreement with the vendors, the purchase of the above properties and further recommends that the necessary bylaw be submitted to the qualified voters of the City of Toronto, authorizing the city to carry out the proposals outlined in paragraph 2."

The Toronto City Council passed a bylaw Dec. 8 to submit to the ratepayers at the municipal elections on Jan. 1 the question of whether they are in favor of carrying out the agreement as outlined above.

The Radial Railways' History.

The Metropolitan St. Ry. Co. of Toronto was incorporated by the Ontario Legislature in 1877 subsequent to which agreements, signed on behalf of the company by C. D. Warren, President, were entered into with the County of York, dated June 29, 1884; June 26, 1886; June 28, 1889; Dec. 17, 1889; Oct. 20, 1890, and Mar. 2, 1891. The first agreement was entered into in conformity with a bylaw passed by York County Council, June 25, 1884, which authorized the company to build a tramway on Yonge St., between the northern limits of Toronto, and the Eglinton town hall. The 1886 agreement authorized the extension of the line for a further distance of three quarters of a mile; the 1889 agreement authorized the use of electricity for the operation of the cars, and gave permission to carry freight; the Dec. 1889 agreement authorized the building of additional switches and turnouts; the 1890 agreement authorized the extension of the line to the top of York Mills hill, and the 1891 agreement authorized the company to change the gauge of the line to 4 ft. 8½ in., or to whatever gauge might be the standard for electric railways. In 1893 the Ontario Legislature passed an act changing the name of the company to the Metropolitan St. Ry. Co., and gave it power to extend its line to Lake Simcoe and to build branch lines to Markham, Newmarket and Schomberg. The act also confirmed the six agreements mentioned above under which the original sections of the line were built, and also confirmed a bylaw relating to the extension of the line from its then terminus to Richmond Hill.

The company was authorized by an amending act of 1895 to run cars or trains into Toronto on Sundays for the transportation of milk, and municipalities were given certain powers as to levying taxes on the railway. In 1897 the title of the company was changed to the Metropolitan Ry. Co. The line to be built by it was defined as being in York and Simcoe Counties, with branches to Newmarket, King, Markham, Weston, Woodbridge, Kleinburg, Nobleton, Schomberg, Tottenham, Beeton, Alliston, Bradford and Barrie, with lines from the latter town to Collingwood and Orillia, the gauge to be 4 ft. 8½ in. The company was authorized to acquire the Toronto Suburban Ry., and it was declared that the act did not confer any right to operate a railway by electric or cable power in Toronto without the consent of the city council. Another act in 1900 authorized the company to extend its lines to Shelburne, Stouffville, Claremont and Oshawa, and to acquire other lines.

The Toronto & Richmond Hill Ry. Co. Ltd. was incorporated some time prior to 1895, to build an electric railway from Toronto to Richmond Hill. In order to aid in the construction of this line the York Township Council obtained, in a general act, confirmation of a bylaw providing for the issue of $20,000 of debentures, with authority to levy a special rate for the payment of interest and principal, together with authority to rescind this bylaw. Nothing appears to have been done by this company.

The Toronto & Scarborough Electric Ry., Light & Power Co. (Ltd.) was incorporated by Ontario letters patent Aug. 18, 1892, and obtained an act from the Legislature in 1893 which provided for a capital of $500,000 and a bond issue of $20,000 a mile of lines built, and confirmed agreements made with York County, East Toronto Village and York and Scarborough Townships. These agreements were signed on behalf of the company by John Hallam, Vice President. The agreement with York County authorized the company to build an electric railway on Kingston Road, and those with the other municipalities authorized it to build lines on Gerrard St., Danforth Road, Don Mills Road and other streets and roads.

The Toronto & Mimico Electric Ry. & Light Co. (Ltd.) was incorporated by letters patent, and obtained its first act from the Ontario Legislature in 1891, which authorized the construction of an electric railway on the Lake Shore Road, the development of electric power and the operation of an electric lighting plant, and of the purchase of 100 acres as a pleasure park. At this time the City of Toronto did not extend west of Dufferin St., for certain agreements with York County, dated 1890 and 1892, and annexed to a subsequent act, granted the company the right to build an electric railway on the Lake Shore Road from Dufferin St. to Roncesvalles Ave., for the balance of the period of the lease of that portion of the road to Parkdale Village, and from 1905, when the lease expired, to Dec. 1911; and the county also gave the company permission to build a line on the Lake Shore Road from Roncessvalles Ave. to the county boundary. These agreements were signed on behalf of the company by F. Barlow Cumberland, President. In 1903 the Legislature changed the name of the company to the Toronto & Mimico Ry. Co., and authorized it to extend its line from Long Branch, via Port Credit, Oakville, Bronte and Burlington to Hamilton. In 1904 an agreement was entered into with Toronto Tp. Council for the extension of the line along the Lake Shore Road through the township, with the privilege of using a private right of way west of Port Credit.

The Schomberg & Aurora Ry. Co. was incorporated by the Dominion Parliament in 1896, to build a line from the G.T.R. Toronto-North Bay branch to near Schomberg, Ont., and in 1900 power was given to extend the line southeasterly to Oshawa, and northeasterly through Shelburne to Durham. Construction was started from near Bond Lake, on the Metropolitan Ry., in the late summer of 1901, and the line was completed to Schomberg, 14.42 miles, in 1904, when it was sold to the Toronto & York Radial Ry. It was operated as a steam line until early in 1916, when it was converted into an electric line.

The Toronto & York Radial Ry. Co. was incorporated in 1898 by the Ontario Legislature and given power to acquire the property and franchises of Toronto & Scarborough Electric Ry., Light & Power Co., Toronto & Mimico Electric Ry. & Light Co., Toronto Suburban Ry. Co.; and Metropolitan Ry. Co. In 1901 the Legislature passed an act giving the T. & Y. R. Ry. Co. power to acquire the Schomberg & Aurora Ry. Co.'s line. In 1906 the Legislature passed an act in which it was recited that the properties of the companies mentioned in the act of 1898, with the exception of the Toronto Suburban Ry., had been acquired, and the powers as to construction previously granted to the three separate lines were contined to the T. & Y. R. Ry. Co., which was also authorized to extend its line to a junction with the James Bay Ry., and to Stouffville, Whitby and Bowmanville, and an additional section declared that agreements of the three acquired companies as they effected the City of Toronto were in no way affected by the new legislation. In 1911 the Legislature passed an act in which an extension of time for the construction of the line authorized to be built by the several companies was granted; power was given to build on private rights of way, and rights of expropriation were given subject to the Ontario Railway and Municipal Board's approval.

Building of Lines.—Under the charters referred to the Toronto & Mimico Ry. built a line on the Lake Shore Road from Sunnyside, just west of the G.T.R., to Long Branch Park, 5.79 miles; the Toronto & Scarborough Ry. built a line from the Woodbine, along Kingston Road for 5.07 miles, and the Metropolitan Ry. built a line on Yonge St., from north of the C.P.R. to Newmarket, 28 miles, making a total mileage taken over by the Toronto & York Radial Ry. 38.94 miles. After the amalgamation the work of expansion was begun, and the Toronto & Mimico Ry. was extended from Long Branch to Port Credit, 3.95 miles. The agreement with the Toronto Tp. Council called for the construction of a line to the township's western boundary, and the council subsequently recovered $1,000 as a penalty for failure to build this line. The Metropolitan Ry. was extended from Newmarket, mainly on private right of way, to Lake Simcoe, at Sutton West, 25 miles.

Under the terms of the franchises the City of Toronto acquired in 1913, from the Toronto & Mimico Ry. Co., the section of the line from Sunnyside to the Humber, the price being fixed by arbitration at $79,245.07, and in 1914 the ratepayers authorized debentures for the amount to be issued. This section of the line is being operated by the T.& Y. R. Ry. under contract for the city. Upon the completion of the G.T.R. track elevation at Sunnyside the city built an extension of the line from Sunnyside to Roncesvalles Ave., at which point passengers make connection with the city lines.

On June 25, 1914, the City of Toronto took up the tracks of the Metropolitan Ry. from the C.P.R. tracks at North Toronto to Farnham Ave., 1,220 ft., and during the next two years considerable litigation took place. The Toronto & York Radial Ry.'s Metropolitan division terminals are now at Farnham Ave., and the Toronto Ry. has been extended from its terminus south of the C.P.R. tracks to Farnham Ave.

Toronto & York Radial Ry. Statistics. The following figures are for the year ended June 30, 1919:—

Length of railways owned, 68,97 miles; under lease or contract, 3.20 miles; total operated, 72.17 miles; length of sidings, switches, etc., 9.83 miles; total mileage, 82.00.

Rolling stock and miscellaneous equipment:—49 box motor passenger cars, 3 open passenger cars; 1 official car; 1 electric locomotive; 11 baggage, work and express cars; 15 platform cars; 10 tool cars; 4 snow ploughs; 1 bonding car; 7 other highway vehicles; 9 wagons and sleighs; 7 motor trucks and 2 automobiles.

Gross earnings from operation	$796,168.15
Operating expenses	577,422.56
Net earnings	$218,745.59
Total charges and deductions	192,057.19
Net divisible income	$26,688.40
Total surplus	$264,554.17

ASSETS.

Cost of railway	$4,466,570.08
Cost of equipment	641,822.17
Cost of land and buildings	393,697.89
Other permanent property	3,308.34
Cash and current assets	273,692.32
Miscellaneous assets	153,120.38
Total	$5,932,211.18

LIABILITIES.

Common stock	$2,000,000.00
Funded debt	1,640,000.00
Real estate mortgage	15,900.00
Current liabilities	1,974,244.54
Accrued liabilities	24,228.70
Sinking and special funds	13,213.77
Profit and loss	264,554.17
Total	$5,932,211.18

During the year 7,547,949 passengers and 47,342 tons of freight were carried.

The directors of the company are: — Sir William Mackenzie, President; Senator F. Nichols, Vice President; Sir Henry Pellatt and E. R. Wood, Toronto; Senator C. P. Beaubien, Montreal, and F. W. Ross, Quebec.

The officers are:—J. C. Grace, Secretary-Treasurer; W. H. Moore, General Manager; C. L. Wilson, Assistant Manager; F. S. Livingston, Traffic Manager; C. W. Nott, Superintendent; L. P. McClelland, Superintendent, Metropolitan Division; J. F. Deadey, Superintendent, Mimico Division; Jno. Break, Superintent, Scarboro Division; C. P. Van Norman, Resident Engineer; W. B. Boyd, Chief Electrical Engineer; G. K. Hyde, Purchasing Agent; A. M. Smith, Master Mechanic; J. H. Middlebrook, Superintendent Overhead Work.

Guelph Radial Railway's Future.

The position of the Guelph Radial Ry. in regard to the Hydro Electric Power Commission of Ontario has been the subject of considerable discussion since the appointment of the commission by the Ontario Government to enquire into the entire question of hydro electric radial railways in Ontario. In Jan. 1920, Guelph ratepayers endorsed a bylaw for the transfer of the line to the H. E. P. C. O., it being understood that the line would be a part of the Hamilton-Guelph-Elmira line, which was voted on by the municipalities interested also in January. The line was to be transferred under the bylaw as passed, but a question was raised as to whether everything was in order, the bylaws passed by the outside municipalities not including a section of to the Guelph Radial Ry. The negotiations resulted in a new agreement being framed, which was passed by the Guelph City Council, Dec. 12, and which will be voted on by the ratepayers at the January elections.

Under the new agreement the city agrees to sell and the commission agrees to purchase all the assets, undertakings and property of every kind and nature belonging to the Guelph Radial Ry., or to which the G.R. Ry. is entitled in connection with its business, free from liability; that the consideration shall be $150,000, payable in instalments of $11,700 in each year for 20 years in half yearly payments on May 1 and Nov. 1, the first of such half yearly payments of $5,850 to be made on Nov. 1, 1921. The city agrees with the commission to bear the cost of acquiring, equipping, operating, maintaining, repairing, renewing and insuring the railway and its

property and works as established by the commission, and also to issue debentures for $300,000, maturing in 50 years from the date of issue, bearing interest at 5% per annum, payable half yearly. The debentures shall be deposited with the Commission on the confirmation of the agreement, and to be held or disposed of from time to time by the Commission.

Increases in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry. — The Board of Railway Commissioners passed order 30,376, Nov. 29, 1920, approving this company's standard freight mileage tariff, supplement 1 to C.R.C. 132, to become effective Dec. 6, 1920.

The Board also passed order 30,409, Dec. 2, 1920, approving this company's supplement 1 to its standard tariff of maximum fares, C.R.C. 8.

Chatham, Wallaceburg & Lake Erie Ry.—The Board of Railway Commissioners passed order 30,303, Nov. 30, 1920, approving this company's standard freight mileage tariff, supplement 1 to C.R.C. 576, effective Dec. 6, 1920.

The Board of Railway Commissioners passed order 30,382, Nov. 30, 1920, approving this company's standard passenger tariff, C.R.C. 42, effective Dec. 6, 1920.

Assistant Chief Commissioner McLean gave the following judgment, Nov. 26, 1920:—Re Chatham, Wallaceburg & Lake Erie Ry. Co.'s application, for approval of proposed standard passenger tariff, C.R.C. 42, and standard freight mileage tariff, supplement 1 to C.R.C. 576. The company applies to be permitted to put in force the percentage increases authorized by general order 308. The following summary detail for the year ended June 30, 1920, may be referred to as showing the financial position of the applicant:—

	1918.	1919.	1920.
Gross earnings	$130,574	$184,470	$176,019
Operating expenses	97,590	152,971	167,579
Net revenue	$ 32,984	$ 31,499	$ 8,440
Deduct—			
Taxes	$ 2,636	$ 3,600	$ 6,433
Interest on unfunded debt	2,363	4,015	3,360
Interest on funded debt	34,725	34,725	34,725
Net loss	$ 6,742	$ 10,841	$ 36,078

In addition to the detail above set out, the following additional material has to be considered:—

	1918.	1919.	1920.
Other charges—			
Betterments	$ 8,786	$ 1,025	$17,791
Reduction on loan to City of Chatham	2,000	2,000	2,000
	$10,786	$ 3,025	$19,791

With an increase of 35% in gross revenue, there has in the same period been an increase of 72% in operating expenses. The General Superintendent of the railway says in his application:—"As already advised, the Dominion Sugar Co. handles at least 75% of the total tonnage freight originating on this line, and I am assured by its Vice President that it is quite agreeable to allow us charges same as rates effective on steam lines."

In the judgment of June 7, 1918, which found the application of the 15% increase justifiable in the case of this line, its operating and financial conditions were analyzed in detail. What is set out above shows the unfavorable condition in which it still stands. The judgment in question said:—"The railway company represents that it has no agreement with any municipality, which in any way limits the rates, either freight or passenger, which it may charge. It further represents that the present application does not involve an increase in the existing 5c. fare applicable in the City of Chatham."

The Board has not been notified of any change on the part of the railway in respect of the fare within the City of Chatham, and it is assumed that the application does not involve any increase therein. On consideration of the material submitted, I am of opinion that it discloses such a condition as justifies the granting of the percentage increases authorized by general order 308.

Fort William Municipal Railway, Port Arthur Civic Ry.—We are officially advised that on Sept. 1, 1920, there was put in operation on these railways an increased schedule of fares, as follows: Cash fare, 7c., or 4 tickets for 25c.; pupils, 7c. cash, or 8 tickets for 25c, (these latter tickets were sold only at the offices and were valid only for going to and returning from school); children's fare, under 10 years, 3c. cash, or 10 tickets for 25c. These rates replaced the former cash fare of 5c., or 5 tickets for 25c., there being no changes in the pupils and childrens fares.

On receipt of a complaint made by Port Arthur ratepayer that the Fort William and Port Arthur railways were charging higher rates than those approved by the Ontario Railway and Municipal Board, A. B. Ingram, Vice Chairman, at the request of the other members of the Board, visited Port Arthur to make an investigation. A conference was arranged with the complainant, C. A. Gorden, Mayor I. L. Matthews, B. Tourtellot, and E. J. Blaquier, Port Arthur Public Utility Commissioners, and J. G. Macdonald, Chairman of Fort William Public Utilities Commission, on Nov. 8, at which it was shown that the complaint was well founded. The excuse given by the commissioners for charging higher rates than those approved by the Board was that the latter did not provide sufficient revenue to meet operating expenses and fixed charges. As a result of the investigation, Mr. Ingram recommended that the Board issue an order, or such other instructions, as would require both systems to restore the rates previously approved by the Board. An order directing the restoration of the 5c. fare in both cities was made subsequently.

The municipalities, on receiving the order applied to the Board for the hearing of their application for power to charge increased fares, which was sent in in July, 1920, and Dec. 16, 1920, was fixed for hearing the cities representation on the matter. The municipalities were informed that pending the hearing the order above referred to was suspended. Subsequently the hearing was postponed to Dec. 20, when I. F. Hellmuth, K.C., presented the case for the railways and judgment was reserved.

The matter was discussed, a press report states, by the independent labor party, in Fort William, Nov. 30, and a resolution was passed asking for the appointment of a commission to investigate the operation of the railway. The Mayor is reported to have stated that a plebiscite would likely be submitted to he ratepayers asking if they would favor increasing the fare to 7c.

The same press report adds that the Mayor of Port Arthur stated that the whole matter of increased fares was to be argued before the Ontario Railway and Municipal Board on Dec. 16, that the question was whether the two cities were within the law in collecting the increased fare of 2c., and that it was proposed to continue to collect the extra fare, and in the event of the Ontario Railway and Municipal Board declaring it to be illegal, the only course open would be to apply for special legislation to authorize a 7c. fare.

Guelph Radial Ry.—Guelph City Council and Guelph Radial Ry. Co. are applying to the Ontario Legislature for an act to authorize the charging of the following fares on the railway:—Single cash fares 7c., or 4 tickets for 25c.; fares after 11 p.m. and before 5 a.m. to be double the ordinary maximum single fare. The present fares are 5c. cash or 6 tickets for 25c.

Hull Electric Co.—We are officially advised that the company has filed with the Board of Railway Commissioners a special local passenger tariff, effective from Dec. 6, 1920, increasing the fare between Ottawa and Aylmer from 20c. to 25c. Tickets sold formerly at three for 50c., are now 11 for $2; children's tickets sold previously at 4 for 25c. and 3 for 25c. between Ottawa and Deschenes and Aylmer, respectively, are now 15 for $1. Sale of tickets by conductors has been discontinued and they are now sold at the company's offices and at a number of points along the line. Books of tickets are not transferrable and are limited to one month from date of issue.

London St. Ry.—The London, Ont., City Council's no. 1 committee, on Dec. 2, failed to take any action on a suggestion for the submission of a bylaw to the ratepayers at the municipal elections on Jan. 1 to permit the increase of fares by reducing the numbers of tickets sold for 25c. to 6 and 8 respectively.

Port Arthur Civic Ry.—See Fort William Municipal Ry.

Peterboro Radial Ry.—Increased passenger fares were put in effect on Dec. 1 on this railway, which is owned by the Ontario Government and operated by the Hydro Electric Power Commission of Ontario. Following is a comparison of the new and old fares:—

	New.	Old.
Adults—		
Cash	7c.	5c.
Tickets, unlimited	5 for 35c.	5 for 25c.
Tickets, limited	4 for 25c.	6 for 25c.
Children—		
Between 6 and 10 years	3c.	3c.
Under 6 years, unaccompanied	3c.	3c.
Under 6 years, accompanied	Free	Free
School tickets, limited	10 for 25c.	10 for 25c.

Waterloo-Wellington Ry.—In reference to a press report stating that under the Board of Railway Commissioners' authority the fares on this line (formerly the Berlin and Northern Ry.) had been increased to 10c. or 12 tickets for $1 until March, we are officially advised that while the fare has been increased it has been done with the approval of the municipalities in which the line is situated and that the increase will be operative to the end of April. The reason for the increase was that last year the wages and other direct operating costs were materially more than the receipts, and it was a question of increasing the fare, or closing down for the winter. The W. W. Ry. Co. operates under an Ontario

charter and is not under the Board of Railway Commissioners' jurisdiction.

Windsor, Essex & Lake Shore Rapid Ry.—The Board of Railway Commissioners passed order 30,392, Nov. 30, as follows:—Re application of Windsor, Essex & Lake Shore Rapid Ry., under sec. 331 of the Railway Act, 1919, for approval of its Standard Mileage Freight Tariff, C.R.C. 269. Upon the report and recommendation of the Board's Chief Traffic Officer, and reading the submissions filed in support of the application, the Board orders that the said tariff, to become effective Dec. 6, 1920, be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Assistant Chief Commissioner J. S. McLean addressed the following memorandum in connection with this case to the Chief Commissioner:—This company was permitted by a judgment of June 7, 1918, to apply the 15% increase on freight. It did not apply the subsequent increase provided for under Privy Council order 1863. It is now asking to apply the 40% on its existing basis, wherein the increase of P.C. 1863 is not included.

Mr. Brown's memo. of Sept. 24, 1920, on file, compares the proposed standard with the rates authorized under general order 308. The following computation, based on first-class rates, compares the proposed standard of the applicant (set out as B) with the rates established under general order 308 (set out as D), and also indicates the per cent. by which B is below D:

				Rate under B.	Rate under D.	B expressed as per cent. of D.
Not over		5	miles.....	12½	24	52%
5	—	10	miles.....	16	24	66%
10	—	15	miles.....	19½	24½	79%
15	—	20	miles.....	22½	28	80%
20	—	25	miles.....	26	32	81%
25	—	30	miles.....	28½	35½	80%
30	—	35	miles.....	32	40½	79%
35	—	40	miles.....	35½	45	78%

It will be noted that on the mileages 15-40 the rates resulting from applying the 40% increase to its existing base are approximately 20% below the basis as indicated in the 15% case, with the appropriate increases under P.C. 1863 and general order 308.

As was set out in the judgment of 1918, the only agreement existing between the railway and any municipality which in any way bears on the level of freight rates is as set out in sec. 7 of bylaw 1101 of the City of Windsor, which bylaw is in respect of the Windsor, Essex & Lake Shore Rapid Ry. The provision in question provides: "The company shall carry freight to and from Windsor upon the entire or any portion of its system at rates not in excess of regular steam railroad rates for similar distances and between the same places."

The apparent intention is that the steam railway rates, in the area as defined, changed as they may be from time to time, shall act as maxima. The statements on file, attached to applicant's letter of Nov. 4, shows comparison of rates as asked for between given points, and the rates as applicable between the same points, either by the Michigan Central or the Pere Marquette, according to the location of the points in question. Taking first-class rates as a basis of comparison, the proposed rates of the applicant average 73% of the rates of the Michigan Central in the case of movements common to the two lines between Leamington and Essex, Maidstone and Windsor, between Essex, Maidstone and Windsor, and between Maidstone and Windsor. In the case of the movements common to the applicant and the Pere Marquette, the rates of the applicant on the same basis of comparison average 70% of the rates of the Pere Marquette on movements from Leamington to Ruthven, Kingsville and Walkerville (Windsor), Ruthven and Kingsville, Ruthven and Walkerville (Windsor), Kingsville and Walkerville (Windsor), Windsor is enclosed in brackets because it is the applicant's stopping place most closely adjacent to Walkerville. If comparisons are made on the basis of 5th and 10th class averages, the following detail is available for the same points:

	On 5th class.	On 10th class.
Percentage of M.C.R. rates	69%	76%
Percentage of P.M. rates	70%	76%

The first standard freight tariff of the railway was approved by the Board's order of Oct. 4, 1907. It was at that time set out that the basis was that generally applicable on the railways of Ontario and Quebec. I think that in the present instance the increase proposed should be allowed.

It may also be pointed out that for the year ended June 30, 1919, with a total revenue of $198,565, there was a deficit, after payment of taxes and interest, of $14,972, while for the year ended June 30, 1920, with a total revenue of $251,266, there was a net income, after paying interest and taxes, of $5,876. In neither of these years was any dividend paid on the capital stock, which amounts to $750,000.

The above recommendation was concurred in by Chief Commissioner Carvell, and Commissioners Boyce and Rutherford.

Toronto Civic Railway Report.

Toronto's Works Commissioner, in an interim report on his department's work for the 11 months ended Nov. 30, 1920, gives the following information respecting Toronto Civic Ry.:—

Traffic increased steadily during 1920. Comparing the first 11 months with the same period in 1919, the following increases have occurred:—

Route.	Passengers.	Mileage.
Gerrard	30.2%	15.7%
Danforth	26.3%	30.0%
St. Clair	19.0%	7.6%
Lansdowne	26.4%	9.7%
Bloor	25.6%	12.2%
Entire system	23.9%	17.5%

The passenger traffic increased from 23,587,271 passengers in 1919, to 29,234,826 in 1920, and the mileage from 1,665,997 to 1,956,813. About 100,000 revenue passengers per day are now being carried.

The following are the hourly rates of motormen and conductors:—

	From July 4, 1919, to Dec. 31, 1919	From Jan. 1, 1920, to Nov. 30, 1920
1st 3 months	50c.	60c.
Next 9 months	52½c.	63c.
2nd year and thereafter	55c.	66c.

If working as operators on safety cars, a differential of 5c. an hour is added. The average number of men on the staff during 1919 was 220, while 245 are employed at present.

Twenty-five safety cars, operated by one man, were received in August. They were placed in operation in the base schedule on Gerrard St. route on Aug. 17, and in the base schedule on Danforth Ave. route on Aug. 27. Commencing on Oct. 22, the full service on the Bloor St. route was given with these cars. The railway now operates 70 cars, the receipt of the safety cars making it possible to greatly improve the service on all routes.

A permanent double track was laid on Bloor St., between Quebec Ave. and Runnymede Road. It was opened for service on Oct. 20 and the temporary single track was removed the following week. Additional storage tracks were laid in the yards at Danforth Ave. and Bloor St. barns. During the fall, new trolley wire was strung on the whole of the St. Clair Ave. route and between Lamb and Broadview Ave. on the Danforth Ave. route.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Oct. 1920	Oct. 1919	3 mos. to Oct. 31, 1920	3 mos. to Oct. 31, 1919
Gross	$781,706	$710,405	$3,035,399	$2,704,611
Expenses	597,367	526,980	2,305,064	2,023,468
Net	184,339	183,415	730,335	681,143

Cape Breton Electric Co:—

	Oct. 1920	Oct. 1919	10 mos. to Oct. 31, 1920	10 mos. to Oct. 30, 1919
Gross	63,255.34	$50,590.84	$520,224	$477,105
Expenses	49,589	44,106	452,435	374,258
Net	6,485	13,666	67,789	102,847

Edmonton Radial Ry.—A statement for the nine months ended Sept. 30, 1920, issued by the City of Edmonton, Alta., gives the following information as to the operation of the municipal railway:—

	1920.	1919
Net deficit	$141,397.16	$53,823
Passengers carried	10,070,174	9,479,439

A press report states that the earnings of the railway for Oct 1920, were $75,721.68, and for Nov. 1920, approximately $81,000.

Quebec Ry., Light & Power Co. — A press report states that the earnings for the three months ending Sept. 30, 1920, were $323,798, an increase of 21.97%.

Sudbury-Copper Cliff Suburban Electric Ry. Co.—Sudbury, Ont., Town Council has, a press report states, decided not to buy the company's railway for $190,000, at which it was offered. The matter of the sale of the line to the town had been under discussion for some time, and it was expected that a bylaw to authorize the purchase would have been submitted to the ratepayers on Jan. 1.

Toronto Railway.—

	1920 Receipts	1920 City percentage	1919 Receipts	1919 City percentage
Jan.	$ 652,350	$110,950	$ 588,923	$ 88,339
Feb.	595,861	119,172	545,771	96,563
Mar.	745,706	149,141	615,526	123,105
Apr.	653,340	130,668	600,231	120,046
May	644,458	132,892	620,068	124,014
June	544,833	108,966	431,082,	86,217
July	641,793	128,539	534,412	128,359
Aug.	631,521	126,304	629,540	125,908
Sept.	690,546	55,243	641,422	51,313
Oct.	671,294	60,940	650,913	57,919
Nov.	677,283	79,684	638,870	72,511
	$7,168,985	$1,202,319	$6,496,758	$1,074,294

Toronto Ry., Toronto & York Radial Ry. and allied companies:—

	Oct. 1920	Oct. 1919	10 mos to Oct. 31, 1920	10 mos. to Oct. 31, 1919
Gross	$1,281,290	$1,123,801	$11,949,686	$10,442,259
Expenses	869,061	729,430	8,278,471	6,515,661
Net	349,229	394,371	3,671,215	3,926,598

Winnipeg Electric Ry. and allied companies:—

	Oct. 1920	Oct. 1919	10 mos. to Oct. 31, 1920	10 mos. to Oct. 31, 1919
Gross	$44,899	$428,339	$4,276,548	$3,375,399
Expenses	329,479	321,795	3,192,533	2,667,983
Net	115,420	106,544	1,984,015	707,416

A press report states that the shareholders on Dec. 6 authorized the directors to issue $3,000,000 of 7% cumulative preference stock, and to increase the common stock to $12,000,000, and that it is the intention to utilize the proceeds of the new issues to wipe out liabilities accumulated during the war years.

The Ontario Hydro Electric Radial Railway Enquiry.

The Commission, appointed by the Ontario Government, to investigate the system of hydro electric radial railways proposed by the Hydro Electric Power Commission of Ontario, and of which Mr. Justice Sutherland is chairman, issued the following statement Dec. 14:—

"This Commission had its first public sitting on July 28, 1920, and, after conference, concluded that its preliminary duty was to secure, in written form, from the Hydro Electric Power Commission of Ontario, the proposed cost of purchase, betterments and construction of the radial railways in question, and of the estimated revenues, passenger, freight and otherwise, expected to be realized from their annual operations. Requisitions for this purpose in writing, and in somewhat general detail, were prepared and submitted, it being realized on all hands that it would take some two or three weeks to furnish these, or if they were brought up to date, some weeks longer. Pending this an adjournment was made, and meantime members of the Commission, under the guidance of Hydro Electric Power Commission officials, went over the railways in question, and the territory through which they run, so as to put themselves in a better position to appreciate the documentary and oral evidence to be given later. The material thus asked for was to a large extent furnished during September and the early part of October. It was thought that the next appropriate step was to call F. A. Gaby, Chief Engineer of the Hydro Electric Power Commission, to explain, as fully as possible, the plans, specifications and estimates thus furnished, and this took some weeks, inclusive of certain necessary adjournments from time to time to suit the convenience of members of the Commission, counsel, and the witnesses who could not devote their time continuously to the work. Mr. Gaby's preliminary evidence was completed on Oct. 26.

"A request was then made to counsel representing the Hydro Electric Power Commission, and counsel representing those questioning the propriety of the proposed purchase, as to whether they desired at this point to adduce further evidence, and neither desiring, nor offering, to do so, an adjournment was made to consider further evidence. It was thought appropriate that the evidence of Mr. Gaby should be supplemented by that of W. S. Murray, the engineering expert who had reported to the Hydro Electric Power Commission on the whole scheme on May 28, 1920. His convenience had to be consulted, and though it was expected that he could attend earlier, he was not able to come until Nov. 22.

"In the evidence already taken, reference had been made to radial railways in the United States, from a personal inspection of which by the Commission, it was thought information could be got, important in the prosecution of their work, and a visit in the meantime was made to various cities and centers in the U.S. for this purpose. Just prior to this, it was considered advisable to secure the services of an experienced railway engineer and operating man, to whom instructions were given to make an independent study and investigation of all relevant and essential facts, to enable him to give evidence to assist in arriving at a proper conclusion. F. P. Gutelius, Vice President, Operating and Traffic Departments, Delaware & Hudson Co., was chosen. It was also decided to ask W. F. Tye, another railway engineer, who had previously made a report on a proposed new electric railway in a part of the territory in question, to make an investigation of the whole matter with a view to giving evidence.

"It was further considered advisable that the officials from all railways, steam and electric, operating in those portions of the province, through which the railways in question would run, should be called to ascertain the business they were doing, the extent to which the public was being served by them, their annual revenues and expenditures and the like, and the nature of their business. The evidence of these officials, from the following roads, was taken: C. E. Friend, Comptroller of Finance, Canadian Northern Ry. System; G. C. Royce, General Manager, Toronto Suburban Ry.; E. P. Coleman, General Manager, Dominion Power & Transmission Co.; W. M. Neal, Assistant General Superintendent, Ontario District, C.P.R.; C. G. Bowker, General Superintendent, Ontario Lines, G. T.R.; M. W. Kirkwood, General Manager, Grand Valley and Lake Erie and Northern Ry.; G. C. Martin, General Traffic Manager, Toronto, Hamilton & Buffalo Ry. In addition, W. A. Maclean, Deputy Minister of Highways, Ontario, and G. P. Parker, Superintendent, Dominion Express Co., were called. Mr. Tye was also called.

"Mr. Gutelius, after making an investigation of the documents and facts deemed by him advisable and necessary, and after also making a personal inspection of the lines and territory, in company with Hydro Electric Power Commission officials, and a trip over the London & Port Stanley Ry., with and at the request of Sir Adam Beck, Chairman of the Hydro Electric Power Commission, was then called. During the giving of his evidence, he expressed his views as to the cost of purchase and construction of the proposed lines and the estimated cost of operation and revenues.

"It would seem now appropriate and desirable that we should request that those additional officials or experts who prepared the data on which the estimates were made up for the Hydro Electric Power Commission should be called, and give the members of the Commission the benefit of their evidence in the same direction. We should like, therefore, that the names of these men should be submitted, and that they should be called when and as soon as convenient.

"F. W. Coen, of Cleveland, Ohio, Vice President, General Manager and Purchasing Agent, Lake Shore Electric Ry., was also called, in view of the fact that that city has been the center of considerable electric street and radial railway operation, so that the benefit of his knowledge and experience might be had. We had also arranged that a representative of the Detroit United Ry. should attend for a similar purpose, but a day or two ago he found he could not attend, owing to meetings in which his company was interested, for the time being. Similar difficulty has arisen in securing the attendance of electric railway operating men from Boston, Indianapolis, Baltimore and Chicago, owing to engagements and meetings in connection with their own lines, which made it impossible for them to come at present. A further question has been considered of calling men of recognized financial experience to ascertain their views from the financial standpoint.

"It was deemed advisable to make this statement, so that the course taken and the progress made might be known."

It was announced subsequently that the Commission's next sitting will be held in Toronto, Jan. 3.

Grand River Ry. and Lake Erie & Northern Ry. Equipment Orders.

The Grand River Ry. and the Lake Erie & Northern Ry., operated under one management at Galt, Ont., have ordered 9 passenger car bodies, 6 for G.R.R. and 3 for L.E. & N.R.; 1 baggage and express car body for G.R.R., and 3 steel underframes and cabs for 60-ton electric locomotives, 2 for G.R.R. and 1 for L.E. & N.R., from Preston Car & Coach Co.; 15 quadruple equipments of motors, including control and air brake apparatus for passenger cars; 3 quadruple equipments of motors, including control and air brake apparatus for 3 60-ton electric locomotives, and also 2 complete units of 1,000 k.v.a. 1,500 volt motor generator sets for Preston substation, from Canadian Westinghouse Co.

The car bodies will be of composite construction, straight sides, monitor roof extending from vestibule to vestibule, straight platforms equipped with steam coach buffing gear, vestibule at each end of car, built of steel throughout up to the eaves, doors at each side and end of vestibule, trap doors over steps, underframes of structural steel, center and side sills continuous, side framing steel angles and T's sheeted outside with no. 11 gauge steel plate, side sash to raise, deck sash rectangular, roof covered with wood and canvas reinforced with steel carlines. The bodies will be divided into two compartments, the main compartment to extend the length of 12 windows, and to have 19 walkover and 4 stationary seats, and lavatory in the right hand end corner; the smoking compartment to extend the length of 6 windows, with 7 walkover and 4 stationary seats, with locker at right hand end corner. The general dimensions of the cars will be:

Length over platform	61 ft. 8½ in.
Length over body end sills	53 ft. 4½ in.
Length center to center body bolsters	41 ft. 4½ in.
Width over sheeting	9 ft. 6¼ in.
Height under side of side sill to top side of side plate	7 ft. 6½ in.
Height under side of side sill to top of roof	9 ft. 6⅛ in.
Height top of rail to under side of center sill	3 ft. 3½ in.

The Grand River Ry. is being operated under a 600 volt current, which is being changed to 1,500 volts, as used on the Lake Erie & Northern Ry. This change necessitates the rebuilding of all overhead lines, and the re-equipment of existing rolling stock, as well as new substation equipment, as outlined above.

The Toronto Suburban Ry. franchises for its line in the old town of West Toronto will expire in September and a press report states that notice has been given that the City of Toronto will then buy these lines, but no funds have yet been provided for the purpose. These lines are owned by the Dominion Government, and are operated by the Canadian National Rys. The Hydro Electric Power Commission of Ontario has been negotiating for the purchase of the whole of the T. S. Ry. Co.'s undertakings of which these lines form a part.

Saskatoon, Sask., ratepayers are reported to have voted on Dec. 13 in favor of a bylaw providing for the operation of one-man cars on Saskatoon Municipal Ry.

Electric Railway Projects, Construction, Betterments, Etc.

Grand River Ry.—In connection with the rearrangement of the route in Galt, Ont., the C.P.R. has removed its 200 ft. freight shed 40 ft. from the original site, to provide a right of way for the electric line. (Nov., 1920, pg. 616.)

Guelph Radial Ry. Co. and Guelph City Council are applying to the Ontario Legislature for authority to issue $250,000 of additional capital stock and to validate a bylaw, to be submitted to the electors Jan. 1, providing for the issue of debentures to buy additional equipment and for the betterment of the line.

Hamilton St. Ry.—We are officially advised that track has been laid on the extension of the King St. West line, from Margaret St. to Paradise Road, one mile. The line is double track and we were advised in Sept., 1920, that the length proposed to be laid was 4,773 ft. (Dec., 1920, pg. 462.)

Levis County Ry. — A press report states that the Levis, Que., Town Council decided Dec. 9 to ask the company to make repairs to the line at certain points. (Dec., 1919, pg. 670.)

London St. Ry.—We are officially advised that the company contemplates relaying some of the tracks in London, Ont., if terms as to paving can be arranged with the city council. (April, 1920, pg. 202.)

London & Port Stanley Ry.—The London City Council will apply to the Ontario Legislature, among other things, for power to issue $257,000 of debentures to enable the London Railway Commission to pay for an electric locomotive, steam shovels, rails, car barn, freight shed and passenger station extensions, road crossings, platforms and shelters, an overhead bridge at St. Thomas, coal ferry slip and scale, and other works which are urgent and necessary. The existing debenture debt for L. & P.S. Ry. purposes is stated to be $1,057,432.55. (Nov., 1920,, pg. 616.)

Oshawa Ry.—The Board of Railway Commissioners has authorized the company to take certain lands in East Whitby Tp. and in Oshawa, Ont., and has authorized the G.T.R. and the Oshawa Ry., which is owned by the G.T.R., to build additional interchange tracks across Base Line Road, between Oshawa and East Whitby Tp. (May, 1920, pg. 257.)

Porcupine Rand Belt Line Electric Ry. A meeting of shareholders was called to be held in Toronto, Dec. 6, to receive a statement from J. H. Tighe, liquidator, as to his acts and dealings with the company's assets since his appointment as sole liquidator on Dec. 5, 1919, and to receive a report as to surface and mining rights in which the company is interested. The company decided to go into voluntary liquidation at a meeting of shareholders, held in Toronto, Dec. 5, 1919, when J. H. Tighe was appointed sole liquidator. This appointment was confirmed Aug. 9, 1920, and $1,000 was fixed as his remuneration. The company was incorporated by the Ontario Legislature in 1912 to build electric railways in the Porcupine and contiguous mining areas of Northern Ontario. Some surveys were made, but the company's plans never reach the construction stage. (Nov., 1916, pg. 460.)

Toronto Civic Ry.—Toronto ratepayers will on Jan. 1 at the municipal elections vote on a bylaw to provide $185,000 for building about 0.25 of a mile of additional line on Bloor St., from Sherbourne to Broadview Ave.; a bylaw to provide $31,350 for the installation of an insulated negative feeder cable on Danforth Ave. line to prevent eleytrolysis; and a bylaw for $832,000 for rebuilding Gerrard St. bridge, which includes the provision of a temporary trestle for street cars. (Oct., 1920, pg. 562.)

Vercheres, Chambly & Laprairie Tramways Co.—The Quebec Legislature will be asked to grant an extension of time within which the company may build the lines authorized by its act of incorporation passed in 1916, viz., on the streets in Longueuil, St. Lambert, Montreal South, Greenfield Park and Laprairie; and from Longueuil to Chambly, with branch lines in various municipalities. The company was also authorized to cross the St. Lawrence River and to enter the City of Montreal. (April, 1916, pg. 156.)

Waterloo-Wellington Ry.—We are officially advised that the company is completing a Y at Bridgeport, Ont., which was started in 1919. (June, 1920, pg. 316.)

Toronto Transportation Commission.

The Toronto City Council will, it is said, seek to obtain legislative authority to consolidate the Transportation Commission, appointed under the Ontario act of 1920, with the city's Hydro Electric Commission. It is claimed that a consolidation of the two bodies would save the city approximately $500,000 a year.

At a conference between the Transportation Commission, the Harbor Commission and the Board of Control, recently, an agreement is reported to have been reached for the joint use of poles on the city streets.

A bylaw to provide $500,000 for motor busses by the Transportation Commission will be voted on by the ratepayers at the municipal elections on Jan. 1.

The Canadian Electric Railway Association will hold its annual meeting at Ottawa, Jan. 31 to Feb. 1. Up to the present, the membership has been confined to privately owned companies, but at the last annual meeting the constitution was revised, to provide for the addition of electric railways owned by governments and municipalities, and representatives of these lines are invited to attend, as well as electric railway supply men, for whom an associate membership class has been created. A number of papers will be read and discussed. On Jan. 31 there will be an informal dinner, and on Feb. 1 a luncheon.

Niagara, St. Catharines & Toronto Ry. A press report states that as the result of a conference of municipalities served by this line, their ratepayers will be asked at an early date to vote on a question as to whether the company's lines shall be acquired and included in the Hydro Electric Power Commission of Ontario's railway system in the Niagara peninsula.

Ontario Hydro Electric Railways, Essex Division.—A press report states that the revenue from the operation of this line, formerly Sandwich, Windsor & Amherstburg Ry., for seven months ended Oct. 31, 1920, was $296,373, against $225,268 for corresponding period in 1919.

Edmonton Radial Railway Operating Results.

Following is information as to the operation of this municipally owned line for the 10 months ended Oct. 31, 1920, with comparisons for corresponding 10 months of 1919:—

Service was reduced by 7,000 car miles in 1920, compared with 1919, but cost of operation increased $97,000. The reduced service of 1920 earned $861,000 more than that of 1919, because of increased rates. Maintenance costs increased nearly $50,000, or 50%. The nine months deficit of $53,823 in 1919 became $141,379 in the corresponding nine months of 1920.

There were 65 cars in operation in 1919 and 45 in 1920. In 1919 there was a 10-minute service on the north side belt line and in 1920 a 15-minute one. On the south side belt the service was 15 minutes in 1919 and 20 minutes in 1920.

	1920.	1919.
Revenue, total	$607,042.00	$545,333.00
Revenue, per car mile	$36.42	$31.1
Expenditure, total	$549,441.37	$387,926.69
Expenditure, per car mile..	$32.7	$21.9
Operating surplus, total	$39,580.01	$167,407.17
Operating surplus, per car mile . .	$3.5	$9.2
Total car miles	166,081.7	173,421.5
Total car hours	19,327.8	19,805.2

The final figures show a deficit of $141,379 for 1920, against $53,823 for 1919, but the figures showing fixed charges, etc., are not given.

Winnipeg Electric Railway Improvements Expenditures.

In April, 1918, the Winnipeg Electric Ry. and the city council entered into an agreement under which the company undertook to take steps to mitigate electroylsis, to remodel rolling stock, to make certain extensions, and to improve its service. A report presented recently at the City Hall by the company showed that during two years and a half the company expended $1,203,879.66 for the purposes named, distributed as follows:

Remodelling cars, 87 in service and 15 in progress . .	$650,911.92
Semi steel cars, 20 in service	237,922.32
Remodelling trailers, etc.	20,097.75
New car heater parts	22,113.36
Motor busses . .	25,349.91
Extension to Sargent Ave. line	7,614.61
Mitigation of electrolysis	238,261.10
Grounding of secondaries .	815.78
Removing abandoned poles	729.91

St. John's Light & Power Co. Ltd., Newfoundland.

The St. John's Light & Power Co. Ltd. has been incorporated under the Newfoundland Companies Acts, with authorized capital of $1,500,000, to supply electricity, to carry on any kind of manufacturing or trade, and do any other business that may be carried on in connection therewith. The provisional directors are: H. D. Reid, R. G. Reid and C. O'N. Conroy, St. John's, Nfld.

A press report, referring to the incorporation of the company, states that the Reid Newfoundland Co. has been planning for some years the extension of the St. John's street railway service over a number of other streets in the city, the provision of additional cars, and the development of additional water powers. To raise capital necessary for these extensions, bonds will have to be given on the existing street railways and electric light properties.

Proposed Purchase of Ottawa Electric Railway.

Ottawa ratepayers will at the municipal elections on Jan. 3 vote on the following question:—"Are you in favor of the city applying for legislation enabling it to borrow money, without a further vote of the electors, to acquire the property and assets of the Ottawa Electric Ry. Co. at the expiration of its franchise in 1923, under the agreement between the city and the company, at a price fixed by arbitration, as provided by the agreement?"

The decision to submit the question in this form was reached at a special meeting of the city council, Nov. 29, by a vote of 11 to 10. The discussion was lengthy, and in the course of it, Alderman Ellis, who has, whenever the matter has come up, put forward a resolution favoring the application for legislation to the effect that the city be not bound to take over the company's property upon the expiration of the franchise, and that any bylaw for taking it over contain the price to be paid, brought forward an amendment to the effect that the ratepayers be asked if they are in favor of asking the Dominion Parliament to amend the agreement with the company so as to permit of the taking of a vote on the question of acquiring the railway after the fixing of a price by arbitration. This was defeated by 13 to 8, and after some former resolutions as to the form of the plebiscite had been rescinded, the form as above given was adopted.

In the course of the debate a lengthy statement was read by Alderman Denison in which he reviewed the history of the discussions leading up to the present position and matters affecting the valuation of the company's property.

Another special meeting of the council was held Dec. 6, at which Controller Plant moved that the ratepayers be asked the following question:—"Are you in favor of the City of Ottawa giving notice to the Ottawa Electric Ry. Co. of the city's intention to acquire the company's property and assets at the expiration of its franchise in 1923 under the terms of the agreement between the city and the railway company; and that such notice be given during the 12 months prior to the expiration of the franchise?" This was defeated by 17 to 4, after an amendment, moved by Alderman Ellis, in the same terms as that which was defeatede Nov. 29, had been defeated by 13 to 8. A straight motion to rescind the resolution of Nov. 29 was submitted by Alderman Balharne, and defeated by 12 to 10, and a notice of motion to reconsider the whole matter was withdrawn by Alderman Pinard.

The Ottawa City Council has given notice of application to the Ontario Legislature for the passing of an act amending the Ottawa City Transportation Act, by striking out the word "after" in the second line of subsection (1) of section 17 thereof, and by substituting therefor the word "without," or, in the alternative, for an act amending the said act, by providing that, notwithstanding that the city may have given the notice referred to in sec. 22 of the said act, and have proceeded to arbitration as therein provided, it shall not be obliged to acquire and to pay for the railway and the real and personal property of the Ottawa Electric Ry. Co. in Ontario used in connection with the working thereof, unless and until a bylaw providing for the borrowing of the amount due the said company shall have been first submitted to and approved of by the electors qualified to vote on money bylaws. (The answer given by the electors upon certain plebiscite votes to be submitted to them at the annual municipal election in Jan. 1921, will determine the form in which the above legislation will be submitted.)"

The Ottawa City Passenger Ry. Co. was incorporated by a pre-Confederation statute of 1866, which was amended in 1868 by the Ontario Legislature, and by the Dominion statutes of 1892, sec. 6, the company's railway was declared to be a work for the general advantage of Canada, and it was provided that the operation of so much of the company's railway as was situated, or might in future be built in Ontario, shall be subject to the statutes of Ontario so far as operation is concerned, and so much of the line as was situated, or might be built in the Province of Quebec, shall be subject, so far as operation is concerned, to the statutes of Quebec.

The Ottawa Electric Ry. Co. was incorporated by Ontario letters patent Feb. 13, 1891, under the Joint Stock Companies Act, and the Street Railways Act, and by an agreement of Mar. 26, 1894, sold its rights and franchises to the Ottawa City Passenger Ry. Co., and provided for the amalgamation of the two companies as the Ottawa Electric Ry. Co. This agreement was ratified by the Dominion Statutes of 1894, chap 86, sec. 1, and by the Ontario Statutes of the same year, chap 76, sec. 1. These statutes also ratified the agreement entered into between the amalgamated companies for the construction and operation of an electric railway for 30 years, expiring Aug. 13, 1923. Sec. 6 of the Dominion statute amended the act relating to the Ottawa City Passenger Ry. Co. by changing its name to the Ottawa Electric Ry. Co., and section 7 declares that all the then existing lines and any lines to be built in future be works for the general advantage of Canada.

The bylaw authorizing the form of question to be asked the electors was given a third reading by the Ottawa City Council, Dec. 23. A motion to strike out the words giving the city authority to borrow the purchase money, without an additional vote of the ratepayers, was defeated by 16 to 3.

British Columbia Electric Ry. Co. Buys Western Power Co. of Canada.

As a result of negotiations which were in progress for several months, the B.C. E.R. Co. has secured control of the Western Power Co. of Canada. The B.C.E.R. Co. has unconditionally guaranteed the payment of principal and interest of $5,000,000 par value of Western Power Co. bonds outstanding, has exercised an option to purchase a majority of the preferred stock at $70 and the common stock at $35.10, and has agreed to purchase at the same price any additional stock which may be tendered until May 16 1921.

The Western Power Co. of Canada's property consists of a hydro electric development at Stave Falls, a few miles from Ruskin on the C.P.R. main line, approximately some 30 or 35 miles from Vancouver. The present development consists of a plant with a capable output of 150,000,000 k.w. hours a year, but which can be increased by the raising of the dam at Stave Falls and the installation of a fourth unit to 200,000,000 k.w. hours a year, or the equivalent of a total of 52,000 h.p. The Western Power Co. operates a standard gauge railway five miles long from Ruskin to Stave Falls, which is run by steam power and used for both freight and passenger business. The transmission system consists of 83 miles of 60,000 volt transmission line, 97 miles of 12,000 volt line, and 28 miles of underground cables. The main receiving station is at Ardley on the outskirts of Vancouver. The Stave River permits of a second development, the site of which is included in the Western Power Co.'s holdings. The location of the second development is some 3½ miles below the present plant on the Stave River, and would permit the construction of a plant capable of developing some 80,000 h.p. on a 50% load factor, at an approximate cost of $8,000,000. It is not intended, however, to proceed with this at present.

Electric Railway Track Laid in 1920.

Reports to Canadian Railway and Marine World, from electric railways throughout Canada, show that during 1920 9.70 miles of new first track were added by eight companies and three municipally owned lines. In addition to this, the Grand River Ry. revised its line in Kitchener, Ont., 1.74 miles; the Waterloo-Wellington Ry. completed a Y at Bridgeburg, Ont., which was started in 1919, and Saskatoon Municipal Ry. built 0.47 of a mile of second track on its Mayfair-University line. Following are details of new main track laid:—

	Miles.	Miles.
British Columbia Electric Ry.—		
Hasting St. to Oxford St....	0.248	
King Edward Boul. to 43rd Ave. . .	1.042	
		1.290
Calgary Municipal Ry.—		
Twentieth Ave. line		1.25
Edmonton Radial Ry.—		
Loop on Exhibition grounds	0.57	
Extension to Edmonton Interurban Ry. track	0.38	
		0.95
Hamilton St. Ry.—		
Margaret St. to Paradise Rd.		1.00
Montreal Tramways Co.—		
Kelley St. extension	1.11	
Park Ave. extension	0.25	
		1.36
Moose Jaw Electric Ry.—		
Extension . .		1.00
New Brunswick Power Co.—		
Extension to East St. John....		1.25
Niagara Falls Park & River Ry.—		
Extension in Queenston, Ont.		1.03
Nova Scotia Tramways & Power Co.—		
New double track, Halifax		0.56
Quebec Ry., Light & Power Co.—		
St. Cyrill St. extension	0.34	
Cemetery to city limits	0.24	
		0.59
Toronto Civic Ry.—		
Bloor St. extension		0.49
Winnipeg Electric Ry.—		
East Kildonan Y	0.047	
Brydges spur	0.094	
C.P.R. loop .	0.091	
		0.232
Total . .		9.712

London Street Railway Wages. — In connection with an item in Canadian Railway and Marine World for Dec., 1920, pg. 673, we have been advised that when the Ontario Railway and Municipal Board took over the London St. Ry.'s operation on June 16, 1920, it agreed to pay the conductors and motormen 48c. an hour and up to 52c. if the revenue warranted it. The Board did pay an extra 1c. an hour in July, and August, making the rate 49c., and an extra 2c. an hour in September and October, making the rate for those months 50c.

Electric Railway Notes.

Guelph Radial Ry., owned and operated by the city, has discontinued free transportation for aldermen and civic officials.

St. Thomas, Ont., ratepayers will vote on Jan. 3 on a bylaw to provide for the operation of cars on St. Thomas St. Ry. on Sundays.

Calgary, Alta., ratepayers vote on Dec. 15 defeated by 2,167 to 1,635 a bylaw to capitalize $250,000 of expenditures on Calgary Municipal Ry.

Brantford, Ont., Municipal Ry. is reported to have bought two one-man cars for $11,000 from a Connecticut electric railway which went into a receiver's hands.

Fort William Municipal Ry. is reported to have spent $1,800 on each of the 12 cars bought in 1919, after the fire in the car barns. The cars are reported to be giving satisfactory service.

The City of Toronto has decided not to submit a bylaw to the ratepayers to authorize the raising of $500,000 for motor busses, but to try and secure Ontario legislation to issue debentures.

Regina, Sask., ratepayers on Dec. 13 passed, by a majority of 256, a bylaw to permit the operation of one-man cars on Regina Municipal Ry. The bylaw will go before the city council for final action.

The British Columbia Electric Ry.'s Head Office Association has elected the following officers:—President, A. E. Chamberlain; Vice President, J. McNee; Treasurer, J. V. Armstrong; Secretary, E. Day.

Mnotreal Administrative Commission had before it Dec. 6 demands by the police union, one of them being that all arms of the service be given free transportation on street cars. The Commission replied that men using the cars when on duty, and having to pay their fares, are reimbursed by the city.

The Kitchener, Ont., Light Commissioners, we are officially advised, operate the Kitchener & Waterloo Ry. in Kitchener and Waterloo, Ont., supply power for the operation of the Wellington-Waterloo Ry., and give it running rights over the K. & W. Ry. from the corner of Victoria and Aberns St. to the corner of King and Albert Sts., Kitchener, one mile.

Kitchener, Ont., ratepayers will vote on a bylaw Jan. 1 providing for the appointment of a public utilities commission to operate the several public utilities owned by the city, among which are the Kitchener & Waterloo Street Ry. It is proposed that the commission consist of the mayor, ex officio; two members to be elected by the people every two years, and two to be appointed by the city council.

London, Ont., City Council is reported to have asked the Ontario Railway and Municipal Board, which is operating the London St. Ry., for payment of approximately $6,500, the company's share of the Rectory St. paving. The city council, it is reported, has been advised by A. B. Ingram, Vice Chairman O.R. and M.B., who has charge of the railway's operations, that the demand cannot be met at present.

The Edmonton Radial Ry. (municipal) and its electrical employes had a difference recently as to the interpretation of the agreement of April 1, 1920, which was submitted, by consent, to G. H. Van Allen, as sole arbitrator. He decided that the men were not entitled to overtime prior to the coming into effect of he 8-hour day, and from Feb. 15 to Apr. 1, during which time a 9-hour day was in effect.

The Toronto Ry. was reported as owing the City of Toronto $559,497.96, at Nov. 30, 1920, as unpaid percentages, the monthly amounts from June 1920 inclusive not having been paid. This matter has been under discussion for some time, the company having applied to the city for permission to withhold payments until the city takes over the street railway property on the expiry of the franchise this year.

Dominion Power & Transmission Co.'s employes, in Hamilton, Ont., are reported to be organizing an industrial council, comprising all branches of employes. It is said that the management has stated

H. A. MacLean,
Manager Moose Jaw Electric Railway. Moose Jaw, Sask.

the company has no objection to the men's co-operation in the formation of such an organization. A temporary committee was formed to consult with the various departments and to arrange for calling a general meeting to discuss the whole matter.

The Winnipeg Electric Ry. has bought from the Twin City Transit Co., Minneapolis, Minn., 20 passenger car bodies. These bodies have been taken to Winnipeg and the platforms rebuilt to conform to the company's standard, mounted on new trucks, motors applied, and are being placed in service as rapidly as completed. As stated in our last issue, the company has also bought 6 single truck sweepers, from McGuire-Cummings Mfg. Co., Chicago, Ill., and these are in service. These additions are to replace the 19 passenger cars, 4 single truck sweepers, etc., which were burned in April, 1920.

The British Columbia Electric Ry.'s Office Employes Association gave a Christmas entertainment Dec. 18 for their children. Santa Claus arrived via the chimney, and, with the help of Mrs. Geo. Kidd, wife of the General Manager, distributed presents to every one of the 300 youngsters who filled the fourth floor of the head office building. There were four Christmas trees laden with presents. A fund of $350 was raised by popular subscription from the office staff, to which the management contributed generously. Then a committee bought presents for every child whose name was obtainable. Geo. Kidd, General Manager; W. G. Murrin, Assistant General Manager, and Mrs. Murrin and several of the company's other officials took an active part in the entertainment. The evening ended with a dance for the older members of the company's family.

Mainly About Electric Railway People.

Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, and Lady Beck, left London, Ont., Dec. 10, and sailed from New York, to spend Christmas with their daughter in England. Sir Adam is expected back during January.

R. A. Brown, Superintendent, Calgary Municipal Ry., addressed the Calgary, Alta., Board of Trade, Dec. 10, dealing with the history and operation of the line from its inception.

D. K. Lewis, formerly Electrical Engineer, Fort Dodge, Des Moines & Southern Rd., Boone, Iowa, has been appointed Electrical Engineer, Winnipeg Electric Ry.

Sir William Mackenzie, President, Toronto Ry., who left Toronto early in November for England, returned at the end of December.

Henry A. MacLean, whose appointment as Manager, Moose Jaw Electric Ry., Moose Jaw, Sask., was announced in our last issue, was born in Middlesex County, Ont., Jan. 20, 1871. He was from 1900 to 1901, Assistant Superintendent, F. Bissell Co., Toledo, Ohio; 1901 to 1904, Master Mechanic, M.A. Piggott & Sons, contractors on construction, Guelph & Goderich Ry., Hamilton, Ont.; 1904 to 1907, Chief Engineer, Southwestern Traction Co., London, Ont.; 1907 to 1914, City Engineer, Sarnia, Ont.; 1914 to 1918, Engineer, H. Mueller Mfg. Co., Sarnia, Ont.; and during the war, engaged at the Imperial Munitions Board's chemical plant, Trenton, Ont.; 1918 to 1920, in private practice as consulting engineer, Sarnia, Ont.

T. H. McCauley has resigned his position as General Manager, New Brunswick Power Co., St. John, N.B., as reported in our last issue, but not then confirmed. Up to the date of our last advice, no one had been appointed to succeed him.

F. Morton Morse, a director and Secretary of Winnipeg Electric Ry. Co., returned to Winnipeg in December, after spending some time in Europe.

Philip Pocock, formerly Vice Chairman, London Public Utilities Commission, and a member of the London Railway Commission, returned recently to London, Ont., after a trip to Europe.

Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry., has been elected President of the Toronto Militia Officers Indoor Baseball League.

H. E. Weyman, Manager, Levis County Ry., Levis, Que., addressed the Quebec Rotary Club on Dec. 1 on electric power and railway development in the Province of Quebec.

Marine Department

General Shipbuilding Matters Throughout Canada.

A. Berquist, Victoria, B.C., who took over a quantity of the shipbuilding material and plant, owned formerly by the Foundation Co. of British Columbia, is reported to be arranging to build three sailing ships, 125, 90 and 75 ft., respectively.

B.C. Marine Engineers and Shipbuilders Ltd., Vancouver, B.C.—The auxiliary powered schooner which this company is building for the Hudson's Bay Co., and which was expected to be launched early in Nov. 1920, and to be ready for sea by the end of that month, will not, we are officially advised, be ready until some time in the spring, owing to the non delivery of the engines, ordered in England.

Dominion Shipbuilding & Repair Co., Toronto.—See under "Dominion Shipbuilding & Repair Co.'s affairs," on another page of this issue.

Halifax Shipyards Ltd., Halifax, N.S., held its annual meeting at Montreal Dec. 14. A press report credits President H. B. Smith with stating that the year's operations had been satisfactory, the net result showing a substantial surplus, with the outlook for the coming year of a most promising nature. The s.s. Canadian Mariner, built Dec. 18, for Canadian Government Merchant Marine, a ship of 8,390 d.w. tons carrying capacity, had been built, launched and delivered during the period covered in the report. This ship conformed to the highest classification of Lloyds, and a sister ship would leave the ways at Halifax Dec. 18, when Sir Robert Borden would act as sponsor. Two other ships, of 10,500 tons capacity each, were in course of construction, and it was anticipated that delivery would be made by June next. In addition, the company has a large volume of repair work on hand, the latest being extensive operations on the s.s. South American. Mr. Smith is also reported as saying that the company has in prospect orders for the construction of five large oil tankers, the booking of which is almost consummated. This work would be sufficient to keep the Halifax yards, as well as those of the Davie Shipbuilding & Repair Co., at Lauzon, Que., and the Tidewater Shipbuilders Ltd., at Three Rivers, Que., busy during 1921. Altogether, Mr. Smith reported the outlook bright; 2,000 men being employed at Halifax, and he regarded the future with optimism.

The following are the officers and directors for this year:—H. B. Smith, President; J. F. M. Stewart, and M. J. Haney, Vice Presidents; Fred. Pearson, R. M. Wolvin, J. W. Norcross, F. S. Isard, W. E. Burke and J. Norris.

Harbour Marine Co., Victoria, B.C.—A press report states that the company is negotiating with interests said to be backed by the Peruvian Government, for the construction of 4 steel tank steamships, of approximately 8,000 d.w. tons each. C. J. V. Spratt, President, Harbour Marine Co., is reported to have stated that he had been in Seattle, Wash., to look into the matter, and while he would not make any definite statement, it was intimated that the contract might be secured.

We were officially advised Dec. 13, that there was little foundation for the report, and that, at that date, no such orders had been received by the company.

Midland Shipbuilding Co., Midland, Ont., launched the s.s. Glenclova early in December, for Great Lakes Transportation Co., Midland. She is of the lake type, with raised quarter deck, to British Corporation's requirements for lake and ocean service. Her dimensions are,—length over all 259 ft., length between perpendiculars 246 ft., breadth moulded 42½ ft., depth moulded 21 ft. She is equipped with triple expansion engines, with cylinders 18, 30 and 50 in. diar. by 42 in. stroke, 1,000 i.h.p., rebuilt by Great Lakes Foundry & Machine Co., Midland, and supplied with steam by 2 Scotch boilers 13 ft. diar. by 11 ft. long at 180 lb., built by John Inglis Co., Toronto. She will have a speed of about 10 knots an hour under full load. The keel was laid Mar. 1, 1920.

Dominion Marine Association.

President, A. E. Mathews, Managing Director, Mathews Steamship Co., Toronto.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines, Montreal.

Second Vice President, A. A. Larocque, President, Sincennes-McNaughton Line, Montreal.

Executive Committee, W. E. Burke, Canada Steamship Lines, Montreal; T. R. Enderby, Montreal Transportation Co., Montreal; L. Henderson, Montreal Transportation Co., Montreal; W. J. McCormack, Algoma Central Steamship Line, Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Lt. Col. G. P. Murphy, C.M.G., President, Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario. Car Ferry Co., Montreal; J. F. Sowards, Sowards Coal Co., Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; Jno. Waller, Keystone Transportation Co., Montreal; Lorne C. Webster, Webster Steamship Co., Montreal; J. Wilkie, Imperial Oil Ltd., Toronto; A. A. Wright, honorary member, Toronto.

General Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Montreal.—A Montreal press report states that plans have almost matured, whereby a large shipbuilding and ship repairing plant will be erected on the south shore of the St. Lawrence River close to St. Lambert. It is stated that ground has been acquired, and that it will be possible for ships of deep draft and large tonnage to come up the river to go on the stocks. Those at the head of the project are said to be well known in shipbuilding and shipping circles in Montreal, and to have an option on a fully equipped plant, which it is purposed to remove from its present location to the south shore. It is said to be the intention to proceed with the erection of a number of workmen's homes in the neighborhood of the proposed plant, and in calling for employes, to give preference to returned soldiers.

A meeting of trades and labor unions associated with the shipbuilding industry was held at Montreal in December, to discuss its position, and the desirability of sending a strong deputation to the Dominion Government to ask for relief for the unemployment situation. Suggestions were made that the Government should build some passenger and freight steamships, and also some ice-breaking steamships.

Nova Scotia Steel & Coal Co., New Glasgow, N.S., is reported to be contemplating the building of a steel schooner for the fishing trade.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—The ship of approximately 3,000 d.w. tons being built by this company for private owners, mentioned in our Nov. 1920 issue, is a steel, bulk, canal sized, freight steamship of the single deck, poop and forecastle type, of the following dimensions,—length over all 259 ft., breadth moulded 42½ ft., depth moulded 21 ft. She will be equipped with triple expansion engines with cylinders 20, 30 and 56 in. diar. by 42 in. stroke, supplied with steam by two Scotch marine boilers, fitted with oil burning apparatus, 14½. diar. by 11 ft. long, at 190 lb. She will be classified under British Corporation regulations, and will have a speed of 10½ knots an hour. The keel was laid Oct. 20, 1920, and we were officially advised recently that it has not been decided whether the launching will take place about the middle of January or during March or April.

Three Rivers Shipyards Ltd., Three Rivers, Que.—In connection with the claim of the French Government against the company for the possession of the five wooden steamships, Bouxwiller, Bouzonville, Brumath, Cattenon and Cernay, reference to which was made in our last issue, Mr. Justice Maclennan, sitting as a special judge in bankruptcy at Montreal, gave judgment, Dec. 1, ordering that the ships be handed over to the French Government by the liquidator, on payment by the Government of $114,280, representing the balance of the amount owing on the ships so far as construction had gone. It was further ordered that out of the sum named, sufficient be taken to satisfy claims of some 20 creditors who have put seizures on the ships, the balance to be handed over to the respective liquidators of the National Shipbuilding Corporation and Three Rivers Shipyards Ltd. These ships, as mentioned in our last issue, have been placed on the Canadian register in the name of Three Rivers Shipyards Ltd. (in liquidation), although unfinished. We are advised that they have been removed to Quebec, and that the finishing work will be carried out at Louise Basin. It is expected that they will be completed by the spring, when they will be dispatched to French ports where, after receiving necessary adjustments, they will be placed in coastwise service.

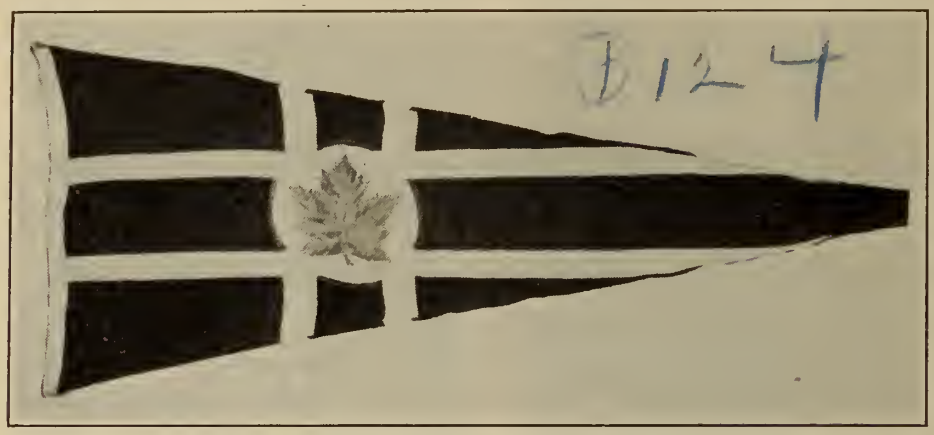
Foreign Orders.—It is reported from Montreal that shipping interests in Jugo-Slavia are desirous of having some ships built in Canada. It is said that those required are between 2,000 and 15,000 tons.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Launching of Steamships. — Since Canadian Railway and Marine World for December was issued, we have been advised of the launchings of the following steel cargo steamships for Canadian Government Merchant Marine:—

Nov. 27, s.s. Canadian Leader; Marine Department contract 53; builder's yard no. 80; approximately 8,390 d.w. tons; Canadian Vickers Ltd., Montreal, Que.

Dec. 18, s.s. Canadian Explorer; Marine Department contract 22; builder's yard no. 2; approximately 8,390 d.w. tons; Halifax Shipyards Ltd., Halifax, N.S.



New House Flag, Canadian Government Merchant Marine Ltd.

Deliveries of Steamships.—In addition to the steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation:—

Nov. 27, s.s. Canadian Mariner; Marine Department contract 21; builder's yard no. 1; approximately 8,390 d.w. tons; Halifax Shipyards Ltd., Halifax, N.S. She was loaded with grain at St. John, and sailed thence, Dec, 8, for Genoa, Italy.

Nov. 29, s.s. Canadian Winner; Marine Department contract 29; builder's yard no. 1; approximately 8,390 d.w. tons; Harbour Marine Co., Victoria, B.C. She loaded a general cargo at Vancouver for Sydney and Melbourne, Australia, and Auckland, New Zealand.

Dec. 15, s.s. Canadian Highlander; Marine Department contract 55; builder's yard no. 103; approximately 8,390 d.w. tons, Wallace Shipbuilding & Drydock Co., North Vancouver, B.C. She is expected to sail from Vancouver Jan. 5 for Auckland, New Zealand, and Sydney and Melbourn, Australia, with a cargo of general merchandise and a deck load of lumber.

Dec. 18, s.s. Canadian Sapper; Marine Department contract 59; builder's yard no. 8; approximately 2,800 d.w. tons; Nova Scotia Steel & Coal Co., New Glasgow, N.S. She sailed for Halifax, Dec. 19.

House Flag.—The original house flag designed for Canadian Government Merchant Marine ships was 12 x 6 ft., and consisted of a Greek cross, with a ball 18 in. diameter in the center, both being blue on a white ground, with an anchor in yellow on the central ball. In the upper right hand corner of the flag was a representation of a beaver. Owing to some objections to the general design it was decided to adopt a new type and design of flag entirely, and one of the pennant type has been designed as illustrated in this issue. It consists of a red cross, bordered with white, on a blue ground, with a white circle in the center of the cross, on which is a maple leaf in natural colors.

Officers of Steamships.—In addition to the officers of steamships, whose appointments have been mentioned in previous issues, the following captains and chief engineers have been appointed:—Canadian Beaver, R. Cook, chief engineer; Canadian Farmer, Capt. J. F. Sharp, vice Capt. W. Larmour, transferred; Canadian Fisher, E. Sutherland, chief engineer; Canadian Forester, A. Cunningham, chief engineer; Canadian Hunter, T. Cubitt, chief engineer; Canadian Mariner, Capt. A. L. Starratt, transferred from Canadian Ranger; Canadian Observer, Capt. A. Purvis, vice Capt. D. M. Dickson, transferred; Canadian Rancher, Capt. D. M. Dickson, transferred from Canadian Observer, vice Capt. H. T. M. Watkins; Canadian Ranger, Capt. J. D. MacKenzie, transferred from Canadian Trapper, vice Capt. A. L. Starratt, transferred; Canadian Recruit, Capt. J. Slater; Canadian Rover, Capt. J. Ridley; Canadian Sapper, Capt. McGregor Fraser, transferred from Sheba; W. T. Westbury, chief engineer; Canadian Sealer, Capt. J. A. Hiltz, vice Capt. E. Randell, transferred: Canadian Sower, G. M Spence, chief engineer; Canadian Squatter, Capt. E. Randell, transferred from Canadian Sealer; Canadian Trapper, Capt. W. Larmour, transferred from Canadian Farmer, vice Capt. J. D. MacKenzie, transferred; Canadian Voyageur, P. McKinnon, chief engineer; Canadian Winner, T. F. Anderson, chief engineer; J. A. McKee, Capt. J. Lintlop, vice Capt. J. F. Smeltzer, transferred; Sheba, Capt. J. F. Smeltzer, transferred from J. A. McKee, vice Capt. McGregor Fraser, transferred.

Steel cargo steamship Canadian Rover; approximately 3,890 d.w. tons; built for Canadian Government Merchant Marine Ltd., by Collingwood Shipbuilding Co., Collingwood, Ont.

West Indian Services.—The C.G.M.M. announces that the s.s. Canadian Fisher will inaugurate about the end of January a service between St. John and Nassau (Bahamas), Kingston (Jamaica), and Belize (British Honduras). Certain of the steamships of this line have two spare rooms and also a dining room and smoking room for the accommodation of a small number of passengers.

Australian Trade. — It is announced that a steamship service will be inaugurated this month between St. John, N. B., and Australian ports, via the Panama Canal, the first sailing being by the s.s. Canadian Planter about Jan. 29, and it is expected that sailings will take place monthly thereafter, Montreal being the summer port.

General Business.—Montreal press dispatch, Dec. 17.—Despite the world slump in ocean freights, the Canadian Government Merchant Marine continues to keep about 50 freighters at sea. Latest reports indicate that the C. G. M. M. is cutting successfully into the United States carrying trade. The s.s. Canadian Conqueror has secured a U.S. cargo at New York under the nose of the U.S. Shipping Board, which has over 80 ships lying idle in U.S. ports. The Canadian Trooper will take a cargo of coal from Baltimore to Antofagasta, Chile, and return with nitre to another U.S. port.

Towage Claim.—The Bathurst Lumber Co.'s claim against Canadian Government Merchant Marine Ltd., for services rendered by its tugs Betty D. and Nipisiquit, in towing the s.s. Canadian Rancher from a stranded position, in July, 1920, is reported to have been settled satisfactorily by an arbitration board, consisting of Capt. Neil Hall, Halifax, N.S.;

Capt. A. J. Mulcahy, for Bathurst Lumber Co., and C. T. Workman, Halifax, N. S., of the London Salvage Association, for Canadian Government Merchant Marine.

Canadian Vickers Ltd. launched the steel cargo steamship Canadian Leader; Marine Department contract 53; builder's yard no. 80; approximately 8,390 d. w. tons; for Canadian Government Merchant Marine, Nov. 27, the christening being performed by Mrs. W. G. Ross, wife of the President, Montreal Harbor Commissioners. The ship is 413 ft. long over all, has a beam of 52 ft., and is 31 ft. deep. Her draft, when loaded with 8,390 tons of cargo, will be 25¼ ft. She will have triple expansion engines, and three Scotch boilers, fitted with forced draft. The cargo winches and windlass are thoroughly up to date and, with the steering gear, were made by Canadian Vickers Ltd. The steering from the navigation bridge will be by a telemotor, and there will be hand steering gear on the poop deck. There will be the usual complete equipment of mechanical engine room and steering telegraphs and wireless apparatus. The engine room

Steel cargo steamship Canadian Mariner, approximately 8,390 d.w. tons, built for Canadian Government Merchant Marine by Halifax Shipyards Ltd.

equipment will be very complete, including the contraflo system of condensing, and a full equipment of pumps and other auxiliaries. The ship will be fitted with refrigerating machinery for carrying refrigerated cargo in no. 3 'tween decks, which will be insulated. The accommodation for officers and crew will be very complete and, as previously stated in Canadian Railway and Marine World, there will be two staterooms and a small smoking room for passengers.

Canadian Vickers Ltd. delivered the steel cargo steamship Canadian Commander; Marine Department contract 52; builder's yard no. 79; approximately 8,390 d.w. tons, to the Marine Department Dec. 21. She will not be transferred to Canadian Government Merchant Marine for operation until the spring.

Collingwood Shipbuilding Co., Collingwood, Ont.—See under Dominion Shipbuilding & Repair Co.

Dominion Shipbuilding & Repair Co., Toronto.—Two ships, Canadian Pathfinder and Canadian Engineer; Marine Department contracts 48 and 49; builder's yard nos. 10 and 11, for Canadian Government Merchant Marine, which were under construction by this company, when it went into liquidation recently, are, under an arrangement made by the Marine Department, to be completed at the company's plant in Toronto, by the Collingwood Shipbuilding Co., on a cost plus basis. The work, which has been started, under the direction of the Collingwood Shipbuilding Co.'s Managing Director, J. S. Leitch, is in direct charge of that company's Superintendent, John Dalrymple, the intention being to have the ships ready for delivery in the spring. The boilers, which were being built by John Inglis Co., Toronto, will be completed by it, and that company will also complete the engines, work on which had been started by the Dominion Shipbuilding & Repair Co.

See also under Dominion Shipbuilding & Repair Co.'s affairs on another page of this issue.

Halifax Shipyards Ltd., Halifax, N.S., delivered the steel cargo steamship Canadian Mariner; Marine Department contract 21; builder's yard no. 1; approximately 8,390 d.w. tons; to the Marine Department, Nov. 27, 1920. She was transferred to Canadian Government Merchant Marine, loaded with grain at St. John, N.B., and sailed thence, Dec. 8, for Genoa, Italy. The Canadian Mariner is the first steel ship built in Halifax.

Halifax Shipyards Ltd. fixed the launching of the steel cargo steamship Canadian Explorer; Marine Department contract 22; builder's yard no. 2; approximately 8,390 d.w. tons; for Canadian Government Merchant Marine, Dec. 18, and Sir Robert Borden was there to christen her, accompanied by the Minister of Marine and the Minister of Public Works. A press dispatch says that when some of the blocks were removed a rope broke and the hull slid into the water ahead of time and was carried across to the Dartmouth side of the harbor, the tugs not being ready to guide her. As the hull touched the water a sailor on board broke the bottle of champagne suspended over the bow. Several workmen who were removing the blocks crouched down when the hull began to move and escape uninjured. She is a sister ship of the s.s. Canadian Mariner, which was launched Sept. 4, and is of the 2 deck, poop, bridge and forecastle type.

Work is reported to be proceeding satisfactorily on the s.s. Canadian Cruiser and s.s. Canadian Constructor, Marine Department contracts 38 and 39; builder's yard nos. 3 and 4 respectively, each approximately 10,500 d.w. tons, the keels of which were laid Oct. 2 and 6, 1919. These are the largest ships to be built under Dominion shipbuilding programme, now approaching completion.

Harbour Marine Co., Victoria, B.C.—The steel cargo steamship Canadian Winner; Marine Department contract 29; builder's yard no. 1; approximately 8,390 d.w. tons; built by this company for Canadian Government Merchant Marine, made her trial trips Nov. 25. The builders advise that the average speed was 13.66 knots and the highest speed 14.45 knots. She was delivered to the Marine Department Nov. 27, transferred to Canadian Government Merchant Marine, and loaded, at Vancouver, with a general cargo, for Sydney and Melbourne, Australia, and Auckland, New Zealand.

The Harbour Marine Co. advised us Dec. 13, that the s.s. Canadian Traveller; Marine Department contract 30; builder's yard no. 2; approximately 8,390 d.w. tons, was being finished at the Victoria Machinery Depot Co.'s plant, and that no date had then been fixed for her delivery.

Nova Scotia Steel & Coal Co., New Glasgow, N.S., delivered the steel cargo steamship Canadian Sapper; Marine Department contract 59; builder's yard no. 8, approximately 2,800 d.w. tons, to the Marine Department, Dec. 18, 1920, and she sailed for Halifax, N.S., Dec. 19.

Port Arthur Shipbuilding Co., Port Arthur, Ont., as stated in Canadian Railway and Marine World for December, launched the steel cargo steamship Canadian Harvester; Marine Department contract 61; builder's yard no. 45; approximately 3,890 d.w. tons; for Canadian Government Merchant Marine, Nov. 20. This ship will be completed at Port Arthur, during the winter, and will be delivered to the Marine Department, for transfer to Canadian Government Merchant Marine, when navigation opens next spring.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—As stated in Canadian Railway and Marine World for December, when this company suspended operations early in November it had under construction two steel cargo steamships of approximately 8,100 d.w. tons each for Canadian Government Merchant Marine Ltd., viz., Canadian Reaper and Canadian Thrasher; Marine Department contracts 42 and 43; builder's yard nos. 1 and 2. We were officially advised Dec. 11 that the Dominion Government had decided to pay the wages of the company's employes which were due when it stopped work, and that the Marine Department had asked tenders from the representative shipbuilders on the Pacific coast for finishing the two ships at Prince Rupert, that no time limit had been set for the tenders, but that it was expected that work would be resumed early in January. British Columbia press reports state that tenders have been sent in by J. Coughlan & Sons, Vancouver, and Wallace Dry Dock & Shipbuilding Co., North Vancouver, B.C.

A Prince Rupert press dispatch says

that H. A. Butt, who has been acting as Government inspector, on the two ships referred to above, has been instructed to prepare an estimate of the cost of completing them, and also states that about 75% of the work on them has been done.

Tidewater Shipbuilders Ltd., Three Rivers, Que.—As stated in Canadian Railway and Marine World for December, the two steel cargo steamships Canadian Fisher and Canadian Forester; Marine Department contracts 15 and 16; builder's yard nos. 7 and 8; approximately 5,100 d.w. tons each, were completed at Three Rivers, with the exception of the interior fittings for the passenger accommodation. The Canadian Fisher left Three Rivers, Nov. 13, under her own steam, for Halifax, and the Canadian Forester left Nov. 24 for the same destination, where the interior fittings will be completed. It is reported that they will be ready for delivery to the Marine Department about Jan. 5 and 15 respectively, that the Canadian Fisher will go on her maiden voyage to the Bahamas, Jamaica and British Honduras before the end of January, and that the Canadian Forester will follow on the same route about three weeks later.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—A press report states that the steel cargo steamship Canadian Highlander; Marine Department contract 55; builder's yard no. 103; approximately 8,390 d.w. tons, underwent her trial trip in the Gulf of Georgia early in December, that a speed of 14.34 knots was obtained, during half a gale, and that the average for the trip was over 13 knots. The engines were built by the Wallace Shipbuilding & Drydock Co. and the boilers and oil burning apparatus by Vulcan Iron Works. The Canadian Highlander is the first of five of the Canadian Government Merchant Marine ships to be equipped for oil burning and can easily be converted for coal burning. She will use coal on her initial trip to Australia and New Zealand, on which she will start early in January.

The Dominion Shipbuilding and Repair Co's Affairs.

The first report issued by the interim liquidator, Osler Wade, F.C.A., on the company's affairs, was published in full in Canadian Railway and Marine World for Oct. 1920. Mr. Wade, who has since been appointed liquidator, issued the following report Dec. 14:—

At the meeting of creditors, held on Sept. 2, 1920, for the appointment of a permanent liquidator, a committee of four creditors was appointed to advise upon matters of importance and to assist the liquidator in closing up the affairs of the estate. The members of this committee are:—Wm. Inglis, of Jno. Inglis Co., Toronto; A. E. Gilverson, of Rice Lewis & Sons, Toronto; E. L. Cousins, of Toronto Harbor Commission; P. Payette, of P. Payette Co., Penetang, Ont. At a meeting of this committee on Sept. 7, 1920, the question of reorganization was abandoned. The committee was of the unanimous opinion that nothing should be done in the way of disposing of the plant until the Dominion Government had an opportunity of completing its ships, in order that its damage claim might be reduced to a minimum.

The question of the ownership of the two hulls being erected for the Dominion Government was referred to the court for a direction, and judgment was delivered Sept. 22, 1920. This judgment reflected a compromise in connection with a number of important contentions, and held that the Government was entitled to the hulls proper, and the engines belonging thereto, and that all other material ordered for, allotted to, but not actually in the hulls, was the property of the liquidator. Considerable delay has followed, but this appears to have been unavoidable, as the representatives of the Government were obliged to call for tenders, and then followed a mass of details, but I am pleased to report that all documents have now been executed and the details were settled yesterday (Dec. 13), with the result that the plant will open up tomorrow (Dec. 15) in order that the work may proceed. The fact that the Collingwood Shipbuilding Co. secured the contract is sufficient guarantee that rapid progress will be made from now on, and it is estimated the ships will be completed by June, 1921. The arrangement made between the liquidator and the Government will be particularly advantageous to both parties, as a considerable quantity of supplies on hand were ordered for the purposes of the Government hulls, and this will be turned over by the liquidator and realized upon for the estate at the present market values. As far as this particular portion of the assets is concerned, this will overcome some of the customary shrinkage in liquidation. The Government has also arranged to assume such of the sub-contracts for these hulls, nos. 10 and 11, as are found, upon investigation, to be in order, and thereby relieve the estate from the responsibility of such claims. There is a further factor in that the unusual number of unemployed workmen at present has, like in other commodities, brought about a reduction in wages. This will be reflected in a reduction of the claim for damages to be filed against the estate on the completion of the ships.

While these negotiations were under way, efforts have been made to dispose of such of the material on hand as would not be required for the purposes of the Government ships, and this has succeeded to a considerable extent. It will be noted, however, that the proceeds of such sales and all other material is the property of the Standard Bank under its general securities, and under the liquidator's bond, which was executed to raise the amount necessary to pay the arrears of wages at the time of the winding up order, and that until the bank's claim of some $200,000 is satisfied there will be no surplus for the other creditors.

Attention is called to the fact that an action has been commenced against Christopher Hannevig, of New York, for the recovery of the balance due by him to the estate. This is approximately $500,000, and included in the item, accounts receivable, in the statement of affairs. I am informed by counsel that legal proceedings in the United States are not as rapid as in our Canadian courts, and that a delay of many months will follow before the case comes up for trial.

Negotiations are under way with Jos. P. Day, of New York, an agent for the sale of industrial sites, with the object of having the plant listed for sale.

It is not possible to form any estimate of what the estate will finally pay. This all depends upon the amount realized from any sale and the claim against Mr. Hannevig. If the latter is realized, there should be no difficulty for the estate to pay in full. From this it will be observed that in so far as any realization or distribution is concerned, matters will be at a standstill until next midsummer, or until the Government ships are completed. If a sale is not made in the interim, there will be no prospects of a dividend before the fall of 1921.

Mr. Wade also issued the following statement to the press:—The Dominion Government has taken a magnanimous position in accepting a tender providing for the completion of the Government ships at the Dominion Shipbuilding & Repair Co.'s yards in the hope of helping out the unemployed situation in Toronto, for the reason that efficiency on shipyard work in the winter is very low. Notwithstanding this, misrepresentations, demands and threats, have been made, which, it seems reasonable to assume, will be taken advantage of by the Dominion authorities to turn down any further requests to improve the labor situation in Toronto. The company's records define that labor assisted in the wrecking of the Dominion Shipbuilding & Repair Co. This was pointed out to the labor interests' leaders some months before the failure took place. I refer to the conference of several days before the Minister of Labor at Ottawa about two or more years ago, and I further refer to the failure of two Toronto shipyards. It is easy to understand how the present depression in business follows a refusal on the part of the public to purchase at inflated values. When orders are not available, factories close down, and men are thrown out of work. With these facts to consider, it is difficult to understand how labor can justify a demand for wages equal to the peak paid at the time of inflation. This method of negotiations does not usually get very far. Naturally, when a few hundred men are wanted, somebody is going to be disappointed, when a few thousand are looking for work. The mistake that has been made is the failure of labor leaders to face the facts and explain them to the individual man. If this is not faced in an effort to build up an industry that has been broken, then it is plain there will be no necessity for a shipbuilders' union in this city. The particulars of costs per ton disclosed by this company's records on hulls laid down to July 31, 1920, are interesting:—

	Labor.	Material.
1918	$40	$76
1919	49	116
1920	61	95

On the last hull in 1920 labor cost $73 a ton and material $94. It is quite apparent from these figures that labor was continually increasing, while the cost of material was decreasing from the peak of 1919. Further, very substantial reductions have taken place in material since the company passed out of business. The question of labor to complete these ships is not supreme, but must be considered equally with the position of the creditors, the contractors and the Government, in proportions of one-quarter each, and labor must not consider that the Government is free to pay any wages that it may consider fit, through its contractors, for the reason that the estate cannot be used as a charitable institution with that end in view. Any such payments would reflect back upon the creditors, in which event, the court would have to interfere to protect their interests.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	.....
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	.....
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	.....
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	.....
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	Apr. 26, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	May 3, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	July 24, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d. p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	.....	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	.....
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	.....
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	.....	.....
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 18, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	.....	.....
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	.....
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	.....	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	.....	.....	.....
					379,296.80		$72,818,073.18						

The United States Shipping Board Scandal.

From the Literary Digest, New York, N.Y.

The most disheartening document that has come out of the aftermath of the war, in the opinion of not a few editorial observers, is the sordid story of greed, graft, and incompetence under cover of the U.S. Shipping Board and Emergency Fleet Corporation, as set forth in the Fisher-Richardson report to a Congressional investigating committee. It is a story of alleged mismanagement, waste, graft, bribery, padded pay-rolls, and systematic looting of the public treasury by minor officials and employes of the Board, involving a loss of millions of dollars to the taxpayers. The Detroit Journal calls these charges a bitter blow to U.S. patriotism, and declares, in fact, that "Prussian spies did far less damage to the U.S. cause than did the corrupt agents of the Emergency Fleet Corporation." "The disloyalty among German-American newspapers during the war," it adds, "compares with this disloyalty of native born Americans, aflame with greed, as door-mat thievery compares with house breaking." And the Minneapolis Tribune reminds us that "one of the most heinous crimes that can be charged against an individual or a corporation is that it was false to a public trust in time of war perils." "Evidently the biggest part of a war bill is the high cost of graft," cynically remarks the Cincinnati Enquirer, and the New York Herald, after reading this recital of "thefts by minor officials, graft by middlemen, and plain waste all along the line," exclaims: "This is one of the reasons why the U.S. Government today owes in round numbers twenty-four billions of dollars, and has an interest charge on its debts of about a billion dollars a year. It is one of the reasons why the U.S. people have a tax bill of four billions a year."

Conscious of a peculiar poignancy in the fact that scandal should smirch our efforts to answer the world's desperate cry for shipping to meet the challenge of the German submarines, the Omaha Bee remarks: "Not only did U.S. shipyards present the strangly mixed spectacle of producing sorely needed vessels in record time and providing bomb proof employment for a lot of fellows who might otherwise have been in the trenches, but they also afforded a remarkable composition of the shrewdest of organization and efficient management, and the most reckless of waste, extravagance, and incompetence." In addition to exposing "an unsavory mess," notes the Providence Journal, the investigators' report makes it appear that many of the abuses that are here uncovered in retrospect are still being continued in the routine operations of our great new merchant fleet. Because the Shipping Board is a going concern charged with the administration of U.S. property whose value runs into billions, the Baltimore News reminds us, "its programme didn't slip into the past with airplane manufacture and government operation of the railways," and any charges against it are of the utmost public concern. "The country will not be satisfied until either these charges are disproved or the full responsibility for mismanagement is placed where it belongs," declares the Kansas City Star. "It is not on record that any one was ever punished for the embalmed beef scandal of the Spanish-American war," remarks the Brooklyn Citizen. But it adds: "We are living today in sterner times, and no government can afford to deal leniently with the traitorous scoundrels who use the time of its greatest peril to rob it."

High officials of the Shipping Board are whole-heartedly co-operating with Congress in its effort to get at the facts in this matter. Admiral W. S. Benson, Chairman of the Board, promises to use all his authority to see that none of the guilty escapes; and his aide, Commander A. B. Clements, frankly told Representative Walsh's investigating committee that 4,000 persons, at salaries totaling $8,000,000 a year, are now engaged in an attempt to straighten the tangle of building accounts of the Emergency Fleet Corporation. He told the committee that in rough numbers 10,000 men are now employed by the Board, and that the annual pay roll is approximately $19,000,000. Nearly 1,200 ships are being operated for the Board; and under the present system of accounting, he said, there is no way of knowing whether they are operated at a profit or a loss. He declared, however, that "there is nothing corrupt in the transactions of the U.S. Shipping Board," and explained that the abuses alleged in the report are "a result of what might be called, for want of a better term, amateurishness." He also reminded the committee that the Board, organized in haste to meet a desperate emergency, lost its most efficient and capable personnel after the signing of the armistice, just as it was perfecting its organization and operation.

The Spigot and the Bung Hole.
From the New York Evening Post.

Assuring the public that it will be given every facility for getting the facts and placing the responsibility, Admiral Benson reminds us that "in an organization spending more than three billion dollars, where, as the largest steamship operator in the world, millions of dollars are expended from day to day, it would be humanly impossible to prevent all wrong doing or to do business without suffering financial losses from time to time." He says further: "There is no effort on our part to shirk whatever responsibility we have assumed. We have insisted that at all times the records are open to the public. Every facility is offered to those who desire information. As a former naval officer who shipped 48 years ago to serve his country, I believe my fellow countrymen can depend upon it that no wrong doer will escape if his wrong doing is called to my attention. Not only have I insisted upon the closest watch upon all matters, but I have followed the work of the Shipping Board in every port of the world with the one thought in mind that we are now reaching that crucial moment which spells either the success or failure of a permanent merchant marine."

While the press is unanimous in its insistence upon the truth, the whole truth and nothing but the truth in this vital matter, many papers remind us that the task undertaken by the Shipping Board, that of producing from mine and forest a huge fleet of 10,000,000 tons, was perhaps the biggest job that ever fell to a government organization in any country. "Fair minded men will, of course, make a large allowance for the enormous pressure under which the work of the Board had to be done, as well as the inevitable lack of experience at the outset of many of the supervisors who had to be employed," remarks the Brooklyn Citizen. "It is not probable that any evil dealing will be traceable to the men 'higher up,'" says the Boston Herald. "We must charge off the loss which the Shipping Board has entailed as a part of the cost of winning the war," remarks the New York Commercial. "Public concern over the possible lapses of the Board will be tempered by the memory of its achievements under circumstances trying and critical," predicts the Cleveland Plain Dealer. The Albany Knickerbocker Press offers the consoling remark that after the investigation is over and the guilty have been punished, "the people will still have the ships." And on this point it quotes President-elect Harding as follows: "One of the great problems of the incoming administration will be to appoint to practical use for America the great merchant marine built since the war. The record of the Shipping Board was one continual fiasco from beginning to end. When the war ended we should have been in a position to establish shipping lines to every part of the globe. I promise you that one of the first acts of the incoming administration will be to unfurl the flag again on all the seas of the world."

Reminding us that in 1914 only 10% of our imports and exports was carried in U.S. vessels, while as a result of the Shipping Board's activities "today we carry about 45%," the St. Louis Globe-Democrat remarks: "The Shipping Board is a permanent arm of the Government. It will have great tasks and great responsibilities in the future. We are emerging from the comparative chaos of a colossal war, and it is essential that we take stock of our condition before setting forward. We have developed a merchant marine worthy of our place in the world. Its magnitude and its service must be maintained. But we must find out what has been wrongly done in order to avoid these mistakes in the future. We must find out by retracing our steps wherein we have erred. We must find out the weaknesses of the organization, the defects in its structure and in its methods, as they may be revealed by investigation. The fixing of responsibility for wrong, and the punishment of any offences of a character demanding punishment, should be but incidental to the process. The primary purpose should be constructive. It will avail us little to

probe into the work of the past if we do not learn and apply the lessons learned from the errors that are discovered in the enquiry."

The public should make two necessary distinctions in reading the sorry tale of the Shipping Board as brought out before the Walsh Committee, says the New York Evening Post: "It should distinguish between Shipping Board history before the armistice and since the armistice. It should distinguish between graft and incompetence. The blunders committed during our active participation in the war include the wooden ship programme, the construction of an excessive number of small steel ships on the Great Lakes, and the policy of allocation and operation. These mistakes arose principally from incompetence and defects in organization and are to a considerable degree excusable on the score of war haste and war confusion.

"The post-armistice blunders are far less excusable, and here again the fundamental evil has been inefficiency rather than the graft which is always the accompaniment of disorganization. Incompetence on the Shipping Board has been shown, in the first place, in the miserably poor management. But more than that, it has been shown in a lack of clear understanding of the entire problem of our shipping as related to the general world situation and to a lack of courage in shaping policy to shifting conditions. The Board has dawdled along and hoped for the best at times when it should have boldly cut our losses. The policy adopted with regard to cancellation of shipbuilding contracts should have been far more drastic than it has been. The Board should have compensated the builders and should have gone to Congress with a frank statement of the necessity of taking a great loss rather than continuing the construction of ships in large quantities. Still more difficult is it to characterize strongly enough the blunder of the Board in its sales policy. In the spring of 1919, when the British Shipping Controller was selling off Britain's war built tonnage for £22 a deadweight ton, equivalent at that time to approximately $100 a ton, our Shipping Board kept asking from $200 to $225 a ton for similar vessels. Then, as the shipping market grew weaker, the Board reduced its offering prices gradually but always at a considerable distance behind the market. As a result very few ships have been sold. Some were disposed of on an instalment basis, which is now breaking down. New U.S. owners, in so far as we have any, have bought their ships at impossible prices and are facing bankruptcy."

Congress, it will be recalled, ordered the present investigation by a vote of 287 to 0, and appointed for this purpose a committee headed by Representative Joseph Walsh (Rep., Massachusetts). The first evidence laid before it was the 100 page report of two investigators, A. M. Fisher and J. F. Richardson, who have been working in the Washington and New York offices of the Shipping Board for many months. Some of the outstanding features of this report are thus summarized editorially in the Philadelphia Public Ledger: "Defective steel forgings for Shipping Board vessels were fixed up to pass the official test in the following way: The test required that a hole 1 in. in diameter was to be bored into each forging to determine the quality of the steel. Inferior forgings were 'doctored' by having good steel plugs, 2 in. in diameter and 6 in. deep, inserted in them in such fashion as to conceal the fraud. Then the test hole was bored into these high class plugs, 'with the result that the forging was passed by the inspectors and accepted for use in a vessel of the Shipping Board.' . . Mr. Richardson said that it was due to these defective forgings that many shafts on Shipping Board vessels were found defective, and it is a common occurrence for a ship to lose its propellers at sea. He asserted that this was an accident that happened almost every day. These ships would have been very dependable, wouldn't they, in getting away from murderous U boats if the war had continued and the lives of our boys must have been trusted to the ability of their propellers to stand the strain? Mr. Richardson further deposed that the Shipping Board is still doing business with the concern which played this deadly trick. . . .

"How could all this possibly go on? In a wild riot of graft, men's morals give way. There was, of course, direct bribery. Mr. Richardson says that it was no common thing to find that efforts were being made to corrupt employes of the Shipping Board. Outright bribes were offered to timekeepers and checkers; gifts of shares of stock in the contracting companies and offers of better positions were made; 'gifts of whisky are commonly tendered.' Then there was a more brutal method sometimes employed. 'Good men were heckled, insulted, and even frightened off the work when they would not prove susceptible to corruption.' The report is even more definite. It remarks with sinister humor that 'it was a comparatively easy matter to drop 'accidentally bar or wrench into a ship's hold when a 'straight' timekeeper or inspector was standing under.'

"It is no wonder that astonishing and incredible acts of fraud, theft, and sabotage could be successfully put over. Indeed, as one reads the sickening record, it seems as if there was a general scramble for the property of the country, and mighty few guardians on hand to protect it. Officials were put on guard who had no qualifications for the duty. An auditor was employed whose only bookkeeping experience had been gained while looking after a set of books for a bartender in a Texas village. The system of payment adopted by the Shipping Board encouraged padding of the pay rolls, which resulted, in one case, in a man being put on the salary list who was really a house detective for the Hotel St. Regis. Unskilled labor was rated and paid as skilled, and the contractors got their swollen percentage of profit on the larger salaries.

The amounts and methods of plain graft would appear exaggerated in a muck raking novel. Ships were overcoaled; and then, when they naturally did not burn all the coal on their voyage, they, nevertheless, pretended to take on a full supply again, leaving the surplus not needed with the coal company. The swag was divided. A steward, finding that his predecessor had left considerable food on board, promptly threw it into the sea, in order that he might get his commission on the purchase of a complete new supply. And all the while the families of taxpayers who were paying for this were stinting themselves at home because food was so dear!

"But what's the use? The story steadily approaches a crescendo. 'The expenditure of millions of dollars was left in the hands of masters, chief engineers, and stewards.' In many cases, it was asserted, the supplies are purchased from brokers, who add a profit of from 25 to 40%, give gratuities to masters and stewards in the form of 'free launches, free automobiles, free liquor, free entertainment, etc.,' and charge them with the price of supplies. And the climax comes when Mr. Richardson testifies that these conditions not only existed more than a year ago, but that 'they are becoming worse every day.' "

Other witnesses called before the committee testified to such items as a bill for $623,000 paid twice over by the Board by "mistake"; a bill for $161 for putting a hinge worth 83c. on the door of a ship's galley; fresh water worth 90c. a ton sold to Shipping Board vessels for $25 a ton; asbestos cloth valued at $1.10 a pound sold to the Shipping Board for $1.60 a pound, causing a loss to the Board of $1,000,000 in one year; overpayments running into tens of millions on claims submitted by foreign shipping firms; and profits running as high as 750% made by certain firms at the Shipping Board's expense.

According to M. J. Gillen, who was J. B. Payne's executive assistant when the latter was chairman of the Shipping Board, that organization "had no records to show how much money it had taken in during the war and how much was expended." Another witness, J. T. Meehan, Deputy Chief of the Board's Division of Investigation, told the committee that 2,400 fraud cases were now under investigation, many of which, he believed, would result in criminal prosecutions. "We don't want to press the petty cases until we are in a position to get the big fish," he said, explaining further that he had opposed accepting restitution from many firms in "the hope that eventually we will be in a position to institute prosecutions and obtain convictions." "We have one case up for trial soon," he added, "which may go to the Supreme Court, and which, if decided in our favor, will enable us to go after many of the offenders."

Detroit River Navigation Regulations. The regulations for the navigation of the Lower Detroit River, published in a previous issue, have been promulgated, as required by law, and must be adhered to by masters navigating those waters. Incidents have occurred where these regulations have not been complied with, and the Marine Department gives notice that any cases occurring in future will be dealt with promptly, and steps taken to impose the penalty provided. Attention is specially drawn to the fact that the regulations for preventing collisions, made by the proper authority and duly promulgated, have full force of law, and that the owner, master or person in charge of a ship omitting to obey any of the provisions incurs the penalty fixed by the Canada Shipping Act.

Canadian Steamship Damage Claim in New York.—A judgment was given Dec. 7, in the U.S. District Court, New York, declaring that Gaston Williams and Wigmore, New York, charterers of the freight steamship Lord Dufferin, owned by Canada Steamship Lines, Montreal, have a right to sue the Cunard Steamship Co. for $1,700,000, for loss of cargo and of the use of the ship, when the Lord Dufferin was damaged by collision with the Cunard Line's s.s. Aquitania, in New York harbor, Feb. 28, 1919. It is stated that Canada Steamship Lines, as owning the ship, will also sue for $1,000,000 damage sustained.

Vancouver Harbor Development Work.

As stated previously in Canadian Railway and Marine World, the Ballantyne pier, which is being built under the Vancouver Harbor Commissioners' direction, at an expenditure of some $5,000,000, will be of concrete, 1,200 ft. long and 341 ft. wide, with double deck reinforced concrete freight sheds. Contract 1, for dredging and filling in the site, was awarded early last summer to Grant and Macdonald, the amount of the contract being stated as $513,121.50. We were advised recently that the dredging was proceeding satisfactorily, that the lighter material had been removed, that drilling operations on the sandstone rock cutting were under way, and that approximately 75,000 cu. yd. of filling had been completed.

The Dominion Government passed an order in council Sept. 29, authorizing the Harbor Commissioners to let a contract for building a superstructure for the pier, 1,200 ft. long on the east side, 1,070 ft. long on the west side, and 341 ft. wide; a shore quay 830 ft. long by 350 ft. wide; and four 2 story steel and concrete transit sheds of the following dimensions,—three sheds, 500 x 110 ft., and one shed, 400 x 110 ft. with steel doors and windows with steel sash and glazed with wired glass; together with the necessary paved roads and railway tracks to properly equip the pier and shore quay. The freight shed gross floor area will be 394,500 sq. ft., and the length of trackage 8,000 ft. The contract for these works has been let to Northern Construction Co. Ltd. and J. W. Stewart, its total amount being close to $4,500,000. The work will be in direct charge of the contractors' Chief Engineer, Wm. Smaill. It is expected that no. 1 contract, for the dredging and rock excavation, will be sufficiently advanced to enable an actual start to be made on the superstructure early this year, and it is expected that the whole contract will be completed within two years.

A public booming ground, capable of holding 4,000,000 f.b.m. of logs, has been established on the north shore, Mission No. 1, Indian Reserve.

The plans include a terminal railway to serve the entire water front, except possibly the C.P.R. Burrard Inlet terminals, and four miles have been completed. The system is to be operated by the commissioners, who are negotiating for the linking up of Industrial Island and the Dominion Government wharf. The Board of Railway Commissioners has approved the harbor commissioners' application covering terminal railway construction between the existing Government wharf and the new Ballantyne pier, and the C.P.R. has been directed to proceed with the work of construction.

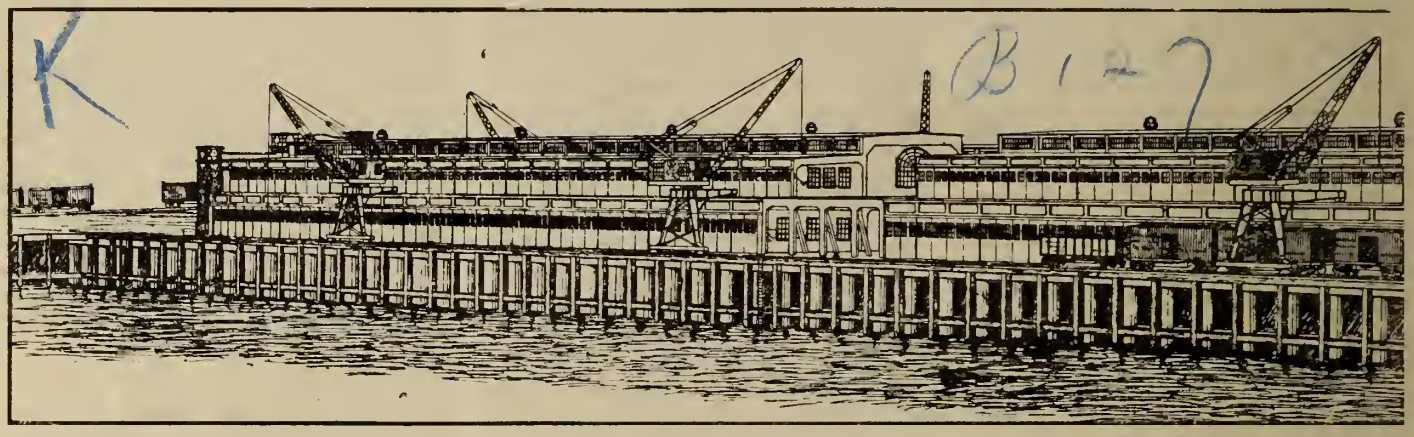
The next improvement to be undertaken will be the construction of car ferry terminals on the north shore, to take care of railway traffic until rail connection can be established via the Second Narrows route.

Offices have been built at the Dominion Government Wharf for the Canadian National Rys., which have leased the entire wharf for a year; repairs to the wharf have been completed and a second depressed track has been built adjoining no. 2 shed. The commissioners are considering the question of lumber assembly and coal handling wharves, the Minister of Marine having promised a lumber assembly wharf for the near future.

No new mechanical equipment was added to the port last autumn.

Other work to be undertaken includes the widening and deepening of the First Narrows and diverting and controlling Capilano Creek; damming and locking the Second Narrows, to improve the entrance to the Inner Harbor, to provide for the reclamation of some 3,000 acres in the vicinity of the Second Narrows, and to serve some deep sea shipping; and the industrial development of Kitsilano Indian Reserve, at the mouth of False Creek, to provide an area of approximately 80 acres, which latter has not yet been approved or undertaken; the improvement of False Creek channel, and the electrification of Industrial Island.

The illustrations on this page and the one opposite are made from a perspective sketch of the pier from the northeast, for which Canadian Railway and Marine World is indebted to the Consulting Engineer, A. D. Swan, M.I.C.E., Montreal.



Ballantyne Pier, Vancouver Harbor B.C.
See opposite page for other portion of illustration.

The Association of Pacific Coast Port Authorities will hold its 1921 convention at Vancouver, B.C., on a date yet to be settled. The President is Lieut.-Col. G. H. Kirkpatrick, Chairman, Vancouver Harbor Commissioners, and the Secretary is S. McClay, one of the Vancouver Harbor Commissioners.

The Montreal, Ottawa & Georgian Bay Canal Co. will apply at the Dominion Parliament's next session for an extension of time for the commencement and completion of the canals which it is authorized to build between Montreal and Georgian Bay.

Exchange on Ocean Freight Charges.

The Trade and Commerce Department's Weekly Bulletin says:—Most of the steamship lines running from Canadian ports to British ports have been charging for freight in United States funds. The British importers who had to pay the freight charges considered it extraordinary that Canadian steamship lines running from Canadian ports should expect payment in U.S. dollars. The Trade and Commerce Department's Commercial Intelligence Branch brought the complaints of the British importers to the attention of the great transportation companies. The C.P.R.'s General Foreign Freight Agent took the matter up with the steamship lines and on Dec. 4 wrote the Commercial Intelligence Branch as follows:—"You will remember you drew attention to the fact that the Canadian steamship lines were demanding payment on 'collect' freights in United Kingdom on the basis of the New York-London rate of exchange. The Canadian steamship lines operating in the United Kingdom trade have informed me that freight for British ports may now go forward 'collect' at the demand rate of exchange Montreal on London on the date vessel enters at the customs house at the port of loading." The Canadian Government Merchant Marine was asked what its custom was in respect to exchange on freight rates and replied:—"When the rate of exchange became such a live question for Canadian exporters, we faced the subject, and after consideration it was decided by our management that so far as Canadian Government Merchant Marine business was concerned, we would adopt the policy of collecting freight on Canadian exports in Canadian dollars and have adhered to that policy ever since."

Shipbuilding in Great Britain. — The condition of shipbuilding in Great Britain generally and on the Clyde in particular is giving rise to considerable uneasiness, owing to the labor situation and the demands of certain sections of employes for increases in wages in face of admittedly necessary reduction in costs of shipbuilding. British press reports indicate that in spite of the lower prices of materials there, wages are much higher, and shipyards where ships are under repair are unable to give necessary time guaranties. Continental countries have been under bidding British companies for ship repairs recently, and large repair orders have been lost to Great Britain.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

British Columbia, Vancouver Island.—With reference to uncharted rocks in Quatsino Sound, the following corrected information as to position is available: (1) half a mile 112 deg. from Pender Point and 900 ft. off shore, depth 5 ft.; (2) 500 ft. 154 deg. from south point of Single Island, rock dries at 5 ft.

Burrard Inlet.—The Naval Service Department's Hydrographic Survey has made a resurvey of First Narrows, Vancouver harbor, and sweeping operations have shown that Parthia shoal has a least depth of 27 ft. instead of 29 ft. as formerly advised, and that there are other spots, northward of the shoal, with approximately the same depth. Deep draft ships are therefore advised to keep to the southward of Parthia shoal when using the entrance. A black spar buoy will be established, without further notice, on the south extreme of the shoal, and the red spar buoy at First Narrows will be moved northward to the 5 fathom line. A chart showing the result of this survey will be published shortly, but in the meantime a blue print copy may be obtained from the British Columbia Hydrographic Survey, Victoria, B.C.

Nanaimo Harbor.—On or about Jan. 1, 1921, the character of buoys will be changed as follows: Entrance buoy 1, from a platform buoy to a black spar buoy; South channel buoy 3, from a platform buoy to a black spar buoy; Middle bank buoy 4, from a platform buoy to a red spar buoy; Carpenter Rock buoy 9, from a platform buoy to a black spar buoy.

New Brunswick, Chaleur Bay.—On the reopening of navigation in 1921 the color of the light at Bon Ami Point, Restigouche River, will be changed from white to red.

Nova Scotia, Bay of Fundy.—The fixed red light on shore at Inner end of wharf at Spencer Island was changed about Nov. 15 to a fixed white light, and a fog bell is to be established on the outer end of the wharf. The bell will be operated by machinery on top of box on steel frame, and will give one stroke every 6 sec.

Cape Breton Island. — The fixed red light on the west extreme of the southeast bar in Sydney harbor will be replaced by an occulting white acetylene gas light, automatically occulted at short intervals.

Cape Breton Island.—The installation of a group occulting white light on the summit, or middle, of Sea Wolf Island, Margaree, on the west coast, as advised in a previous notice, has been deferred, and notice will be given when the new apparatus will be installed.

Bay of Fundy.—The 7th order lens on the north point of Brier Island, in Grand Passage has been changed to a 5th order lens.

Mahone Bay.—The fixed white light on Westhaver Island, at the entrance to the bay, and the fixed red light on Hobson Island, will be changed, about Jan. 15, to an occulting white acetylene gas light, shown from a lens lantern, and an occulting red acetylene gas light of the 4th dioptric order, respectively. Both lights will be unwatched.

St. Mary Bay.—The bell buoy off Meteghan will, without further notice, after Jan. 15, be moved to 1 1/3 miles from Meteghan breakwater, and 5,000 ft. from its former position.

Prince Edward Island.—The Dominion Public Works Department has dredged the channel in the approach to Vernon Bridge Village to a least depth of 9 ft. and a width of 100 ft. The area between the wharves was also dredged to a least depth of 9 ft.

Ontario, Lake Erie. — Mariners are cautioned that large pieces of floating wreckage are reported about 7 miles from Middle Ground light, in Pelee Passage.

Lake Ontario.—A chart of the eastern part of Lake Ontario, from Kingston to False Ducks, no. 64, has been published by the Hydrographic Survey, Naval Service Department. Price 15c.

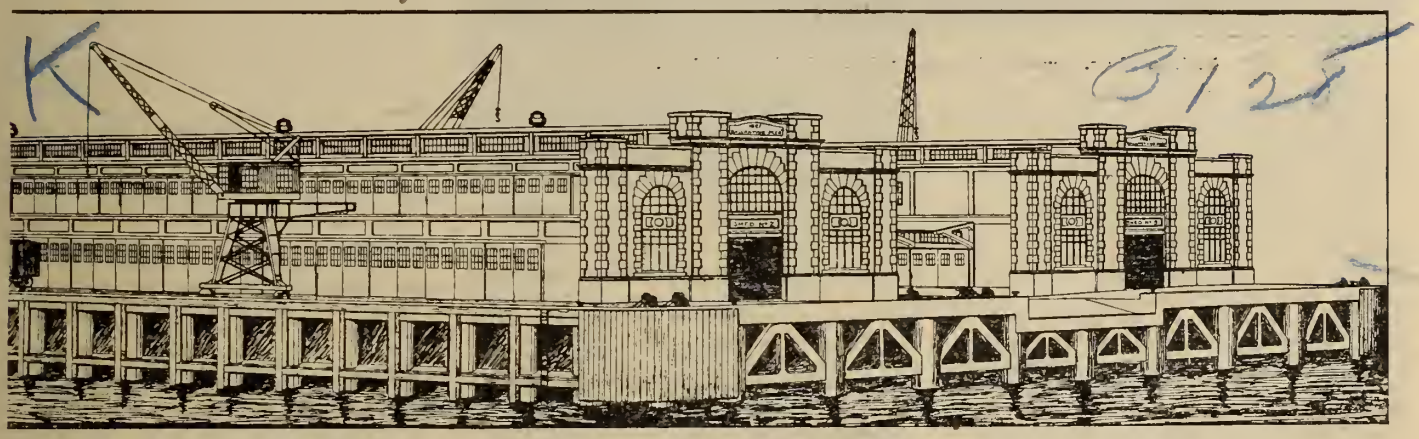
Quebec, Gulf of St. Lawrence. — The fixed red catoptric light on the outer end of the Government wharf, Great Fox River, will be replaced, without further notice, by a fixed red light, shown from an anchor lens lantern.

River St. Lawrence. — Range lights have been established in the ship channel between Quebec and Montreal, at Ste. Anne de la Parade, the front light being on the flat, that dries at low water, about 2½ miles above Grondines upper range front light, and consisting of a white, square, reinforced concrete tower, with sloping sides, surmounted by a square concrete watchroom and lantern, at an elevation of 30 ft. showing a fixed white catopric light; the back light being on Ile a la Batture, 4,700 ft. from the front light, and consisting of a square steel skeleton tower, with sloping sides, surmounted by an enclosed wooden watchroom and square wooden lantern, with slatted daymark on two upper sections of tower facing alignment, the lantern being at an elevation of 61 ft., showing a fixed white catoptric light; both lights with a visibility of 6 miles in range.

River St. Lawrence.—A front range lighthouse has been built on the site of the former lighthouse on the south shore at Lotbiniere, in the ship channel between Quebec and Montreal. It consists of a square steel skeleton tower, surmounted by an enclosed wooden watch room and lantern, wooden slatwork daymark on side of tower facing alignment, 55 ft. from base to top of ventilator on lantern, fixed white catoptric light at an elevation of 51 ft., with a visibility of 6 miles in the line of range.

Newfoundland.—Owing to damage by storm, the light at Goose Cove, Hare Bay, Mouse Island, will be discontinued until further notice.

A diaphone fog alarm, operated by air compressed by an oil engine, has been established on Long Point, Twillingate, 110 ft. east from light station. It will give 2 blasts of 2 sec. duration, for 90 sec., i.e., blast 2 sec., silent 5 sec., blast 2 sec., silent 81 sec.



Ballantyne Pier, Vancouver Harbor B.C.
See opposite page for other portion of illustration.

United States, Lake St. Clair.—A gas buoy has been established in the St. Clair Flats canal, marking end of shoal on the line of the center pier, about 1,800 ft. from the southerly end of the pier. The buoy is steel cylindrical, painted in red and black horizontal stripes, showing an occulting white light every 20 secs., at an elevation of 10 ft., and will be maintained until the shoal is removed.

St. Marys River.—The fixed red light on the south side of Pipe Island has been changed to a fixed white light.

United States, Juan de Fuca Strait.—The color of the light on Hein Bank on the north side, in 4¾ fathoms, is changed from red to white.

New Zealand Steamship Services.—A New Zealand parliamentary committee, which has been investigating shipping freights, has reported that rates quoted by privately owned ships for produce are unwarrantably high, and recommends the establishment of a line which would be independent of the existing combines. Government support is advocated. The Premier, during a debate in the House of Representatives, said that the Government would consider, during the recess, the best means to secure a reduction in freights.

The Salvaging and Repairing of the s. s. Canadian Recruit.

The steel cargo steamship Canadian Recruit, 3,964 d.w. tons, which was built for Canadian Government Merchant Marine by Collingwood Shipbuilding Co., and delivered June 7, 1919, went ashore on Vache Reef, near the mouth of the Saguenay River, Dec. 20, 1919. She remained upright for some months, but on the break up of the ice early last spring she was shifted and had a list of 18 degrees to port.

Position of s.s. Canadian Recruit, on Vache Reef, April, 1920.

The Canadian Salvage Association Ltd. undertook the salvaging of the ship. The work was somewhat intricate, as the after end of the ship presented a problem of deep lifting, i.e., there was 29 ft. of water on deck at the after end of hatch 4 on the port side at low water, and the forward end was stranded in very shoal water. In addition to these difficulties, the work was complicated by the shoal waters surrounding the ship and from heavy and swift tides, and to the eastward of an exposure to the whole Gulf of St. Lawrence.

The forward portion of the ship, including the machinery spaces, was deemed possible to be repaired, as to the bottom damage, by divers and pumped out. A number of injuries had to be repaired by the divers, and a large pumping plant was installed, as the time that the tide allowed to pump out the ship was very brief.

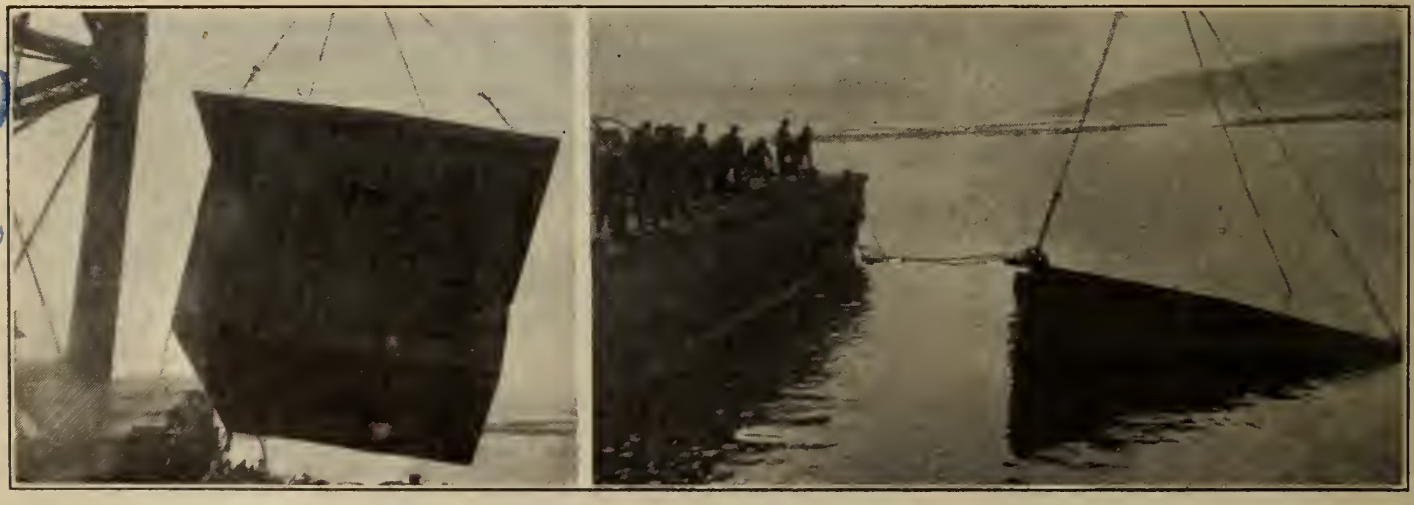
The problem presented aft was extremely difficult. The use of heavy lifting draft, even if there had been any available in Canada of the type employed by the British Admiralty, would have been extremely difficult, on account of the situation of the ship. The cofferdamming, or platforming, of the ship and the pumping out of the after compartment (even if it were certain that no bottom damage existed), was impossible, owing to the tremendous pressure on decks and bulkheads, owing to the many feet of water that were on the after deck (41 ft. low water). The use of compressed air was determined on, and a novel method was adopted. The use of air tight hatch trunks was decided on. The trunks consisted of a square steel structure, that dropped in the hatches, fitting at the top with a collar, with an air tight joint that was secured to the top of he coaming. By this method compressed air was trapped between the hatch trunks and the sides of the ship, and, in a compartment treated by this method, an area existed from bulkhead to bulkhead, and from one side of the ship to the other, that the compressed air had forced the water out of, down to the bottom of the trunks. This meant that the decks were never under greater pressure than the hydrostatic pressure required to expel the amount of water that it was decided necessary to eject from the hull. The great advantage of this method was that as the ship came to the surface this condition was maintained, i.e., that the square of the hatch trunk remained as an immense safety valve, and as the hydrostatic pressure changed as the ship neared the surface, the pressure of the compressed air was reduced automatically by this tremendous safety valve. The decks were also subjected, at their weakest point, i.e., abreast of the hatches, to the least possible strain by leaving the hatches open, and having only, as a lever arm, the space from the side of the ship to the edge of the hatch.

The ship was refloated July 17, 1920, and towed to Tadousac Bay and thence to Lauzon, Que., and subsequently to Montreal, where she was re-conditioned by Fraser Brace Shipyards Ltd., the work including a complete overhaul and renewal where necessary. Practically the whole of the bottom plating, floors, etc., and a considerable portion of the side plating were replaced, and new deck winches, derricks and gear were supplied. The accommodation for passengers and the officers and crew was practically renewed. A complete new cast steel stern post and rudder were fitted, and the main engines, boilers, propellers, shafting and auxiliaries thoroughly overhauled, the total cost being about $300,000.

The salvaging operations were under the direction of Lieut. Commander W. W. Wotherspoon, Vice President, Canadian Salvage Association.

Additional illustrations are given on pg. 49.

Tyne Shipbuilding. — The number of ships of every description launched from the river Tyne during Oct. 1920 was six, their estimated registered tonnage being 12,470, compared with 4 ships of 12,535 estimated registered tonnage during Oct. 1919. From Jan. 1 to Oct. 31, 1920, 68 ships were launched, their estimated registered tonnage being 182,507, compared with 70 ships of 132,683 estimated registered tonnage during corresponding period of 1919.



Placing Hatch Trunks in position, for salvaging s.s. Canadian Recruit.

Canadian Canal Statistics.

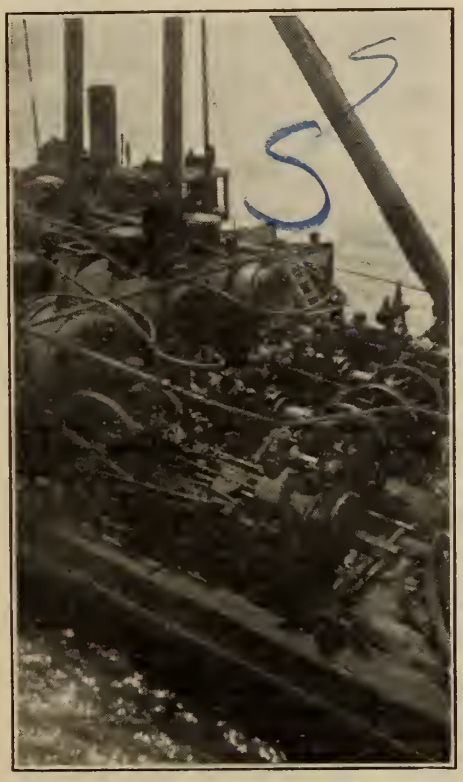
The canal statistics for the calendar year 1919 have been issued by the Dominion Bureau of Statistics, Transportation Division, for the first time. They were collected and compiled formerly by the Railways and Canals Department's Statistical Branch. By order in council under the Statistics Act, passed Aug. 29, 1919, the work of the branch was transferred to the Dominion Bureau of Statistics, and by arrangement with the Railways and Canals Department, the data collected by the canal statistical officers are now forwarded to the Bureau. The report, which was in process of compilation at the time of the above transfer, has been completed along the lines followed in previous years.

Complete data are given for all the Canadian canals, with regard to number of ships passed through, their registered tonnage, description, nationality, and passengers and cargoes carried. The report also includes certain data for the United States canal at Sault Ste. Marie. As no tolls are charged by either the Canadian or U.S. canals at Sault Ste. Marie, ships use both freely, and the statistics of one would not be complete without those of the other.

The movement of Canadian grain from the head of Lake Superior is one of the most important items of Canadian inland water traffic, and more elaborate statistics have therefore been compiled on it than on other items. The large decrease from 1918 of 8,888,353 tons was all in U.S. freight, which was 10,384,707 tons less than 1918, while Canadian freight increased 1,496,354 tons. The decline in U.S. freight was practically all in the Sault Ste. Marie canal returns and in coal and iron ore. The decrease for that canal in iron ore was 8,211,866 tons, and in coal 661,473 tons, whilst variations in other commodities gave a total net decrease of 8,775,626 tons.

Coal shipments were light all season, dropping in June to about one-third those of June, 1918, and declining until in October they were only about one-eighth those of the previous year. Iron ore shipments held up to the 1918 figures for May, June and July, but dropped off in August, and continued light till the close of navigation. These decreases were due to the general shortage of coal and to labor troubles in U.S. steel plants. Strikes occurred at many of these plants on Sept. 22, and it was the end of November before they were in operation.

As a result of lack of cargoes on the Great Lakes, and of better conditions on the ocean routes, many U.S. steamships were taken off the Great Lakes and sent to the Atlantic Ocean. The down registered tonnage of U.S. steamships on the Welland Canal exceeded the up tonnage by 367,376 tons, and on the St. Lawrence Canal by 319,531 tons, the movement in this direction being steady throughout the season.



Compressed air plant on barge, for salvaging s.s. Canadian Recruit.

Marine Public Works Contracts Awarded.

The Dominion Public Works Department has awarded the following contracts:—

Thessalon, Ont., reconstruction of part of superstructure of wharf, Geo. P. Sandie, Thessalon, Oct. 16, 1920, schedule of prices.

Lord's Cove, Deer Island, N.B., construction of wharf, F. L. Boon and G. S. Macdonald, South Devon, N.B., Oct. 20, 1920, schedule of prices.

Procter, B.C., floating wharf, F. Cogle and H. P. Leake, Procter, Oct. 22, 1920, $7,940.

West Chezzetcook, N.S., repairs to breakwater, A. W. Girroir and W. F. MacKinnon, Antigonish, N.S., Oct. 26, 1920, schedule of prices.

Three Fathom Harbor, N.S., reconstruction and repairing of portion of shore protection, Naugle and Hiltz, Lawrenctown, N.S., Oct. 26, 1920, $6,079.20.

Seaforth, N.S., repairs to breakwater, A. W. Girroir and W. F. MacKinnon, Antigonish, N.S., Oct. 26, 1920, schedule of prices.

Bass River, N.S., construction of wharf, Naugle and Hiltz, Lawrencetown, N.S., Oct. 26, 1920, schedule of prices.

Rondeau, Ont., sheet pile wharf, Wm. Bermingham, Kingston, Ont., Nov. 1, 1920, schedule of prices.

Holleyburn, West Vancouver, B.C., wharf and repairs to crib and dredging, Wm. Greenlees, Vancouver, Nov. 2, 1920, schedule of prices.

Cap St. Ignace, Que., repairs to public wharf, E. Caron & Frere, L'Islet, Que., Nov. 4, 1920, schedule of prices.

Bayfield, Ont., reconstruction of south half of south pier, Weston Bros., Bayfield, Nov. 9, 1920, schedule of prices.

Port Lohn, N.S., repairs to breakwater, Denton & Condon, Digby, N.S., Nov. 10, 1920, schedule of prices.

Port Maitland, N.S., addition to east breakwater, Denton & Condon, Digby, N.S., Nov. 10, 1920, schedule of prices.

Rondeau, Ont., reconstruction of portion of superstructure of western pier, Border Cities Construction Co., Windsor, Ont., Nov. 22, 1920, schedule of prices.

The Johnson Wharf Co. Ltd., Vancouver, has given up business, having sold its property to the C.P.R. The wharf was built by the Johnson Wharf Co. on the foreshore owned by the C.P.R., and leased for 20 years, on condition that should the C.P.R. require the foreshore for its own purposes, a notice of six months could be given for a cancellation of the lease, and the structures erected on the land could be taken over by the C.P.R. That company, having started the construcion of Pier B.C., was deprived of the use of its No. 1 shed, and it was found necessary to cancel the lease of the foreshore to the Johnson Wharf Co., and the property was taken over Nov. 7, 1920. The wharf is 670 x 100 ft., and has some office buildings. The C.P.R. has renamed this wharf, Pier H, and is using it for berthing its smaller trans-Pacific ships, some of its northern coast steamships, and for any tramp steamships which may have cargo to deliver to the C.P.R. It is, like the company's other wharves, under the control of the wharf agent.

The Hudson's Bay Co.'s ships will not, according to a London press cablegram, be transferred to Canadian registry, for the present, at least.

S.s. Canadian Recruit coming to the surface, by application of compressed air.

S.s. Canadian Recruit's decks clear of water.

Canadian Pacific Ocean Services' s.s. Montrose Launched.

The s.s. Montrose was launched for Canadian Pacific Ocean Services' Atlantic service, by Fairfield Shipbuilding & Engineering Co., Govan, Glasgow, Scotland, Dec. 14. Her dimensions are,—length between perpendiculars 566 ft., breadth 70 ft., depth 51½ ft.; tonnage 16,200. She is of the two class type, and will have accommodation for 520 cabin and 1,550 third class passengers. She is being built to the requirements of the highest class of Lloyd's Registry, under special survey, classed A 100 A1. She has a modified cruiser stern specially adapted to the lines of the ship, which, it is claimed, will add strength to the after end, protect the propellers and steering gear, increase the passenger deck accommodation, and reduce vibration to a minimum. There are two funnels, and two pole masts will be rigged as a fore and aft schooner. The most modern systems of heating, lighting and ventilation will be installed, together with electrically equipped mechanical appliances, steering control, wireless telegraphy, Sperry gyro compass, and an emergency 30 ft. motor boat, in addition to the maximum requirements for lifeboats.

The cabin dining room will be on the upper deck to ensure the least possible sense of motion, and will have seating accommodation for over 300. The lounge, writing room and card room will be on the promenade deck, also the drawing room, smoking room and children's room. A gymnasium will be arranged on the bridge deck, where there will also be a dark room for photographers. The third class passenger accommodation will include lounges and smoking rooms forward and aft on the bridge and shelter decks, and a large dining room of three compartments on the upper deck aft, with ample dining space on the shelter deck forward. The third class cabins will be arranged for 2, 4 and 6 passengers.

Wreck Commissioner's Enquiries and Judgments.

An enquiry has been held and judgment delivered in connection with the following casualty:—

Stranding of s.s. Prince Rupert.

Held at Vancouver, B.C., Nov. 15 to 18, 1920, before Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Capts. John Park and Gerald Bridge, as nautical assessors, into the stranding of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, on the eastern side of Graham Reach, about 3 miles north of Swanson Bay, B.C., Sept. 29, 1920. When Canadian Railway and Marine World's December issue went to press, the report of the judgment had not been received, but the result of the court's finding was mentioned. Following is the judgment in full:—The court, having carefully enquired into the circumstances which led to the casualty, is unanimous in arriving at the conclusion that the primary cause was due to the fact that when the master, Capt. Duncan MacKenzie, ordered the course to be changed from n. 54 w. to n. 56 w., a few moments before the stranding, the helm was put to port instead of to starboard. The evidence and the chart clearly show that the shore line in the vicinity of where the vessel stranded is almost a straight line, and in view of the angle in which the vessel struck, after sighting the land right ahead, and taking into consideration the part of the vessel which first came into contact, there can be little doubt that the Prince Rupert was considerably off her course. The court therefore finds both the master and the mate, Roderick Mackenzie, in default. Neither of them appeared to take the slightest intelligent interest to satisfy himself that the ship was accurately steadied on the various courses steered when altered, nor did they realize that the ship had been swinging under port helm for some time, until they suddenly saw the land, close to the right, ahead, at which moment the ship, going at a speed in the conditions of the thick weather then prevailing, rendered it impossible to stop within the limits of observation, with the result that she struck and was extensively damaged. The court therefore suspends certificate no. 3667 of the master for four months from September 29, 1920, and certificate no. 7055 of the mate for two months from date of this investigation, such suspensions to expire on Jan. 29, and Jan. 18, 1921, respectively.

Tank Steamships to Carry Molasses from Barbados to Canada.

The Trade and Commerce Department's Weekly Bulletin says:—Barbados molasses is of exceptionally fine quality and large quantities are imported into Canada. It has been the custom up to the present to import Barbados molasses into Canada in barrels and puncheons, which is a very expensive method of handling it. The Pure Cane Molasses Co. of Canada, Ltd., recently had built the first molasses tank steamship to carry molasses from the tropics in bulk. This steamship has in itself huge tanks of enamelled steel in which the syrup will be brought from the West Indies to St. John, N.B., and Montreal. At these points the company has enamelled steel receiving tanks into which the syrup is pumped from the ship. The tanks in Montreal will store 880,000 gall. of molasses and those at St. John 660,000 gall. The first ship to be put into this trade is the Julius Kessler, built this year, and is of a size which will permit her to use the canals and at the same time is constructed to cross the ocean if necessary. In Barbados and St. Kitts the Pure Cane Molasses of Canada, Ltd., is erecting large receiving tank stations where the molasses will be stored until it can be brought to Canada. By handling the product in this manner it is expected to reduce the cost to a minimum.

Ships Registered in Canada During September, 1920.

In compiling the following lists of vessels registered, steamboats and motor boats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. h.p.	Owners or managing owners
141847	Bouxwiller*	Montreal	Three Rivers, Que. 1919	195.3	40.3	15.2	1138	660	48 Sc.	Three Rivers Shipyards Ltd. (in liquidation).
141848	Bouzonville*	"	" 1919	195.1	40.4	15.4	1135	658	48 Sc.	" " " "
141846	Brumath*	"	" 1919	195.5	40.1	15.3	1141	662	48 Sc.	" " " "
141850	Cattenon*	"	" 1919	196.0	40.3	15.4	1131	659	48 Sc.	" " " "
141849	Cernay*	"	" 1919	196.1	40.1	15.3	1123	654	48 Sc.	" " " "
107712	Flyer	New Westminster	Vancouver, B.C. 1899	66.0	15.0	7.7	54	25	13 Sc.	Monarch Towing & Trading Co., New Westminster, B.C.
141664	Huronton(1)	Toronto	Loraine, Ohio. 1898	238.0	42.0	22.4	2072	1242	130 Sc.	A. E. Mathews, Toronto.
138409	Permanencia	Sydney, N.S.	North Sydney, N.S. 1920	120.0	27.0	12.7	338	292	15 Sc.	W. N. Macdonald, Sydney, N.S.
126455	Sault St. Louis(2)	Sorel, Que.	Sorel, Que. 1910 1920	98.3	22.3	7.0	202	124	16½ Sc.	La Traverse de Caughnawaga, Ltée, Lachine, Que.

(1) Formerly Huron. (2) Formerly Zephyr P. *Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner.
141694	D. D. McKenzie	Lunenburg, N.S.	Schr.	Chester Basin, N.S. 1920	119.9	25.0	11.0	168	123	W. Duff, Lunenburg, N.S.
141844	Ethel H.	Montreal	Barge.	Northumberland, N.Y. 1891 St. Hilaire, Que. 1920	94.9	17.8	7.9	122	118	R. J. Lough, St. Hilaire, Que.
141695	Hazel L. Myra	Lunenburg, N.S.	Schr.	Bridgewater, N.S. 1920	109.6	27.6	11.4	223	191	W. Duff, Lunenburg, N.S.
141643	Isobel Moore	Liverpool, N.S.	"	Liverpool, N.S. 1920	122.0	26.0	10.6	188	157	F. Moore, St. John's, Nfld.
141772	Mary Pauline	La Have, N.S.	"	Shelburne, N.S. 1920	124.3	26.6	10.9	175	122	D. Romkey, M.O., Riverport, N.S.
			"	Sorel, Que. 1920	189.5	36.4	15.0	860	753	Transportation & Shipping Co., Quebec, Que.
141746	Ninion L.	Quebec, Que.								
150253	P. S. B. & D. Co. 2	Vancouver, B.C.	Scow.	Kennewick, Wash. 1905	80.0	26.4	6.8	122	122	Pacific Construction Co., Hastings St. West, Vancouver, B.C.
141644	Spencer Lake	Liverpool	Schr.	Allandale, N.S. 1920	106.4	26.4	10.3	188	148	H. B. C. Lake, Fortune, Nfld.

Atlantic and Pacific Ocean.

Canadian Pacific Ocean Services, by arrangement with the Canadian Marconi Co., is now supplying Canadian news service on board its Atlantic ships. The company has, for several years, supplied wireless bulletins on its ships, but the news was sent through U.S. agencies.

The port of Montreal was closed for general ocean passenger and freight traffic, Dec. 6, with the sailing of Elder Dempster Co.'s s.s. Benguela for west and south African ports. he s.s. Lake Gatun, one of the U.S. Shipping Board's ships, built on the Great Lake, left later in the day with coal for New York.

The Anchor-Donaldson Line reports a general increase in passenger traffic for 1920, over that of 1919. The figures given are:—

	1920.	1919.
Westbound—		
Cabin . .	2,857	1,518
Steerage . .	8,178	372
Eastbound—		
Cabin . .	2,324	2,121
Steerage . .	2,301	1,440

Canada Steamship Lines has been appointed Agent for the Admiral Line, operating on the Pacific coast between Puget Sound, Oregon, California, Alaska, Mexico, Central America, and the Orient, as well as intercoastal excursions between New York and Seattle, Wash., calling at Havana, Panama Canal, Los Angeles and San Francisco.

The s.s. Mount Berwyn, operated by the Societe Generale de Transports Maritime a Vapeur, which sailed from Vancouver, B.C., Nov. 30, is making a call at Kingston, Jamaica, and ships of this line, of which B. W. Greer & Sons are Vancouver agents, will make regular calls there, with the view of building up a trade between the West Indies and the Pacific coast.

Struthers & Dixon Inc., Seattle Wash., which is operating U.S. Shipping Board's steamships in the Oriental service, will, it is said, include a call at Vancouver, B.C., as occasion offers, and it is stated that John Galt has been appointed agent there. Eight steamships are being operated from Puget Sound ports to Japan, China and Manila. The four, which, it is said, will make the Vancouver call are: West Ison, West Ivis, West Jena and West Jessup.

The International Mercantile Marine Co., which operated winter pleasure cruises from New York to the West Indies and South America prior to the war, has resumed the various services. During the first three months of the year, the White Star and American Lines will run a series of trips to the West Indies, Windward Islands, Panama Canal and South America, calling at different points of interest. The ships to be utilized include the Megantic of the White Star Line, ordinarily on the St. Lawrence route, and the New York and St. Paul of the American Line. .

The Cunard Line s.s. Samaria, launched at Birkenhead, Eng., at the end of November, is the fourth ship which has been launched in England for the company since the war, and is said to be the largest built on the Mersey. Like the other ships, the Samaria will use fuel oil. She is of about 21,000 gross tons. Accommodation is provided for 336 first class, 340 second class, and 1,824 third class passengers. The equipment includes wireless telegraph, submarine signalling outfit, and gyroscopic compass. The other three ships, Scythia, Albania and Tyrhennia, as well as the Samaria, are to be operated in the New York service, and it is stated that the first two, at least, will call at Halifax, N.S.

Maritime Provinces and Newfoundland.

The schooner Quaco Queen, owned in Parrsboro, N.S., is reported to have been seriously damaged in a collision with the Japanese s.s. Bainku Maru, in the Gulf of Mexico. She was taken to the nearest port, where an examination was undertaken with the view of deciding as to the feasibility of making temporary or complete repairs.

The Newfoundland Railway Commission, which is handling betterments, etc., on the Reid Newfoundland Ry., is reported to have decided to extend its work to include harbor improvement and extension at St. John's.

The steam tug Katharine K., purchased recently by the St. John Drydock & Shipbuilding Co. from Quinlan, Robertson Ltd., Quebec, arrived at St. John, from Quebec, early in December, having sailed by the St. Lawrence, the Erie Canal, Hudson River via New York, Boston and Portland.

The Newfoundland Government has entered into an agreement with the St. Lawrence Timber Pulp & Steamship Co. Ltd. for the erection of lumber, pulp and paper mills at different points in the Bonne Bay district of Newfoundland, and for the operation of steamships, etc., in connection therewith.

Canada Steamship Lines will, it is stated, operate a direct steamship service between St. John, N.B., and St. John's, Nfld., during the winter, provided docking facilities can be arranged on the eastern side of St. John harbor. This service, it is stated, will really be a continuation of the summer service given by the company between Montreal and St. John's, calling for two sailings a month.

The Crystal Stream Steamship Co.'s s.s. D. J. Purdy ran aground on the bar at the mouth of the Nashwaak River, in St. John River, towards the end of November, and the passengers were removed in tugs and landed at Fredericton, N. B. The owners claim that the stranding was due to failure of Canadian National Rys. operators to have the draw bridge opened, thus making it necessary for the ship to anchor in the stream, from which she was blown by gales on to the bar. It is reported that an action for damages will be entered against the C.N.R.

Province of Quebec.

The mail steamboat Jeanne d'Arc, owned by C. Leboeuf, Valleyfield, Que., and operated between Montreal and Valleyfield, sank at her wharf at Valleyfield, at the end of November. It was intended to raise her before the ice formed in the river.

Canada Steamship Lines' s.s. Mapleheath, which sank in St. Gabriel lock, Lachine Canal, Dec. 8, after running on to her own anchor, and cutting a hole in her keel, was raised Dec. 9, and docked at Montreal. After discharging her cargo of coal she was taken to Kingston, where she will be overhauled during the winter.

The C. G. S. Montcalm sailed from Quebec, Dec. 12, with freight and supplies for points on the north shore of the St. Lawrence as far east as Clarke City. This will probably be the last trip to the north shore points before the ice forms. On this trip the Montcalm also accompanied the s.s. Keyingham to the mouth of the river.

The s.s. R. R. Call, owned by Capt. F. J. Allard Carleton, Que., and operated between Carleton, Dalhousie, Miguasha and Campbellton, N.B., was burned at Carleton recently. She was built at Chatham, N.B., in 1904, and was screw driven by engine of 8 h.p. Her dimensions were,—length 53.6 ft., breadth 13 ft., depth 5.3 ft.; tonnage 23 gross, 16 net. She was valued at $5,000.

An action of La Cie. des Bois du Nord against the owners of the s.s. St. Louis for $1,562.99, for work done and necessary disbursements in connection with the ship between April and Aug. 1920 at Amos, Que., was dismissed Dec. 6 in the Montreal Admiralty Court. The judgment stated that when the action was commenced, the ship was not in the court's arrest, so that it could not have jurisdiction over a claim for building, equipping or repairing, under sec. 4 of the Admiralty Court Act, 1861. It was settled law that a claim for the supply of necessaries did not give a maritime lien on a ship. The question of jurisdiction could have been raised immediately after an appearance, and this would have saved expense for all parties, and the action was dismissed with costs up to and including the appearance on the motion to dismiss for want of jurisdiction, and as to all other proceedings in the action, each party to pay his own costs.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during November, 1920:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B. M. 46	9,931	9,977
Flour	"	Barrels 596,670	721,130	1,317,800
Wheat	"	Bushels 1,778,928	35,457,383	37,236,311
Grain, other than wheat	"	Bushels 1,600,059	8,321,909	9,921,968
Copper	"	Short tons 188	7,846	8,034
Iron Ore	"	Short tons 12,320	5,540,853	5,553,173
Pig Iron	"	Short tons	.....	.....
Stone	"	Short tons	1,600	1,600
General Merchandise	"	Short tons 139	8,735	8,874
Passengers	"	Number 103	24	127
Coal, soft	Westbound	Short tons 11,125	1,858,598	1,869,723
Coal, hard	"	Short tons	329,845	329,845
Iron Ore	"	Short tons	10,752	10,752
Manufactured Iron and Steel	"	Short tons 1,857	7,693	9,550
Salt	"	Short tons 1,179	4,638	5,817
Oil	"	Short tons	38,340	38,340
Stone	"	Short tons 3,200	22,196	25,396
General Merchandise	"	Short tons 34,337	30,332	64,669
Passengers	"	Number 50	1	51
Summary		Number 356	1,651	2,007
Vessel Passages		Net 466,932	6,004,630	6,471,562
Registered Tonnage				
Freight—Eastbound		Short tons 157,836	6,907,652	7,065,488
Westbound		Short tons 51,698	2,302,394	2,354,092
Total Freight		Short tons 209,534	9,210,046	9,419,580

Ontario and the Great Lakes.

The motor ship Schoolcraft, owned by Manley Chew, Midland, Ont., while en route from Kingston to Montreal, Dec. 3, took fire and was destroyed, the crew escaping in safety. She was built at Trenton, Mich., in 1884, and was screw driven, by internal combustion engine of 80 h.p. Her dimensions were,—length 185.6 ft., breadth 34 ft., depth 14.2 ft.; tonnage 972 gross, 690 net.

The s.s. South American, owned by the South American Steamship Co., a subsidiary of the American Metal Transport Co., New York, which went ashore on the Gaspe coast, in the Gulf of St. Lawrence, as mentioned in our last issue, was refloated about the end of November, and proceeded to Halifax, N.S., where she was docked by Halifax Shipyards Ltd., for examination and repairs.

A Kingston press dispatch states that the owner of Duck Islands has arranged to install a wireless telephone apparatus on the islands, so that communication may be had with Cape Vincent, etc., in case of emergency. There have been numerous wrecks in this neighborhood, which is generally considered a dangrous spot in bad weather, and recently the crew of the coal barge Randall, which was wrecked in the vicinity, were on the island for eight days, without being able to communicate with any place for aid.

The U.S. lake built s.s. Chippewa, owned by Independent Steamship Co., Cleveland, Ohio, and which had been berthed for the winter at Quebec, was badly damaged by fire at the Louise dock, Dec. 2. She was built at Detroit, Mich., and launched in May, 1920. While on her way down the St. Lawrence River, she developed a cracked cylinder, and about the end of November put into Quebec for repairs. On account of being late in the season, it was decided to keep her there for the winter, and the crew was paid off, the officers remaining in charge of the ship.

J. F. Sowards, Kingston, Ont., has bought the s.s. Maplegrove from Canada Steamship Lines, as reported in a previous issue, and has had her name changed to Jeddah. She was originally named Cherokee, was built at Marine City in 1889, and underwent considerable repairs in 1913. She has an oak hull, and is of the well deck type, with diagonal strapping on the frames, steel arches, and with bow sheathed for operating in ice. Her dimensions are, length 208 ft., breadth 35¾ ft, depth 14 ft.; tonnage, 1,177 gross, 636 net. She is equipped with fore and aft compound engine, with cylinders 25 and 50 in. diar. by 40 in. stroke, 575 i.h.p. at 86 r.p.m., and supplied with steam by a firebox boiler 11 ft. 4 in. diar. by 16 ft. long at 124 lb.

British Columbia and Pacific Coast.

The Vancouver Harbor Commissioners' engineering department is reported to be preparing plans for a coal bunkering plant to be erected on the water front. The estimated cost, including machinery, is $20,000.

The C.P.R. has placed its s.s. Tees on the route between Vancouver and Swanson Bay, leaving Vancouver on Wednesdays, and Swanson Bay on Saturdays, making calls at Powell River, Campbell River, Beaver Cove, Alert Bay, Port Hardy and Occan Falls.

The C.P.R. winter schedule on the Alaska route went into effect Dec. 10, between Victoria, Seattle, Vancouver and Skagway, making two trips a month, with calls at Alert Bay, Prince Rupert, Ketchikan, Wrangel and Juneau at times subject to tidal and weather conditions.

The Grand Trunk Pacific Coast Steamship Co. has placed the s.s. Prince John on the route from Vancouver to Prince Rupert, Swanson Bay and Ocean Falls, until further notice. The call previously made at Beaver Cove has been eliminated and a call at Swanson Bay substituted.

The Japanese s.s. Oridono Maru loaded a cargo of herring at Barclay Sound, on the west coast of Vancouver Island, recently. This is said to be the first time that a deep sea ship has called at this port for 35 years, previous shipments of fish having been taken to Victoria and Vancouver for transfer to deep sea ships.

Work on the construction of the drydock at Burrard Inlet, Vancouver, for which J. Coughlan & Sons Ltd. has been granted a subsidy, full particulars of which were given in Canadian Railway and Marine World for December, has been commenced. The borings are said to be completed, and the excavation work in hand.

The Vancouver Board of Trade is considering the establishment of a shipping exchange, to be in direct touch at all times with Pacific Coast ports and shipping, to receive stock reports and shipping intelligence, and to keep local shipping interests acquainted with weather conditions along the coast, for the use of tug owners, coast shipping, etc.

The B. W. B. Navigation Co.'s s.s. Prosperative, which was salved recently by the Vancouver Dredging & Salvage Co., after having a large hole torn in her hull, and her rudder post carried away, has been taken to Wallace Shipbuilding & Drydock Co.'s plant, North Vancouver, where repairs will be made. She was owned formerly by Progressive Steamboat Co., Vancouver.

A questionnaire sent by the Vancouver Board of Trade to local shipping interests is reported to have resulted in a unanimous expression of opinion that Ripple Rock, Seymour Narrows, is a serious menace to navigation, and that its removal is urgently needed. The rock is about 300 yards long, with a least depth of two fathoms at the north end, and four fathoms at the south end. Dangerous swirls and overfalls are said to occur in its vicinity when the current is running strong, and it is considered a dangerous spot for ships navigating Seymour Narrows.

The New England Fish Co. is reported to have decided to operate the motor ship Warrington in fish service between Vancouver and Alaskan points. The Warrington was built at Dockton, Wash., in 1914, and was equipped as a steamship for operation in the passenger trade on Puget Sound. On the death of her owner, about three years ago, she was sold to the Union Steamship Co. of British Columbia, and was tied up at Vancouver. On the construction of the Union Steamship Co.'s s.s. Capilano last year, the Warrington's machinery was transferred to the new ship, and the wooden hull sold to Seattle, Wash., interests, and equipped with semi-Diesel engines.

The Union Steamship Co. of British Columbia has purchased the business hitherto carried on by the Terminal Steam Navigation Co., Vancouver, together with the property concerned. The Terminal Steam Navigation Co. owned the steamships Ballena and Rowena, but the former ship was practically destroyed by fire at Vancouver, Nov. 13, as mentioned in our last issue. These ships were operated to Howe Sound, making the terminus of the Pacific Great Eastern Ry. to connect with its trains, and also serving the copper mine at Britannia Beach, and the tourist resort at Bowen Island, owned by the company. This latter property consists of about 1,000 acres of farm lands, with farm buildings, hotel, summer camping sites, etc. The Union Steamship Co. intends to develop the property and to extend the transportation business by the addition of a steamship. In the meantime the s.s. Capilano is being run on the route.

The Nova Scotia Transportation Co.'s s.s. Le Quesnoy, against which the claim of the liquidator of the Dominion Shipbuilding & Repairing Co., Toronto, for $100,000, was sustained recently, is tied up in England. Osler Wade, F.C.A., as liquidator of the shipbuilding company, has been appointed receiver for 64 shares in the ship, against which there is a bond issue of $258,000, as well as liabilities of $132,000.

Esquimalt Drydock.—A press dispatch states that the Dominion Public Works Department has accepted the tender of P. Lyall & Sons Construction Co. Ltd., Montreal, for building a drydock at Skinner Cove, Esquimalt, B.C., a short distance from the present Government drydock there. The contract price is stated as approximately $4,300,000. Complete particulars of the work to be done by the contractor were given in Canadian Railway and Marine World for Oct. 1920, pg. 576.

Ships Added to and Deducted From the Canadian Register During September, 1920.

	Steam.			Sailing.		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross.	Registered.	No.	Gross.	Reg'red
Built in Canada	14	6,144	3,660	6	1,802	1,494
Purchased from foreigners	2	2,096	1,264	2	244	240
Registered anew	2	256	149	....	.....	.....
Other ships	....	.....	.....	1	105	95
Added on remeasurements	....	91	37	....	.....	.....
Totals	18	8,587	5,110	9	2,151	1,829
Deducted.						
Wrecked or otherwise lost	9	3,801	2,545	14	1,136	1,029
Broken up or unfit for use	28	1,718	1,078	64	3,381	3,304
Sold to foreigners	4	329	125	1	16	16
Transferred to British Possessions	1	137	9	1	188	157
Registered anew	2	285	151	....	.....	.....
Other ships	1	161	119	....	.....	.....
Totals	45	6,431	4,027	80	4,721	4,506

Toronto Harbor Contracts, Litigation, Etc.

Early in December a writ was issued by Lt.-Col. Boyd Magee, of Toronto, against the Canadian Stewart Co., claiming $95,000, under an alleged agreement, in connection with a contract awarded the company by the Toronto Harbor Commission, for dredging in Toronto harbor. In addition to this, an application was made to the Registrar in Bankruptcy, and an order issued appointing a receiver, to prevent, according to the claim, any possible transfer of assets to the parent company. An injunction was also obtained restraining the payment by the Harbor Commissioners to the company of some $60,000. The Canadian Stewart Co. on Dec. 3, applied to set aside the receivership order, and to dissolve the injunction, showing that it had approximately $1,250,000 of assets in Canada, and other contracts to carry through. The company claimed that the receivership order had been obtained without it having had any notice, and if such notice had been received, it was most probable that the order would not have been granted.

The plaintiff's claim is based on a letter from J. C. Stewart, Vice President, Canadian Stewart Co., agreeing that plaintiff be paid $100,000 for services in connection with the contract in question, in quarterly instalments, in proportion as payments are received from the Toronto Harbor Commission for work done. It also provided that plantiff be engaged as advisory engineer at $500 a month, for five years from the signing of the contract, unless the contract be terminated for any cause before that time. It was also agreed that should the contract require the contractor to do more than 31,000,000 cu. yd. of dredging and filling, the plaintiff be paid an additional 1c. a cu. yd., or if a better price could be obtained for such extra work, and it be not more expensive to carry out, he be paid all that could be obtained over 18¾c. a cu. yd.

A contract was awarded in Sept. 1913, the dredging to consist of the removal of approximately 20,000,000 cu. yd. of material, 70% of which was stated to be sand and gravel, and 30% sand, silt and clay, at 19¾c. a cu. yd. Two 24 in. hydraulic dredges and named Cyclone and Tornado respectively were then employed on the work. Owing to conditions brought about by the war, the work was not proceeded with as rapidly as was anticipated in 1912, and the Commissioners thought it advisable, in view of the situation, both financially and otherwise, to confine their efforts entirely to the reclamation of industrial and commercial properties. In 1918 one of the dredges, the Tornado, was taken off the work, under agreement with the Commission, and used at Norfolk, Va., in connection with U.S. Government war work. It is now owned by the St. John Shipbuilding & Dry Dock Co., and is being used on the Courtenay Bay development work at St. John, N.B.

The contract with the Canadian Stewart Co. was slightly amended in 1917-18, due to changes in regard to the work, and an additional 10,000,000 cu. yd. at 15c. a yd. was undertaken.

The material dredged by the contractors is approximately 18,000,000 cu. yd. The Commissioners have considerable other work in view, in addition to that contracted for, and on completion it will approximate 22,000,000 cu. yd. over and above the 18,000,000 already mentioned. Under the Stewart contract, it was intended to pump approximately 3,333,333 cu. yd. a year for six years, and when one of the dredges was taken off the work, about 11,000,000 cu. yd. had been pumped. The contractors, on the signing of the contract, made a cash deposit of 5%, based on the value of the contract, which deposit amounted to $197,000, half of which was returned to the contractors when one of the dredges was removed, over half of the work having been accomplished. On the acquisition of the dredge Cyclone and the taking over of the balance of the contract by the Commissioners, at the commencement of December, the balance of the deposit was returned, together with the bond for the fulfilment of the contract.

The dredge Cyclone, as has already been mentioned, has been loaned to the Hydro Electric Power Commission of Ontario for work in connection with the Chippewa power development scheme, and it was set up in Chippewa Creek, where dredging operations were expected to commence during December. The dredge is to be returned to Toronto by Sept. 15 next.

The Canadian Stewart Co. had another contract for work in Toronto harbor, which was awarded by the Public Works Department in Sept. 1913, covering work on the eastern and western breakwaters, the ship channel, marginal way, etc., the total being stated as about $5,400,000. This was cancelled after a certain amount of work had been done, there being a dispute as to the quality of part of it, and a new contract was let to Roger Miller & Sons.

Conversion of C.P.R. British Columbia Coast Steamships to Burn Coal.

As stated in Canadian Railway and Marine World for Dec. 1920, the C.P.R. has decided to convert its British Columbia Coast Steamships to use coal for fuel instead of oil. The following circular was issued Nov. 19 by J. W. Troup, Manager, B.C. Coast Service; H. W. Brodie, General Passenger Agent, B.C. District, and J. G. McNab, Division Freight Agent, B.C. Coast Service:—"Owing to the existing shortage of fuel oil we are unable to obtain further supply and it is necessary to at once reconvert the oil burning steamships of the fleet to coal burners. We regret to announce that in order to carry out this work, service by s.s. Charmer on the Nanaimo-Union-Comox and Vancouver-Powell River-Union Bay routes will have to be temporarily discontinued following trip leaving Vancouver Nov. 24 and Union Bay and Powell River on Nov. 25. Service to Prince Rupert is also to be discontinued effective with trip of s.s. Princess Beatrice sailing from Vancouver on Nov. 17 and from Prince Rupert on Nov. 20. Effective with sailing from Vancouver Dec. 1, s.s. Tees will be operated between Vancouver and Swanson Bay, making same intermediate ports of call now made by Princess Beatrice. The company greatly regrets any inconvenience which these cancellations and changes in service may cause shippers and the travelling public generally, but the situation is one which is altogether beyond the company's control. Every effort will be made to complete necessary alterations so as to resume service at the earliest possible date."

Mainly About Marine People.

Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and of the Naval Service, and Mrs. Ballantyne, went to Halifax, N.S., in December, to welcome the naval ships given to Canada by Great Britain and also to be present at the launching of the s.s. Canadian Explorer by Halifax Shipyards Ltd.

M. P. Fennell, Jr., Secretary, Montreal Harbor Commissioners, is reported to have left for Europe to look into cold storage facilities, expecting to return at the end of February.

John Galt, at one time with the Union Steamship Co. of British Columbia, and until recently owner of the s.s. Trader, is reported to have been appointed Agent at Vancouver, B.C., of Struthers & Dixon Inc., Seattle Wash., managing the U.S. Shipping Board's Oriental steamships service.

E. G. Hamel, Assistant Secretary, Quebec Harbor Commission, was found dead in his office, Dec. 11, as the result of a revolver wound, believed to have been self inflicted. It was stated that he had been worried over domestic troubles.

Ralph T. Holcomb, of Hall & Holcomb, coal merchants, etc., Ottawa, died there suddenly, Dec. 1, aged 51, of apoplexy. He was also a director and Secretary-Treasurer of Empress Navigation Co. Major Graham A. Bell, C.M.G., Deputy Minister of Railways and Canals, was one of the pall bearers at the funeral. Mr. Holcomb's partner, J. H. Hall, died about two months before.

Capt. Hugh S. Kane, formerly master of Head Line s.s. Melmore Head, has been appointed Marine Superintendent, for McLean Kennedy Ltd., steamship agents, Montreal. He will attend to the Head Line services to Belfast, Dublin and the European continent, the Houston Line services to South America, India and the Far East, and any outside tonnage that may be consigned to McLean Kennedy Ltd. as agents. During the winter his headquarters are at St. John, N.B., and in the summer he will be at Montreal.

Lt. Col. G. H. Kirkpatrick, who has been elected President, Pacific Port Association, was born at Kingston, Ont., Nov. 5, 1875, and was educated at Upper Canada College, Toronto, Royal Military College Kingston, and Queen's Uuiversity, Kingston. He practised as a mining engineer in British Columbia and Africa, operating for some years in British Somaliland, in developing natural resources for a British company. He took part in the South African war and in the recent great war, and on returning from France in 1919 was appointed President, Vancouver Harbor Commissioners.

W. L. MacKenzie, heretofore Chief Draftsman, engine department, Dominion Shipbuilding & Repair Co., Toronto, has been appointed, under the Marine and Fisheries Department, as Steamship Inspector (General) at Collingwood, Ont., to act in the dual capacity of Inspector of Boilers and Machinery, and Inspector of Hulls and Equipment.

R. Wilson Reford, President, Robt. Reford Co., and Mrs. Reford gave a large reception in Montreal recently for Prime Minister Meighen and Mrs. Meighen.

R. M. Wolvin and Mrs. Wolvin left Montreal about the middle of December, and sailed from New York for England.

Salvaging the s.s. Prince Rupert at Swanson Bay, B.C.

C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., wrote Canadian Railway and Marine World from Swanson Bay, B.C., Dec. 11, as follows: "I reached here yesterday morning for a further inspection of the work and to be present during the process of floating the ship, which is expected to be commenced in the course of two or three days from now. The work of preparing the ship for the actual pumping operations has been going along without interruption or retarding accident since it was commenced. The construction of the cofferdam has been a very tedious and slow job, as it was all under the water. Six of the most expert divers on the Pacific coast have been constantly engaged in the work, under the supervision of the most experienced and skilful wreckers in this part of the world. The raising of the Prince Rupert must be classed, if successfully accomplished, which we have no doubt it will be, as a most difficult salvage operation. The cofferdam is built on the ship, not around it; in other words, the sides of the ship are built up to such an extent as to place them above the water level at low tide. Owing to the slope of the bottom on which he ship rests, a height of 56 ft. above the shade deck line is necessary at the stern, which tapers away to practically nothing forward. The uprights of this cofferdam are 8 x 10's of the necessary lengths, some 68 and 70 ft. long. These are bolted to the ship's side and planked up on the outside with 2 x 12's, all cracks and crevices being covered over with heavy canvas. To sustain the tremendous pressure which it will be subjected to, some heavy cross and sway braces have been fitted, measuring 12 x 12 and of a length to carry from one side to the other of the cofferdam at frequent intervals to give it the necessary strength.

"The damage to the ship's bottom, which caused the disaster in the first place, was stopped up temporarily as soon as possible. All apertures which would let water in have been closely stopped and planked off, and thwartship bulkheads have been placed in the interior of the ship so that the flow of water can be controlled at will. Fortunately, a careful survey of the bottom, inside where the ship is now lying, reveals a shelf nearly level with not more than 40 ft. of water at high tide. The plan will be, when pumping operations are commenced and the ship leaves the bottom, before taking too much water out of her, to swing her over to this shelf, letting her ground again, which will leave a considerable portion of the cofferdam out of the water, the object being to allow as much as possible of the cofferdam to be cut away, thereby relieving the ship of this tremendous top weight, which would materially affect her stability if she were floated too rapidly, the weight of this superstructure being about 150 tons.

"Very powerful pumps have been located at various parts of the ship and so arranged so that the deeper set ones can be called into use as soon as the water recedes and they are accessible. The four pumps which will do the preliminary work have a discharging capacity of 2,400 tons an hour. Steam will be supplied by the wrecking steamship Algerine, which will be attached alongside. All the difficulties likely to be encountered, as far as can be foreseen, have been carefully considered and the plans for this operation have been very deliberately prepared after a great deal of thought and study of the conditions attending the case. It is expected that the work will be so far completed that pumping operations can be commenced Sunday or Monday night (Dec. 12 or 13) at the latest, as the night tides serve better than those in daylight. Having once definitely got control of the ship, the rest, of course, will be easy. She will be drained dry, floated off the ledge previously spoken of and taken to Prince Rupert, where her cargo, which is still aboard, will be discharged; she will be put on the dock for preliminary survey, a report of the damage made; specifications for repairs drawn up, tenders called for, and a contract awarded. No further estimate of the cost of repairs has been made other than the original one, more can be told when the tenders are received."

While the divers were working below the water, two of them came across the box at the foot of the flag staff, and decided to rais the flag to the mast head, while they were about 100 ft. below the surface.

A press report from Victoria, Dec. 15, stated that the ship had been refloated that day, and later proceeded under her own steam to Prince Rupert.

Winter Moorings of Canadian Steamships.

Following is a list of Canadian steamships, and the ports at which they have been berthed for the winter, of which Canadian Railway and Marine World has been advised:—

Canada Atlantic Transit Co., Montreal. Arthur Orr, Kearsarge, Chicago, Ill.

Canada Steamship Lines Ltd., Montreal. A. E. McKinstry, Glenellah, Glenmount, Collingwood, Ont.; Advance, Alert, Brighton, Brookdale, Cataract, City of Hamilton, City of Ottawa, Escort, George T. Davie, Hamilton, Hilda, Island Reed, J. R. Edwards, Jeremiah Godfrey, Joyland, McNaughton, Mapleboro, Maplegrange, Maplehurst, Melvin Bacon, Minnie E. Orton, Nadine, Simla, Windsor, Dalhousie, Ont.; Collingwood, Martian, Midland King, Valcartier, Goderich, Ont.; Oatland, Hamilton, Ont.; Atikokan, Thunder Bay, Halifax, N.S.; Arabian, Beaverton, Belleville, Cobourg, D. G. Thomson, Edmonton, H. F. Bronson, India, McVittie, Mamie, Mapleglen, Maplegorge, Maplegreen, Mapleheath, Maplehill, Mapleton, Mary P. Hall, Montreal, R. G. A. Weaver, Rickarton, Vinmount, Kingston, Ont.; E. B. Osler, Emperor, J. H. G. Hagarty, Kenora, Midland Prince, W. D. Matthews, W. Grant Morden, Westmount, Midland, Ont.; Maplebranch, Maplebrook, Winona, Sarnia, Ont.; Sir Trevor Dawson, Stadacona, Buffalo, N.Y.; Sarnian, Cleveland, Ohio.

Canadian Pacific Car & Passenger Transfer Co., Prescott, Ont.—Charles Lyon, Prescott, Ont.

Canadian Pacific Ry., British Columbia Lake and River Service.—Kootenay Lake—Kokanee, Nasookin, and Ymir, Nelson, B.C.; Hosmer, Mayie and Valhalla, Procter, B.C.; Kuskanook, Kaslo, B.C.; Slocan Lake—Sandon and Slocan, Slocan, B.C.; Arrow Lakes—Bonnington, Nakusp, B.C.; Columbia, West Robson, B.C.; Minto, Arrowhead, B.C.; Okanagan Lake—Castlegar, Kelowna, Naramata, and Okanagan, Okanagan Landing, B.C.; Sicamous, Penticton, B.C.

Canadian Pacific Ry., Great Lakes Steamship Service.—Alberta, Assiniboia, Athabasca, Keewatin and Manitoba, Port McNicoll, Ont.

Crystal Stream Steamship Co., St. John, N.B.—D. J. Purdy and Majestic, Indiantown, St. John, N.B.

Huntsville, Lake of Bays & Lake Simcoe Navigation Co., Huntsville, Ont.—Algonquin, Ramona, and Phoenix, Huntsville, Ont.; Iroquois and Mohawk Belle, Portage, Ont.

Imperial Oil Ltd., Toronto—Glen Allan, Halifax, N.S.; Imperial, Iocolite, Iocoma, and barge 41, Sarnia, Ont.

Lake Erie Navigation Co., Walkerville, Ont.—Marquette and Bessemer No. 1, Conneaut Harbor, Ohio.

Marquette & Bessemer Dock & Navigation Co., Walkerville, Ont.—Marquette and Bessemer No. 2, Conneaut Harbor, Ohio. Will be operated as long as ice conditions will permitt.

Newcastle Steamboat Co., Newcastle, N.B.—Max Aitken, Chatham, N.B.

North Bay & French River Navigation Co., North Bay, Ont.—Northern Belle, North Bay, Ont.

Ottawa Transportation Co., Ottawa, Ont.—Dolphin, Florence, Hall, Harris, Ottawan, Scotsman, and Sir Hector, Hull, Que.

Pembroke Transportation Co., Pembroke, Ont.—Oiseau, Pembroke, Ont.

Prescott & Ogdensburg Ferry Co., Prescott, Ont.—Ferdinand, and Miss Vanderberg, Prescott. Ont.

J. F. Soward, Kingston, Ont.—Jeddah, Jeska, Jex, and Shanly, Kingston, Ont.

Sparrow Lake Steamer Line, Sparrow Lake, Ont.—Glympse, Port Stanton, Ont.

Toronto, Hamilton & Buffalo Navigation Co., Hamilton, Ont.—Maitland No. 1, Ashtabula, Ohio.

Webster Steamship Co., Montreal.—Colin W., Eric W., and Richard W., Bickerdike Pier, Montreal; Howard W., and Stuart W., Inner Louise Basin, Quebec, Que.

Grain Shipped from Fort William and Port Arthur.

The following table, prepared by the Dominion Bureau of Statistics, Internal Trade Division, shows the bushels of each kind of grain of the 1920 crop, shipped from Fort William and Port Arthur, Ont., from Sept. 1 to the close of lake navigation, 1920:—

	Wheat. Bus.	Bus. Oats.	Bus. Barley.	Bus. Flax.	Bus. Rye.
Canadian ships,235 cargoes	39,488,442-20	6,413,781-10	2,967,081-08	624,407-34	583,191-26
U.S. ships, 214 cargoes	46,039,943-20	705,284-00	631,514-31	729,375-12	831,177-27
Total, 449 cargoes	85,528,385-40	7,119,065-10	3,598,595-39	1,353,782-46	1,414,368-53
To Canadian ports	28,202,480-40	6,413,781-10	2,967,081-08	533,486-30	482,502-10
To U.S. ports	57,325,905-00	705,284-00	631,514-31	820,296-16	931,866-43
Total . .	85,528,385-40	7,119,065-10	3,598,595-39	1,353,782-46	1,141,368-53
Same period 1919	52,902,883-50	9,145,176-01	3,676,987-45	319,170-34	500,327-30
Same period 1918	50,571,281-30	.....	373,202-31	546,140-45	106,474-54
Same period 1917	87,006,092-10	7,551,598-28	2,227,778-43	1,841,375-21	63,585-14

In addition to the above, 6,033,005 lbs. of sample mixed grain, and 67,200 tons of elevator screenings were shipped.

United States Shipping and Shipbuilding Notes.

The Superintendent of the U.S. Naval Observatory is reported to have stated that many repairs to navigation compasses were made necessary during the past year, owing to the instruments being broken open for the alcohol they contained.

The U.S. Lighthouse Service report for year ended June 30, 1920, states that the number of aids to navigation, including lighthouses, lightships, buoys and beacons, maintained by the Service, was 16,324, there having been increases of 256 during the year.

The U.S. Commissioner of Navigation's report for the year ended June 30, 1920, states that the total U.S. registered, enrolled, and licensed tonnage on that date was 16,324,024 gross tons, three times the tonnage in 1914 of Germany, whose former place as second maritime power the U.S. now holds.

The U.S. Bureau of Navigation has issued a summary of reports of shipyards, showing that on Nov. 1, 1920, private U.S. shipyards were building or under contract to build for private shipowners 334 steel ships of 1,206,486 gross tons, compared with 330 ships of 1,236,327 gross tons on Oct. 1, 1920.

A course in naval architecture has been inaugurated at Lehigh University along lines widely different from other university courses. The main feature which differentiates this course from others offered elsewhere is said to be the introduction of a substantial amount of economics and business administration subjects.

The U.S. Steamboat Inspection Service report for the year ended June 30, 1920, states that the force inspected and certificated 8,051 ships with a total gross tonnage of 15,621,399, of which 7,736 were domestic ships with total gross tonnage of 12,741,807, and 315 were foreign passenger steamships with total gross tonnage of 2,879,592.

The U.S. Commerce Department announces that ships built in the U.S. and officially numbered by Bureau of Navigation during Nov. 1920 aggregated 119, of 213,966 gross tons. During 12 months ended Nov. 30, 1920, the output of ships in the U.S. was 1,845, of 2,977,886 gross tons, compared with 2,367 of 4,247,436 gross tons during 12 months ended Nov. 30, 1919.

The U.S. National Merchant Marine Association announces that changes in present policy of ship operation may be considered by the U.S. Shipping Board in the near future. Admiral Benson has stated that the present allocation system, under which the Board bears operating expenses and pays a fixed commission for handling ships, cannot be continued indefinitely, especially with constant losses. As a substitute, the Board will take up a bare boat charter plan, under which it will seek to place its ships with charterers who will pay a reasonable sum per month, assume operating expenses and retain whatever profits they make.

Admiral Benson, Chairman, U.S. Shipping Board, made public a message to all seafarers of the merchant marine, in which he draws attention to the reduction in ocean freight movement and makes an appeal for a spirit of co-operation under present conditions, so that foreign competition may be successfully met. He urges masters and chief engineers, port captains and port engineers "to take the utmost interest in the operation and proper repair of the vessels in their charge," to keep their ships in seaworthy condition, to effect quick turnaround, to reduce the cost of repairs, and avoid overtime. He reminds them that without such increase in efficiency an increasing number of ships must be tied up.

The U.S. $200,000,000 wooden ship programme seems to be in danger of complete collapse. The U.S. Shipping Board attempted recently to dispose of 310 of these ships, but only four bids, totalling $116,500 were received for ships which had cost more than $2,000,000. There are now nearly 400 wooden and composite ships on the U.S. Government's hands. Many of them have never been to sea, while others are laid up as practically unserviceable. There is so little prospect of a sale being effected in connection with 50 empty hulls which are tied up in one harbor that the Government has not troubled to invite bids, and it is even mooted that the ships may have to be broken up in order to save the accumulation of harbor charges. From a commercial point of view these wooden ships in the main have never "made good," and in view of the large number of steel ships that have been launched since the cessation of hostilities there is little, if any, likelihood now that the wooden ships will prove to be a desirable acquisition.

One of the 7,500 ton reinforced concrete tankers built for the United States Shipping Board has been sold and several of the smaller ships have been under lease and the larger ones are for sale. The ship sold is the Latham, which was built at Mobile and it has been bought by the American Fuel Oil Transportation Co. for $700,000. Of the other ships built, the Polias was wrecked last winter off Penobscot Bay in Maine, and a contract has been entered into with Aeronautical Equipment, Inc., of New York, City, on a "No cure, no pay" basis to salvage the ship. It is reported that the salvage operations are proceeding successfully. The Selma, a 7,500 ton ship, built at Mobile, ran on the breakwater at Tampico early last summer. It has been dragged off and towed up to Galveston for repairs, which are under way. The Cape Fear was sunk on Oct. 29, 1920, in Narragansett Bay. By the original contract for concrete ships by the Shipping Board there have been completed six 7,500 ton ships, three 3,500 ton ships, and two 3,000 ton ships. Contracts for three of the original nine 7,500 ton ships were cancelled and the ships left half completed on the ways.

Detroit River Construction Co. Ltd. has been incorporated under the Ontario Companies Act, with $40,000 authorized capital, and office at Windsor, Ont., to build docks, wharves, dockyards, bridges, etc., to carry on a general towing and wrecking business, and to own and operate ships. The provisional directors are: G. D. Wickett, A. St. Pierre and W. D. Roach, Windsor, Ont.

The Merchant Shipping Bill introduced in the British House of Commons recently by Mr. Sexton, M.P., proposes to introduce a light load line; to introduce in the sea service a compulsory 8-hours service; to amend the Merchant Shipping Acts in what it describes as "several important particulars," as well as by "minor amendments."

The 1920 St. Lawrence Navigation Season.

The Montreal Harbor Commissioners' statistics for the St. Lawrence navigation season of 1920 show that 638 trans-Atlantic steamships entered the port, against 702 in 1919, the tonnage for 1920 being 2,020,519, against 2,041,638 for 1919. Included in the total for 1919 were 229 ships built on the Great Lakes for the U.S. Shipping Board, and which, while taking cargoes from the lakes, were merely passing to the ocean. During 1920 there were only 120 of these ships which called at Montreal. If these are deducted in each year, the figures are: 1920, 518 ships, 1,796,664 tons; 1919, 473 ships, 1,657,083 tons. Of the 1920 tonnage entering the port, 460 ships, 1,581,499 tons were British; 120 ships, 223,855 tons were U.S., the remainder being made up of Italian, French, Norwegian, Greek and South American ships.

River and Gulf communication between Montreal and the Maritime Provinces included 25 ships of 11,210 tons, the drop in number and tonnage as compared with previous years being occasioned chefly by the absence of coal ships, which were engaged on war service, and were not relinquished to complete their charters until well on into the year.

Inland navigation to Montreal showed 4.403 ships of 4,287,714 tons, compared with 7,499 ships and 4,357,734 tons for 1919.

The first ocean steamship to arrive by the St. Lawrence in 1920 was on Apr. 25, and the last ship to leave the port was on Dec. 11.

British Empire Steel Corporation and the Shipbuilding Companies.

Montreal press dispatch, Dec. 9:—In connection with the British Empire Steel Corporation it is considered probable on the local street that there will be a material modification of the original plans of the promoters. According to present arrangements, the British Empire Steel Corporation will be comprised of the Dominion Steel Corporation, Nova Scotia Steel & Coal Co., Halifax Shipyards Ltd. and Acadia Coal Mining Co., the control of which is held by Scotia. This will leave out Collingwood Shipbuilding Co. and subsidiaries, Port Arthur Shipbuilding Co., Davie Shipbuilding & Repairing Co., Maritime Nail Co., Canada Foundries & Forgings and subsidiaries, Century Coal Co., Canada Steamship Lines and subsidiaries. While it is believed Canada Steamship Lines will not be included in the merger, it is understood it will form a close working arrangement with the corporation, and do the bulk of its Maritime shipping. No definite confirmation of the new developments can be secured, but the information is regarded as reliable.

Editor's Note.—Canadian Railway and Marine World stated some little time ago that Port Arthur Shipbuilding Co. was not being included in the merger.

Investigations into Shipping Casualties.—A Montreal press dispatch of Dec. 14 says it is stated in shipping circles there that the Marine Department has decided to hold no further enquiries into mishaps to shipping while in Canadian waters, unless asked for by the owners of the ships involved or by the ships' agents. We are officially advised that the report is incorrect.

Great Lakes Levels.

The U.S. Lake Survey reports stages of the Great Lakes in feet above mean sea level for Nov. 1920, as follows:—Superior, 602.48; Michigan and Huron, 580.30; St. Clair, 574.87; Erie, 571.95; Ontario, 245.23.

Lake Superior was 0.20 ft. lower than October, 0.03 ft. higher than a year ago, 0.04 ft. below the average November stage of the last 10 years, 1.03 ft. below the high stage of Nov. 1900, and 0.98 ft. above the low stage of Nov. 1879.

Lakes Michigan and Huron were 0.25 ft. lower than October, 0.12 ft. lower than a year ago, 0.02 ft. above the average November stage of the last 10 years, 2.62 ft. below the high stage of Nov. 1876, and 1.12 ft. above the low stage of Nov. 1895. During the last 10 years the November level has averaged 0.2 ft. lower than the October level, and 0.2 ft. higher than the December level.

Lake Erie was 0.10 ft. lower than October, 0.27 ft. lower than a year ago, 0.08 ft. above the average November stage of the last 10 years, 1.72 ft. below the high stage of Nov. 1861, and 1.25 ft. above the low stage of Nov. 1895. During the last 10 years the November level has averaged 0.3 ft. lower than the October level, and 0.1 ft. higher than the December level.

Lake Ontario was 0.06 ft. lower than October, 0.88 ft. lower than a year ago, 0.41 ft. lower than the average November stage of the last 10 years, 2.59 ft. below the high stage of November 1861, and 1.82 ft. above the low stage of Nov. 1895. During the last 10 years the November level has averaged 0.2 ft. lower than the October level, and 0.2 ft. higher than the December level.

Steel Plate Prices.—Ottawa press dispatch, Dec. 17.—Negotiations are in progress for a reduction in the contract price with the Dominion Iron & Steel Co. for steel plates supplied the Dominion Government from the Sydney, N.S., plant. The contract calls for 50,000 tons a year. The present price is around $3.65 per 100 lb., which is a reduction from the original. A further cut is proposed in view of the much lower rate prevailing in the market. Negotiations to this end are about concluded between the Marine Department and the company.

Clyde shipbuilding had a set-back in October compared with the three immediately preceding months. In fact, with the exception of March, the tonnage was the lowest recorded in any month of last year. In all, 13 ships, aggregating 27,586 tons, were launched, bringing the aggregate for the 10 months of the year up to 1,000,000 tons.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentionel:—

Jan. 25 to 27.—American Wood Preservers' Association, San Francisco, Cal.; F. J. Angier, Baltimore & Ohio Rd., Baltimore, Md.

Jan. 27, 28.—National Association of Railroad Tie Producers, San Francisco, Cal.; E. E. Pershall, 720 Security Bldg., St. Louis, Mo.

Jan. 31, Feb. 1.—Canadian Electric Railway Association, Ottawa, Ont. A. Eastman, 70 Bond St., Toronto.

Mar. 15 to 17.—American Railway Association, Division 4, Engineering, Chicago, Ill.; E. H. Fritch, 431 South Dearborn St., Chicago, Ill.

May 11.—Railway Accounting Officers' Association, Atlantic City, N.J.; E. R. Woodson, 1,116 Woodward Bldg., Washington, D.C.

May.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

June 15 to 22.—American Railway Association, Division 5, Mechanical, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 20.—American Association of Freight Agents; R. O. Wells, Illinois Central Rd., Chicago, Ill.

June 20.—American Train Dispatchers' Association, Kansas City, Mo.; C. L. Darling, Northern Pacific Ry., Spokane, Wash.

Aug. 24 to 26.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, Kansas City, Mo.

Sept. 20 to 22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill; P. J. McAndrews, Chicago & North Western Ry., Sterling Ill.

Painters' Association, Buffalo, N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Crain's Market Data Book and Directory of Class, Trade and Technical Papers, about to be issued, will, the publisher states, list all business publications in the United States and Canada, giving circulations, rates, type page sizes, closing dates, etc., and a market analysis of each trade, profession and industry. The volume, bound in cloth and containing nearly 500 pages, is published by G. D. Crain, Jr., 417 South Dearborn St., Chicago; price $5. Orders in advance of publication are being accepted at $3.75.

Locomotive Superheater Co., New York, advises that the Coast Steamship Co.'s s.s. Cuba has been equipped with its fire tube superheaters, giving 200 degrees of superheat at the throttle. The Cuba was formerly the Powhatan, built in 1899, and sunk in a collision a few years ago off Hampton Roads, being submerged for nearly a year. She is a steel freight and passenger ship, operating between Jacksonville, Fla., and Havana, Cuba, her net tonnage being 6,420. She is equipped with 3,000 shaft h.p. General Electric turbo electric drive.

Locomotive Superheater Co., New York, N.Y., writes:—"The splendid performance of Ellerman & Bucknall's s.s. Kandahar, which has been operating since 1913, has attracted considerable attention recently. This ship is of 10,750 d.w. tonnage, equipped with triple expansion engines, h.p. 25½ in., m.p. 43½ in., l.p. 76 in., stroke 51 in., developing 3,200 i.h.p. at a speed of 12 knots. She is fitted with three single end Scotch boilers with forced draft, and with fire tube superheaters delivering 200° at the main engine throttle. She burns about 42½ tons of coal per 24 hours, or about 1.24 lb. per i.h.p. hour for all purposes."

Metal & Thermit Corporation, New York, N.Y., has opened a branch office at 141 Milk Street, Boston. Enquiries addressed there will have the attention of the New England District Manager, R. L. Browne. Orders, however, should continue to be addressed to the general office at 120 Broadway, New York.

O. E. Falls, who has had many years of experience in charge of foundry and Thermit welding work at Norfolk Navy Yard, Portsmouth, Va., has entered the Metal & Thermit Corporation's service. He obtained his earlier foundry experience from positions held at the Norfolk & Western Ry. shops, Roanoke, Va.; Richmond Locomotive Works, Richmond, Va., Pennsylvania Engineering Works, Newcastle, Pa.; Franklin Air Compressor Works, Franklin, Pa., and Seaboard Air Line Ry. shops, Portsmouth, Va.

Metal & Thermit Corporation has issued a small Thermit Railway Instruction Book, No. 41, prepared for use by men actually performing Thermit welding railway repairs. It has also issued the following:—Thermit Welding Pamphlet 17, for mill and foundry repairs. 3rd edition; Thermit Carbonfree Metals and Alloy, pamphlet 20, 4th edition; and Thermit Rail Welding pamphlet 39, revised edition.

Taylor & Arnold Engineering Co. Ltd. A. M. Tirbutt, who was the company's Vice President, at Winnipeg, for the last seven years, and who is Vice President of the Manitoba Steel Foundries Ltd., has removed to Montreal, on his appointment as Vice President and General Manager, Taylor & Arnold Engineering Co. Godwin Shenton, formerly Vice President and Managing Director, has resigned to go into other business.

Whiting Foundry Equipment Co., Harvey, Ill., advises that its consolidation with the American Foundry Equipment Co., New York,. N.Y., announced recently, has not been consummated, and that the two companies will continue separately as heretofore.

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Montreal, P.Q.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins. Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association — A. Eastman, 70 Bond Street, Toronto.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each montb, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keitb, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Offices, Montreal.

Hydro-Electric Railway Association of Ontario —T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committtee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

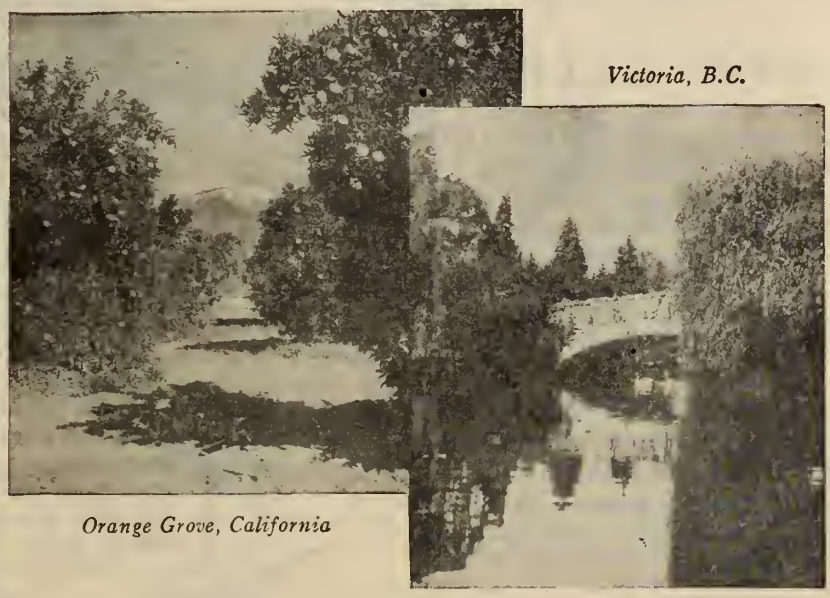
Transportation Club of Vancouver.—C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Holland-American Line, Pacific Coast Service.—G. E. Shortt, Canadian Government Trade Commissioner in Rotterdam, Holland, writes: — The Holland-American Line is operating a six-weekly direct service from Hamburg, Amsterdam, Rotterdam and London to San Francisco, Vancouver, Seattle and Portland via the Panama Canal. The first sailing on this service was made in July 1920, and ships are now leaving this port at intervals of from four to six weeks. It is the company's intention to make this a three-weekly service as soon as the other ships are available. This should prove a big stimulant to the trade between Canada and this country, although, according to the Holland-American Line, Canadian exporters have as yet failed to avail themselves of the opportunity.

Canadian National Railways

The Pacific Coast —Winter's Appeal

British Columbia, Washington, California



Victoria, B.C.

Orange Grove, California

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From MONTREAL (Bonaventure Station)
The "Continental Limited"
Leaves 5.00 p.m. Daily.

From TORONTO (Union Station)
The "National"
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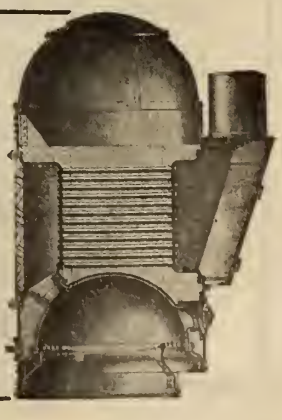
Fleming & Ferguson, Ltd., Dredgers
Cochran Boilers.

December list of Old Country Marine Engines, Boilers and Tugs for sale. Particulars on application.



The illustration shows The Cochran Donkey Boiler, Coal or Oil Fired.

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Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

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Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

FOR SALE

Locomotive, Standard type, 4 wheeler, considered in first class condition, weight 50 tons, tender 15 tons. Price, $3,500.00, Limoilou Shops, Quebec. Reply V. T. Bartram, Railway Contractor, Bank of Toronto Bldg., Toronto.

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Modern Marine Machinery
Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.
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CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

For Sale

Used Engine and Generator Sets, in excellent condition—1—400 k.w. alternating current Generator (Canadian General Electric Co's make), 3 phase, 60 cycle, 600 volts, directly connected to one (1) 22" and 38" x 24" Robb Armstrong Cross Compound Corliss Engine at 150 r.p.m. 1—200 k.w. direct current (Canadian Westinghouse), 220 volt, compound wound, 380 r.p.m., directly connected to a Bellis & Morcom vertical 2 crank compound self-lubricating engine. Yeates Machinery & Supply Co., Ltd., Montreal, Que.

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No. 30 Church St., New York
Largest Dealers in
USED AND NEW TANKS
Send for our new tank list. MOST COMPLETE EVER ISSUED.

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We have decided to dispose of the Portable and Stationary Fare Box Department of our business, to devote our undivided attention to a largely increasing business in our other lines.

This is an excellent opportunity for a manufacturer selling to electric railways to secure profitable business at bargain price.

We would also be glad to hear from electric railways using the Coleman fare boxes which might be interested in purchasing either the portable or stationary box business or dies or spare parts.

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THE WOOLERY
CHAMPION COLD WEATHER ENGINE
FOR RAILWAY MOTOR CARS

Runs in 60 Below Zero Weather

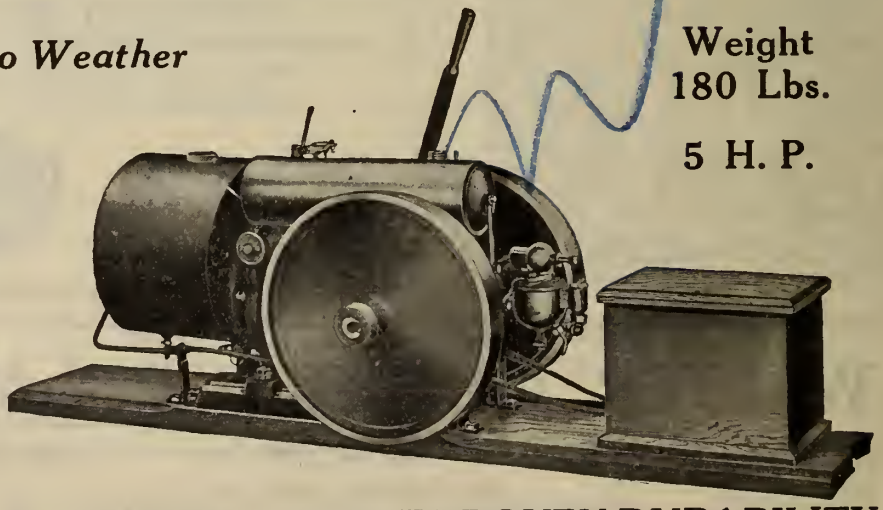
Weight 180 Lbs.

5 H. P.

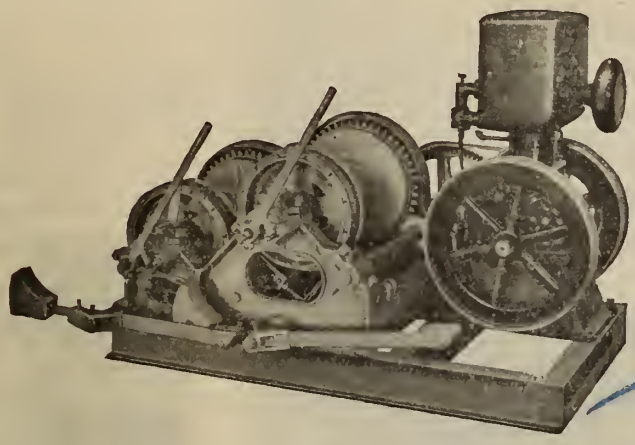
5 and 7½ H.P. Single Cylinder
PATENTED,
SELF-ADJUSTING
SLIDING BASE.

FROST PROOF
STEEL WATER JACKET.

10 and 15 H.P. Twin Cylinder with Belt and Roller Chain Transmission.



REVERSIBLE LIGHT WEIGHT ENGINES OF PROVEN DURABILITY
Guaranteed 4 Years
Canadian Agency—Dominion Equipment & Supply Co., Winnipeg, Man.
WOOLERY MACHINE CO., Minneapolis, Minn., U.S.A.



Get Your Repairing Done Now
While there is plenty of time

We repair or renew Hoists, Small Cars, Buckets, Boilers, Derrick Irons, Pile Drivers, Dredges, and other Machinery.

Have all your Plant overhauled and put in good shape through the winter months. It will cost you less, and be better done.

RAIL LAYING CARS

Specially made for the quick laying of rails. A labor-saving tool that soon pays for itself. Strongly made to withstand hard usage.

We make many other types of cars of interest to Railway Builders.

Let us tender on your next order.

If you will need new equipment it will pay you to get our prices now, as everything may be higher in the Spring. Moreover, goods ordered early will be delivered early—that is, you will have them when you want to use them, and no vexatious delays.

MARSH ENGINEERING WORKS, LIMITED Established 1846 **Belleville, Ontario**

General Sales Agents: MUSSENS LIMITED, Montreal, Toronto, Winnipeg and Vancouver.

WHAT'S in a "Van Dorn" GEARING GEAR

In other words, what do you get when you buy "VAN DORN".

Not merely a piece of machined iron, or steel. When you buy "VAN DORN" gearing you get MAXIMUM GEAR SERVICE

which means

OPERATING EFFICIENCY, as well as DURABILITY.

THE C. E. A. CARR COMPANY

56 Imperial Bank Building, Yonge and Queen Streets, Toronto

CANADIAN VICKERS LIMITED

SHIPBUILDERS, ENGINEERS, BOILERMAKERS and REPAIRERS

MONTREAL, Canada

25,000-TON FLOATING DOCK, 600 FEET LONG

Operated in One or Two Sections.

Fitting Out Basin with Wharf 1,000 Feet Long. Deep Water Berth.

Complete Equipment of Air, Electric and Hydraulic Tools. Electric and Acetylene Welding.

Makers under license BEST BRITISH DESIGNS:—

WINCHES — WINDLASSES — ASH HOISTS — STEERING GEARS — TELEMOTORS

Immediate Deliveries from Stock.

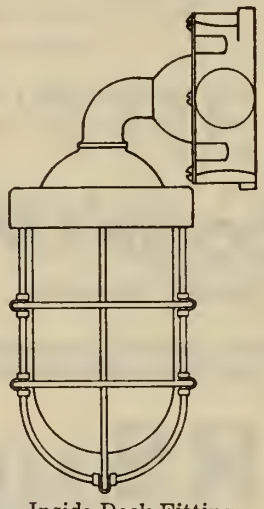
Cables: VICKERS, MONTREAL

"CANADIAN SETTLER"

5,100 Tons D.W.

Built for the Department of Marine by
TIDEWATER SHIPBUILDERS, LIMITED
Three Rivers, Que.

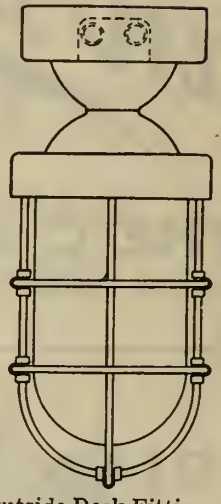
Two Conductor Wire Braided Lead Covered Marine Cable



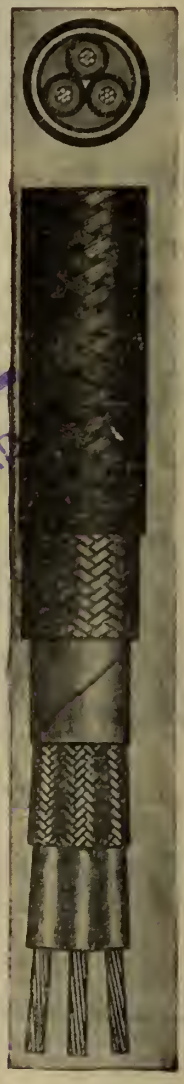
Inside Deck Fitting

A Steel Cargo Vessel

Above is one of the larger type of steel cargo vessels built for the Canadian Government. She is wired throughout with steel wire braided and lead covered cables, approved by Department of Marine and manufactured by



Outside Deck Fitting



Three Conductor Wire Braided Lead Covered Marine Cable

Northern Electric Company LIMITED

MONTREAL
HALIFAX
QUEBEC

HAMILTON
OTTAWA
TORONTO

LONDON

WINDSOR
WINNIPEG
REGINA

CALGARY
EDMONTON
VANCOUVER

Single Conductor Wire Braided Lead Covered Marine Cable

Engineers and Contractors

THE ARNOLD COMPANY
ENGINEERS—CONSTRUCTORS.
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—
Electrification of Steam Railroads.
OUR EXPERIENCE COVERS THIRTY-FIVE PLANTS
CHICAGO

ANGUS SINCLAIR, C.E.
Railway Contractor
OFFICE: EXCELSIOR LIFE BUILDING,
Adelaide and Toronto Sts., Toronto

ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.

Robert W. Hunt & Co., Limited

Consulting and Inspecting Engineers
Chemists and Metallurgists

Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement; Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.

Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.

REPORTS ON PROPERTIES AND PROCESSES.

Head Office and Laboratories:

McGill Building, - - - - - - - MONTREAL, QUE.
Branches: TORONTO VANCOUVER LONDON, ENGLAND

5,000,000 C. M. Weatherproof Cable
(½ Actual Size)

Our Facilities

for the manufacture of electric wires and cables enable us to supply all kinds and sizes and in any quantity. No order is too small to merit our attention and none so large as to overtax our facilities.

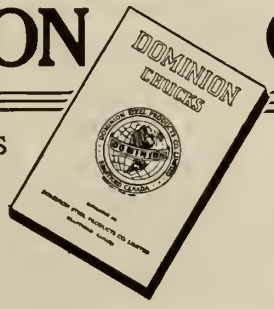
Write our nearest office about your requirements.

Standard Underground Cable Co. of Canada, Limited.
Hamilton, Ont.

Montreal, Toronto, Winnipeg, Seattle.

Send for this Book

DOMINION CHUCKS



DOMINION CHUCKS ARE GUARANTEED

Steel or Cast Iron Body — *Built for Heavy Duty*

You Want Dependable Chucks

INCREASED cost of production demands that every tool give satisfactory and continuous service and be free from the annoyance of frequent breakage. **Dominion Chucks** were perfected by us for our own use and to fill a specific need for a chuck that would stand up and give a satisfactory service under the strain of heavy and continuous work.

Chuck troubles in our own plant compelled us to design and manufacture for our own use the **Dominion Chuck.** It has proved satisfactory under the test of heavy duty service and the most exacting work. We are manufacturing this chuck either in all-steel or iron bodies—sizes 10 to 24 inches. *Write for our Chuck Book.*

DOMINION STEEL PRODUCTS CO.
LIMITED
Engineers • Manufacturers
BRANTFORD, CANADA

7

Rails, Cars, Locomotives
and Contractors' Equipment

IMMEDIATE SHIPMENT

John J. Gartshore
58 Front Street West
TORONTO

FORGINGS
SEND PRINTS FOR PRICES
CANADA
FOUNDRIES & FORGINGS, LIMITED
WELLAND, ONT

From the Other Side of the Fence

By F. A. McLean, of Sherbrooke, Que.

No one can go very far into the study of advertising now-a-days without bumping up against a lot of words and phrases such as "Dealer interest," or "reader interest," or "quality circulation, buying power, publisher's responsibility," and so on.

Now let's forget all but the last words. If you are unfortunate enough to be an advertising man, you probably know all you need to know about the others already, and if you are not and you would really like to know something about them, it is more than likely that you have a friend who is. In which case just ask him and he will probably be so glad to find a ready listener that he will take you 'round the corner and buy you a glass of 2% to drown your sorrow while he gives you an ear full of dope. After which you will probably know a little bit less than you did before, but what's the difference, you get the mouth wash and your friend will probably think you are a "damfinfello."

But, forgetting for a moment the pleasure you will have with that glass of 2%, let's get back to those last words, "publisher's responsibility, or the responsibility of a publisher to his readers and advertisers. This term usually means that the publisher should exclude all objectionable advertising from his columns, which is as it should be, well and good. No reputable publisher should print an advertisement, the character of which he has any occasion to question, and it is extremely doubtful if the publisher of any technical newspaper ever knowingly has printed such an advertisement.

Self-respecting and reputable technical newspapers censored their advertising columns many years before advertising associations and an enlightened public began to insist on the "publisher's responsibility." If you did not know this before—and it is really surprising how few are aware of the fact—go to a good library and look over the files of well known technical newspapers for a number of years back and see if you can find the announcements of any 520% Millers' or any other get-rich-quick schemes, patent medicines, such as Peruna, Golden Medical Discoveries, or any other of the many ways of separating an unsuspecting public from its money.

What is perhaps of more importance to the reader of, or the advertiser in, technical journals, however, is the fact that this censorship was not confined strictly to advertisements of a questionable character, but also embraced the advertising of legitimate and meritorious products which were foreign to the trade or business uses of their readers as well as the editorial and news columns.

How many of us, I wonder, really realize that this watch over his columns in our interests represents a direct loss of business to the publisher? One does not have to be gifted with the imagination of an Edgar Allan Poe, or an O. Henry, to see that if the publisher of Canadian Railway and Marine World was to throw its columns open to every sort of proposition that came along, it would not be long before it had an advertising section many times its present size.

We who read it, therefore, have a little responsibility of our own. Our responsibility is to its publisher. Think it over. It's true, isn't it? Turn about is fair play. One of the little things that we can do is to protect the publisher against having the results of advertising in his paper credited to another, or, what is perhaps far worse, to an unknown source.

Every time you answer an advertisement in its columns, state in your letter that you saw the advt. in Canadian Railway and Marine World. It will not cost you anything, and it's mighty good business. If, as a result of your enquiry, you finally order the goods or service, or whatever it may be, why not write the publisher, telling him what you bought, from whom you bought it, and, if you like, the amount of the purchase. The publisher will treat your letter confidentially, and it will give him some encouragement.

Another reason why we should mention where we saw the advt. that we answer, however, is that it is to our own interest to do so. It is the continued patronage of its advertisers that makes Canadian Railway and Marine World possible. If you are an advertiser yourself and try to trace the source of your enquiries, you know how you like to receive a letter saying: "I saw your advt. in such and such a paper," and immediately that paper goes up a point in your estimation. Other advertisers are up against the same problem and feel the same way, so that to mention where you saw the advt. that you are answering is simply a little act of reciprocal business courtesy, having rather far reaching results.

When you read an article that you like, or when you find a helpful suggestion or two in the reading pages, why not write the publisher, and tell him about it? Editors are human, and, being human, a little word of commendation now and then, makes the day's task seem a whole lot lighter. On the other hand, if you read something that you do not like, or with which you do not agree, write to the publisher. His aim is to make the paper of as much help to its readers as he can, and he will welcome constructive criticism or suggestions, that will help him to improve it in any way.

So many good ideas are to be obtained from technical papers and so much hard work is required to get them out on time, with only a moderate profit, that they deserve all the help that their readers can give them. While this is true of the technical newspapers in any country, it is particularly so in Canada, where the field of any technical newspaper and its advertising revenue are necessarily limited.

CANADIAN RAILWAY AND MARINE WORLD
Toronto *Member of* Canada
Audit Bureau of Circulations, Associated Business Papers, Canadian National Newspapers and Periodicals Association, Canadian Press Association.

The only paper covering the entire Canadian transportation field, steam and electric railways, marine and shipbuilding.

"SHELBY"

SEAMLESS STEEL TUBING

Made in a wide variety of shapes, sizes and wall-thicknesses. Round, hexagon, oval, D-shaped, etc. Sizes from ¼" to 20". Wall-thicknesses from 20-gauge to 1½".

Furnished in special alloy steels and in different anneals for specific purposes. Represents the highest standards of accuracy in diameter, gauge and wall-thickness.

Sole Canadian Distributors:

LYMAN TUBE & SUPPLY CO., Limited

Montreal Toronto Winnipeg Vancouver New York

KILL
LAST AD.

Two views of Crane, Limited, Factory at Montreal. Arch.: Brown & Vallance, Montreal. Gen'l Cont.: Anglin-Norcross, Ltd., Montreal. Roofers: Douglas Bros. Co., Ltd., Montreal.

Crane, Limited, Believes in Bonded Roofs

THE factory of Crane, Limited, recently erected in Montreal, is an interesting and imposing addition to Canada's manufacturing enterprises.

Several new construction features have been embodied in the plant for the purpose of securing greater economy and efficiency in factory operations. One is the use of creosoted wood-block flooring throughout; another, the location of the foundries on the top floor so that gravity could be utilized in conveying materials through the various steps of manufacture.

But when it came to the roof, there was no reason to depart from established practice. A Barrett Specification Bonded Roof was selected because the experience of thousands of owners has conclusively proved that no other roof is so satisfactory and, in the long run, so economical.

Our Guarantee is a Surety Bond

Barrett Specification Roofs are the *only* roofs guaranteed against repair and maintenance expense by a Surety Company Bond.

This bond, which runs for 20 or 10 years, depending upon the type of roof constructed, may be obtained without cost by the owner of any Barrett Specification Roof of 50 squares or larger, in towns of 25,000 or more, *and in many smaller places where our inspection service is available.*

Our only conditions are that The Barrett Specification, *revised April 15, 1920,* shall be strictly followed and that the roofing contractor shall be approved by us and the work subject to our inspection.

Important Notice

The Barrett Specification Type "AA" 20-Year Bonded Roof represents the most permanent roof covering it is possible to construct, and while we bond it for 20 years only, we can name many roofs of this type that have been in service over forty years and are still in good condition.

Where the character of the building does not justify a roof of such extreme durability, we recommend The Barrett Specification Type "A" Roof, bonded for 10 years. Both roofs are built of the same high grade materials, the only difference being in the quantity used.

Full details regarding these Bonded Roofs and copies of The Barrett Specification sent free on request.

The Barrett Company
LIMITED

WINNIPEG VANCOUVER MONTREAL TORONTO
HALIFAX, N.S. ST. JOHN, N.B.

Barrett Specification Roofs

Bonded for 20 and 10 Years

SUPERIOR GRAPHITE PAINT
It Prevents Rust

True Economy In Protection

When you specify paint for protection you should select for your work the paint that has proven its worth in service. Its use will mean utmost satisfaction in the long run.

For thirty-five years Superior Graphite Paint has been giving maximum service on structural steel and metal surfaces in all sections of the country—positive protection at lowest ultimate cost.

For true economy—for savings on material and up-keep bills—specify Superior Graphite Paint. It will give years of service and is a safe investment in the long run. It can be used without the hazard of experiment. It is one of the Degraco line of dependable paints.

Color Cards and Painting Specifications on Request

DOMINION PAINT WORKS, LIMITED

Makers of

Degraco Paints, Varnishes, Enamels.

WALKERVILLE - - - CANADA

Montreal
Quebec
Toronto

Winnipeg
Sydney
Vancouver

DEGRACO

Paints - Varnishes - Enamels

KILL
EAST AD.

DOMINION OXYGEN
—*Growing with Canada*

THE Dominion Oxygen Company, Limited, is contributing a commodity and a service to Canadian industry. The Commodity is the highest grade of commercially pure oxygen. The Service is a growing chain of distributing stations that makes Dominion Oxygen always available in the quantity needed.

The first four distributing stations already in operation are the result of the Dominion Oxygen Company's first year of expansion. They are the measure of the success of the Company's efforts to give immediate and unfailing co-operation to gas users.

By placing within easy reach of every manufacturer in Canada an unlimited supply of the oxygen he needs for production and repair work—

By filling all orders for oxygen on the day they are received—

By using a cylinder light enough to make handling more economical, yet large enough to hold 220 feet of gas, and strong enough to pass the rigid requirements of the Railway Commission, and—

By adopting a liberal cylinder loan policy,

The Dominion Oxygen Company, Limited, feels that it is aiding materially in Canadian industrial expansion, and is justifying its program of additional plants and warehouses.

DOMINION OXYGEN COMPANY, *Limited*
Hillcrest Park, Toronto, Ontario
Hamilton Montreal Windsor

D-13

Without Drawing the Temper

Sharpen all your cutting tools on the Dimo-Grit wheels of Luther DIMO Grinders — 10 times as fast as an emery wheel. No water needed to cool the tool.

Above is shown the DIMO Railway Grinder (No. 175) with chisel-plane guide, twist drill and flat drill attachment. It clamps to any bench, hand car or other support. Smooth running, ball bearing—sharpens all cutting tools. Indispensable in machine shops and in section gangs for sharpening track drills, adzes, chisels, scythes, etc.

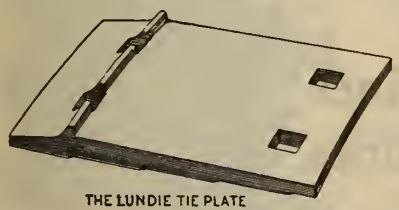
Write for DIMO booklet. It will tell you how you can save time and money by using the DIMO line of up-to-date repair tools.

Luther Grinder Mfg. Co.

DEPT. 10, MILWAUKEE, WISCONSIN, U.S.A.

LUTHER GRINDERS

DIMO PRODUCTS



THE LUNDIE TIE PLATE

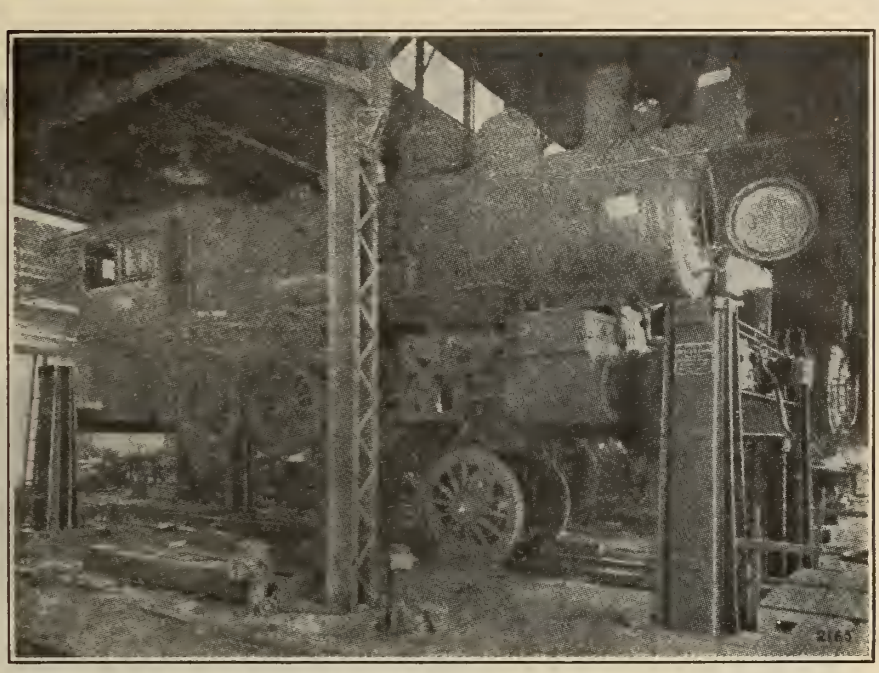
One of the most distinguished, successful and honored Engineers of Canada writes as follows of the

LUNDIE TIE PLATE

"It is by far the most scientifically designed and practically efficient tie plate ever evolved."

THE LUNDIE ENGINEERING CORPORATION
920 BROADWAY, NEW YORK
Chicago Office—30 No. La Salle Street

Canadian Representatives
THE HOLDEN COMPANY, LTD.
350 St. James St., Montreal.



View of Whiting Locomotive Hoist in operation, removing one pair of wheels.

Remove all drivers or only one pair as desired

The Whiting Locomotive Hoist can be used with equal advantage to renew one pair of drivers for minor repairs or all of them for a complete change of wheels.

It handles all types of engines in a fraction of the time required by a drop pit and without the risk. Absolutely safe.

Let us send you our illustrated railroad book containing full description of this time- and labor-saving hoist.

Ask for Catalog No. 145

WHITING CORPORATION

(Formerly Whiting Foundry Equipment Co.)
General Office and Works - Harvey, Ill.

Built under U.S. Patents 1085734 and 1314557.
We are sole owners of these patents.

Coach Hoists — Transfer Tables — Turntable Tractors

WHITING

CRANES OF ALL TYPES / FOUNDRIES EQUIPPED COMPLETE

CASTINGS of Every Description in Brass and Bronze

NEW BRASS FOUNDRY

Rough or Machined Complete to Specification

Ottawa Car Manufacturing Co., Ltd.

OTTAWA - - ONTARIO

Reid Newfoundland Co.

St. John's, N. F.

Railway and Steamship Lines
Dry Dock and Marine Works

WOOD AND STEEL SHIPBUILDERS AND ENGINEERS

SPECIAL FACILITIES FOR REPAIRS

SHEER LEGS AND WHARFAGE AT DEEP WATER PIER

SHOPS EQUIPPED WITH MODERN MACHINERY

PNEUMATIC TOOLS, ELECTRIC AND ACETYLENE WELDING PLANT IN OPERATION

VESSELS PAINTED WITH ANTI-FOULING PAINTS

Rates on Application

Port Arthur Shipbuilding Co., Limited

Port Arthur, Canada

Canadian Adventurer, launched at Port Arthur, by H.R.H. Prince of Wales, Sept. 8, 1919.

Designers and Builders of

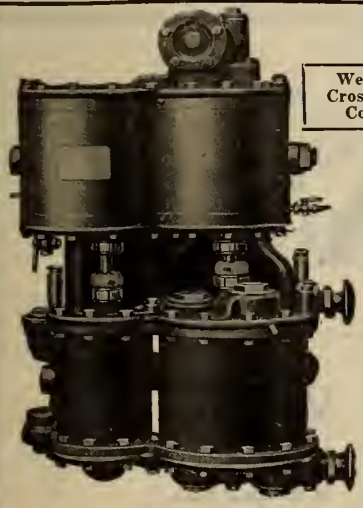
Steel Ships

Boilers

Engines

Etc.

EVERY MODERN FACILITY AVAILABLE FOR REPAIR WORK



Westinghouse Cross-Compound Compressor

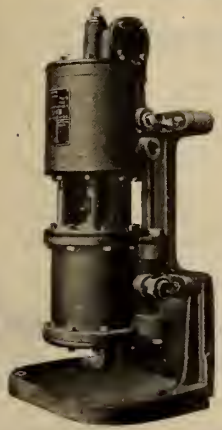
KILL

Westinghouse Steam-Driven, Air Compressors

—have proved the most serviceable types on all kinds of construction work. They work successfully under adverse conditions and will stand the roughest treatment.

These types are the standard for the operation of the air-brake system on railroads.

Westinghouse Cross-Compound Compressor as used in construction work.



Westinghouse Single-Stage Compressor

Owners of Westinghouse Apparatus are invited to make use of our Service Dept. Repair Shops, where repair work will receive prompt and efficient attention. Repair shops are located at:—

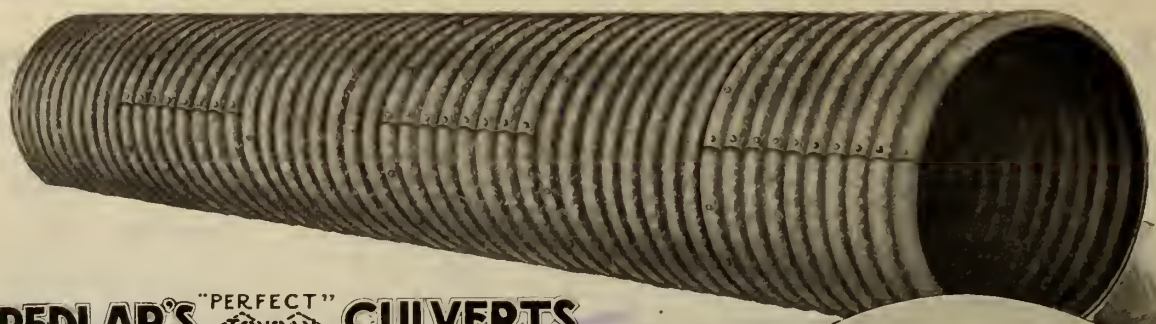
MONTREAL—10 St. Sophie Lane. VANCOUVER—1090 Mainland St. TORONTO—366 Adelaide W.
WINNIPEG—158 Portage Ave. E. CALGARY—316 3rd Ave. E.

Canadian Westinghouse Company, Limited,

Hamilton, Ontario

TORONTO, Bank of Hamilton Bldg. MONTREAL, 285 Beaver Hall Hill.
HALIFAX, 105 Hollis St. FT. WILLIAM, Cuthbertson Block.
CALGARY, Canada Life Bldg. VANCOUVER, Bank of Ottawa Bldg.
OTTAWA, Ahearn & Soper, Ltd. WINNIPEG, 158 Portage Ave. E.
EDMONTON, 211 McLeod Bldg.

CANADIAN WESTINGHOUSE



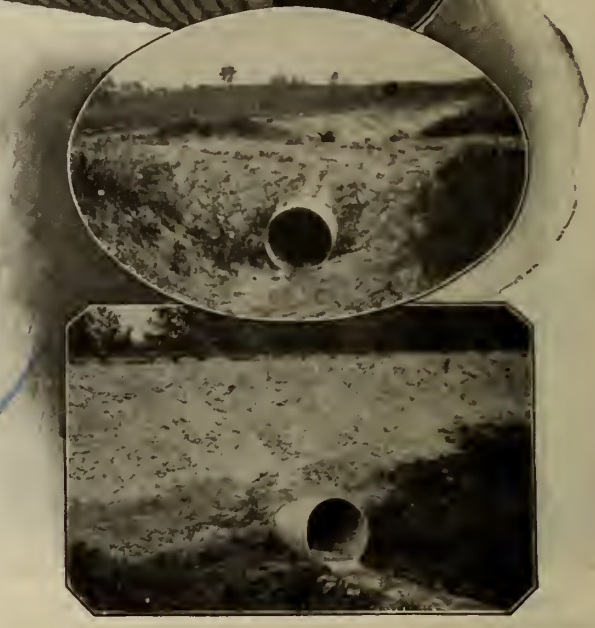
PEDLAR'S "PERFECT" TUNCAN METAL CULVERTS

Long Service, Without Maintenance Cost

WHEN you build a road you naturally figure on keeping down as far as possible the cost of maintenance. In doing this you cannot pay too great an attention to the type and capacity of your culverts. You need Culverts that will be large enough to carry off water when Spring floods are at their height; culverts that cannot cause wash-outs by breaking under the internal stresses of frost or ice; culverts that will maintain their shape and position under the stress of the heaviest live or dead loads to which they can be subjected. All these requirements are fully met by the selection of Pedlar's "Perfect" Culverts — the strongest, most durable and convenient culverts made.

Write for Culvert Booklet R.M.

THE PEDLAR PEOPLE LIMITED
ESTABLISHED 1861
Executive Office and Factories: Oshawa, Ont.
Branches: Montreal, Quebec, Halifax, St. John, Ottawa, Toronto, Winnipeg, Calgary, Vancouver.



We Can Supply

STEEL PLATE

in

Universal Edge up to 40" wide.
Sheared Edge up to 60" wide.

Any thickness
Any lengths.

Send us your enquiries

DOMINION FOUNDRIES & STEEL, Limited
HAMILTON - ONTARIO

THE JOHN INGLIS COMPANY, LIMITED
ENGINEERS AND BOILER MAKERS

ENGINES, BOILERS
AND
TANKS of all kinds

Write us for prices and specifications.

Plant of the John Inglis Co. Limited

Penstocks, Heavy Plate Work, and Special Machinery.

14 STRACHAN AVE., TORONTO, CANADA

Representatives in Eastern Canada,—JAS. W. PYKE & CO., Ltd., 232 St. James Street, MONTREAL.
Ottawa Representative,—J. W. ANDERSON, 7 Bank Street Chambers.

Taylor & Arnold
Engineering Company, Ltd.

—MANUFACTURERS OF—

Detroit Lubricators Turntable Tractors
Pitt Jacks
Taynold Electric Locomotive Headlight Equipment
Bell Ringers Coupler Parts
Ships Blocks and Tackle
Ships Telegraphs, 1 Engine Room, Docking and Steering

Head Office:
Bank of Toronto Bldg., MONTREAL.

Works:
100 Ann Street, MONTREAL.

Maintaining Standards for Fifty Years

For over fifty years we have maintained a quality that has made our files the standard.

Only rigid adherence to a high ideal and the careful training of expert workmen have enabled us to do this. Such a record is a spur which prevents us from ever lowering that standard.

Specify one of these five brands when ordering:

Kearney & Foot
Great Western
American
Arcade
Globe

KILL LAST AD.

FILES

Made in Canada by

Nicholson File Company

Port Hope - Ontario

"MEAD-MORRISON"

CANADIAN MM © CANADIAN MM ©

Electric Car Puller

Don't wait for the switching locomotive or a gang of men.

This CAR PULLER requires only ONE MAN.

CAPACITY
5000 lbs. at 20 feet a minute
2000 lbs. at 55 feet a minute

Entirely Weather Proof

AGENTS:

Harvard Turnbull & Co. - - -	Toronto
Kelly Powell Ltd. - - -	Winnipeg
Robert Hamilton - - -	Vancouver
Ferguson & Palmer - - -	London, Eng

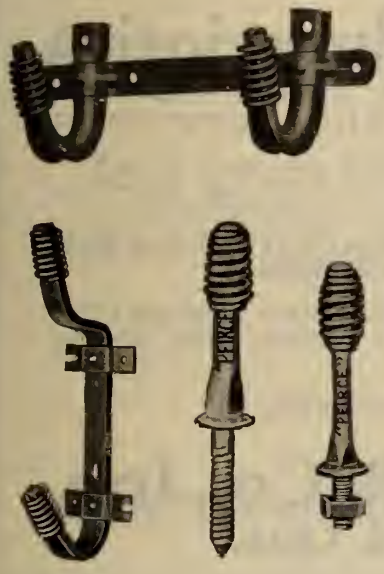
CANADIAN MEAD-MORRISON CO
LIMITED
285 BEAVER HALL HILL
MONTREAL
WORKS WELLAND ONT.

For the Good of the Service Use—

NATIONAL STEEL TRAP DOOR AND LIFTING DEVICE
RESISTO and TUCORK INSULATION
FLEXOLITH COMPOSITION FLOORING
TUCO PRESERVATIVE FOR FLOOR PLATES
NATIONAL STANDARD ROOFING
IMPERIAL CAR WINDOW SCREENS

TUCO PRODUCTS CORPORATION, 30 Church St., New York City

CANADIAN OFFICE:
Consolidated Equipment Co., 263 St. James Street, Montreal.



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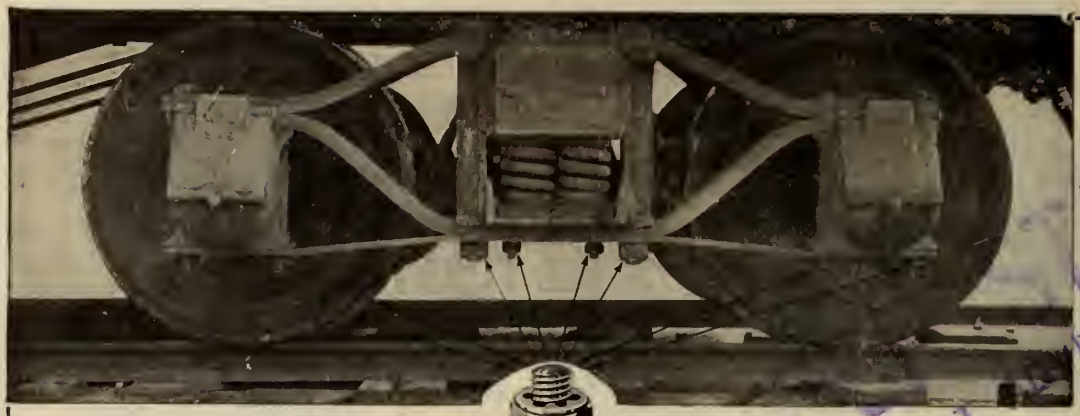

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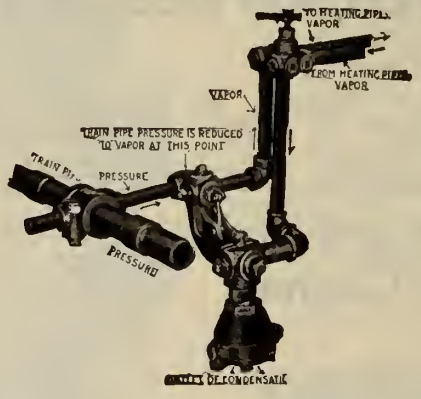

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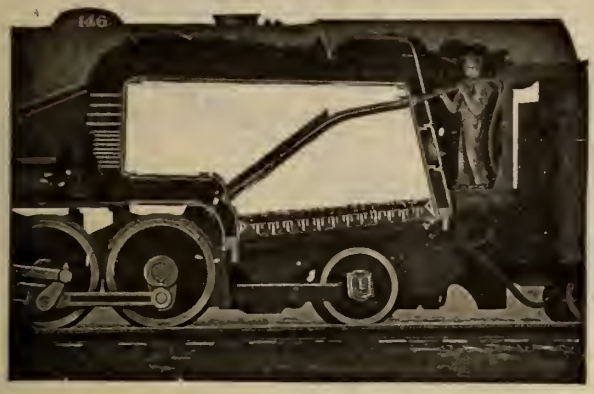

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Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

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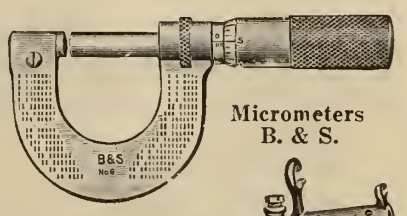

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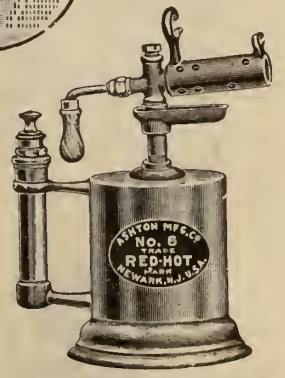

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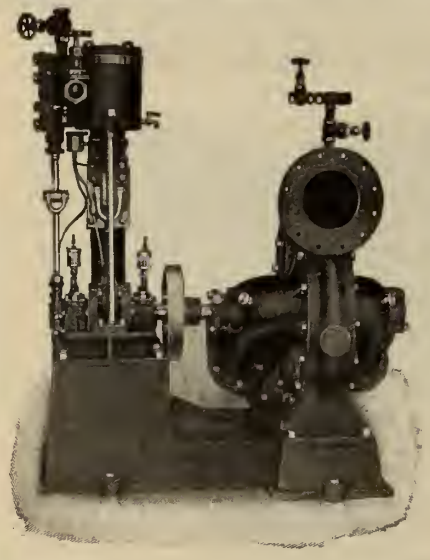

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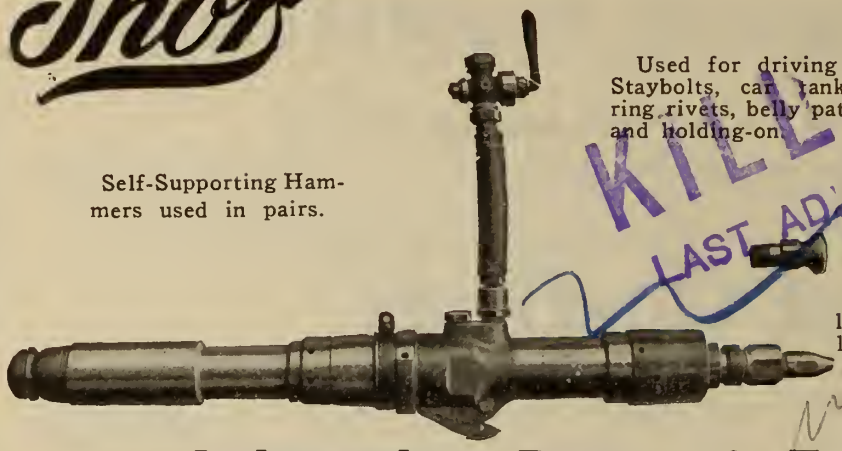

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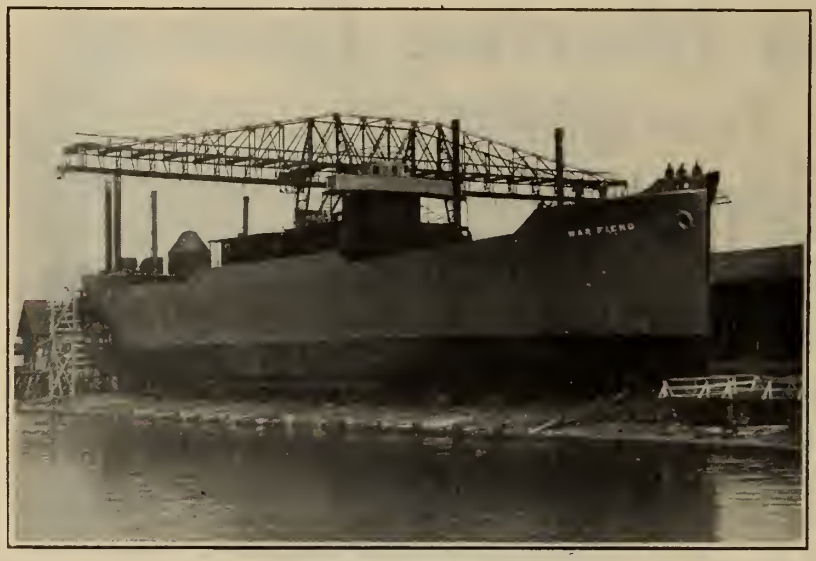

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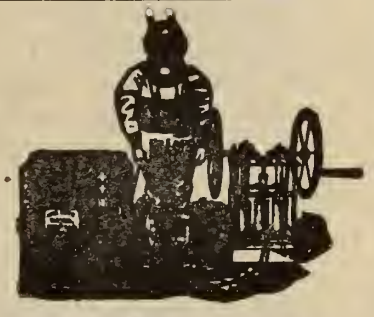

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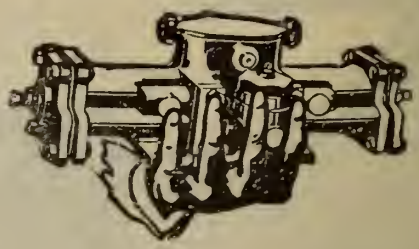

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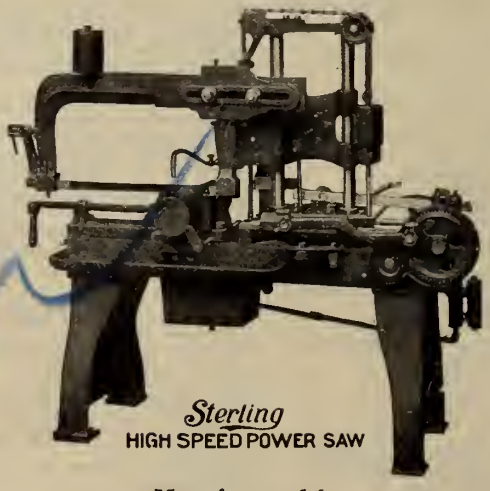

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Alphabetical List of Advertisers

A

Algoma Steel Corporation 123
American Manganese Bronze Co. 124
American Steel Foundries 20
Arnold Co. 105
*Associated Business Papers Inc. —
*Association of Manufacturers of Chilled Car Wheels ..... —

B

Babcock & Wilcox 121
Barrett Co. 108
Berry Bros. 118
Bertram, John, & Sons Co. 138
Boss Lock Nut Co. of Canada..... 7
Bowser, S. F., Co. 127
Bradstreet Company 132
British Ministry of Munitions 11
Brown Hoisting Machinery Co. ... 3
Buffalo Brake Beam Co. 38
Butterfield & Co. 118

C

Canada Foundries & Forgings, Ltd. 105
Canada Grip Nut Co. 23
Canada Iron Foundries, Ltd. 119
Canada Machinery Corporation.... 35
Canada Steamship Lines, Ltd. ... 37
Canada Wire & Cable Co. 37
Canadian Allis-Chalmers, Ltd. ... —
Canadian Bridge Co. 135
Canadian Bronze Co. 132
Canadian Chicago Bridge & Iron Co. 130
Canadian Consolidated Rubber Co. 8
Canadian Fairbanks-Morse Co..... —
Canadian General Electric Co..... 14
Canadian Gold Car Heating and Lighting Co. 135
Canadian Government Merchant Marine, Ltd. 6
Canadian Link Belt Co. ..... —
Canadian Mead-Morrison Co. 116
Canadian National Carbon Co. 121
Canadian National Railways 101
Canadian Pacific Railway 132
Canadian Pacific Ry. Colonization Department 127
Canadian Porcelain Co. 39
Canadian Railway and Marine World 106
Canadian Ramapo Iron Works Ltd. 119
Canadian Steel Foundries, Ltd.... 5
Canadian Steel-Tire & Wheel Co. 39
Canadian Vickers, Ltd. 103
Canadian Westinghouse Co. 113
Carr, C. E. A., Co. 103
Carter White Lead Co. of Canada 135
*Chase, L. C., & Co. ..... —
Chicago Malleable Castings Co... 120
Chicago Railway Signal & Supply Co. 127
Coghlin, B. J., Co. 117
Collingwood Shipbuilding Co. 29
Commercial Acetylene Supply Co. 34
Consolidated Steel Corp. 19
Corbet Foundry & Machine Co. .. 102
Crane Limited . ..... —
Curtiss-Willis Co. 102

D

Date, John 127
Davis Boring Tool Co. 12
Davis-Bournonville Co. 137
Dearborn Chemical Co. of Canada. 18
Diamond Saw & Stamping Works 130
Dominion Brakeshoe Co. 118
Dominion Bridge Co. 31
Dominion Coal Co. 132
Dominion Foundries & Steel, Ltd. 114
Dominion Iron & Steel Co. 125
Dominion Oxygen Co. 110
Dominion Paint Works, Ltd. 109
Dominion Steel Products Co. 105
Dominion Towing & Wrecking Co. 127
Dominion Wire Rope Co. 24
Duner Co. 132

E

Engineering & Machine Works of Canada 125

F

Fairmont Gas Engine & Railway Motor Car Co. 128
Flannery Bolt Co. 36
Franklin Railway Supply Co. of Canada 30

G

Galena Signal Oil Co. 4
Galt Malleable Iron Co. 135
Gartshore, J. J. 105
General Railway Signal Co. of Canada 134
Goldie & McCulloch Co. ..... —
Goodyear Tire & Rubber Co. of Canada 16
Grand Trunk Railway 27
Griffin & Brinkerhoff 102

H

Halifax Shipyards Ltd. 35
Hamilton Bridge Works Ltd..... 119
Hart-Otis Car Co. 24
Holden Co. 25
Hopkins, F. H., & Co. 24
Hoyt Metal Co. 135
Hunt, Robert W., & Co. 105
Hunt-Spiller Mfg. Corporation ... 40

I

Imperial Bank of Canada 134
*Imp. Guar. & Accident Ins. Co. —
Independent Pneumatic Tool Co... 126
Inglis, John, Co. 115
International Correspondence Schools 134
International Machinery & Supply Co. 123

J

Johns-Manville Co., H. W. 122
Joliette Castings & Forgings Ltd. 125

K

Kalamazoo Railway Supply Co... 33
Kennedy, The William, & Sons, Ltd. 2
KeYoke Railway Equipment Co... 13
Kidston, A. G., & Co. 34
Krauser, Webb G. 22

L

Lambert, W. 101
Lewis, Rice, & Son 121
Lundie Engineering Corporation. 111
*Luther Grinder Mfg. Co. 111
Lyman Tube & Supply Co. 107

M

McAvity, T., & Sons 29
McCord & Co. 40
Marconi Wireless Telegraph Co. 124
Marsh Engineering Works, Ltd.. 103
Mason Regulator & Engineering Co. 26
Metal & Thermit Corporation ... 30
Midland Shipbuilding Co. 126
Miller, F. W., Heating Co. 134
Miner, W. H. 28
Montreal Locomotive Works, Ltd. 36

N

National Lock Washer Co. 9
National Pneumatic Co. 128
Nichols, G. P., & Bro. 134
Nicholson File Co. 116
Northern Crane Works Ltd. 132
Northern Electric Co. 104
Norton, A. O., Ltd. 1
Nova Scotia Steel & Coal Co..... 32

O

Ohio Brass Co. 17
*Ontario Specialties, Ltd. ..... —
Orton & Steinbrenner Co. 122
Ottawa Car Mfg. Co. 112

P

Page-Hersey Tubes Ltd. 2
Page & Jones 56
Peacock Bros. 10
Pedlar People, Ltd. 114
Petrie, H. W., Ltd. 32
Piper, The Hiram L., Co. 56
Port Arthur Shipbuilding Co. 113
Pratt & Whitney Co. of Canada 41
Prest-O-Lite Co. ..... —
Pyle-National Co. 122

R

Rail Joint Co. of Canada 123
Railway & Power Engineering Corp. 28
Ramsay, A., & Son, Co. ..... —
Reid Newfoundland Co. 112
Robb Engineering Works 31
Robinson Co., E. A. 120

S

Safety Car Htg. & Ltg. Co. 38
Sinclair, Angus 105
Slater & Barnard 117
Smart-Turner Machine Co. 124
Standard Car Truck Co. 126
Standard Underground Cable Co. of Canada 105
Star Brass Works 26
Steel Co. of Canada 15
Superheater Co. 21
Symington Co., The T. H. 25

T

Taylor & Arnold Engineering Co. 115
Tuco Products Corporation 117
Turnbull, Harvard, & Co. 33

U

Union Draft Gear Co. 22
Universal Draft Gear Attachment Co. 22

V

Vapor Car Heating Co. of Canada 120

W

Whiting Corporation 111
Wilt Twist Drill Co. 42
Woolery Machine Co. 102

Y

Yarrows, Ltd. 27

*Alternate months.

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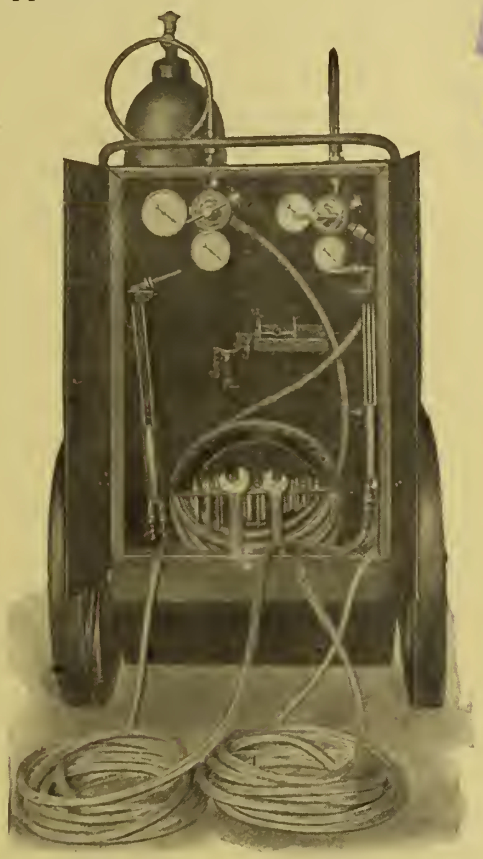

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The BERTRAM Page

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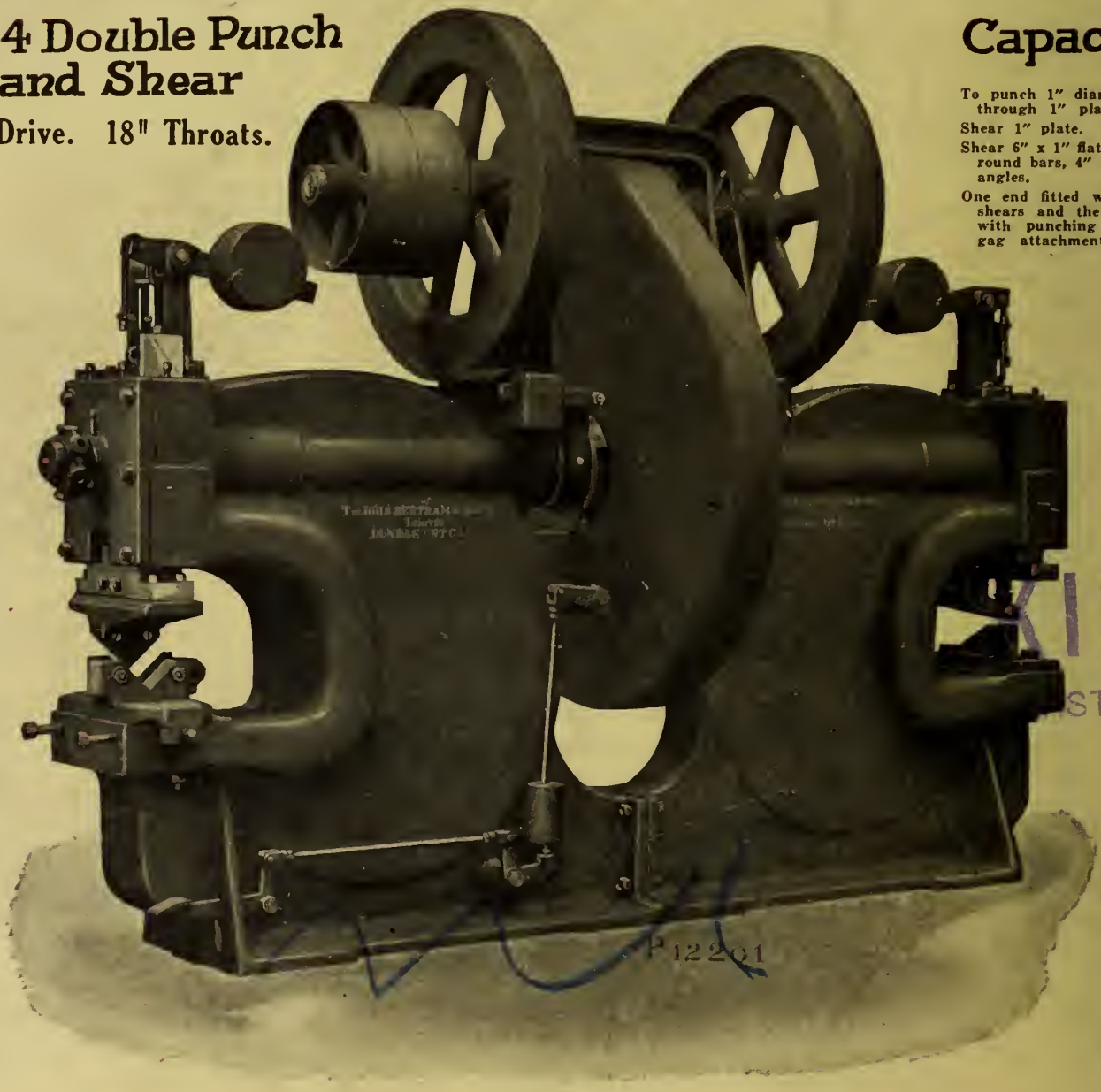

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Number 276
Index to contents, 79.

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Steam Railways and General, Page 57. Electric Railways, Page 90. Marine and Shipbuilding, Page 97.

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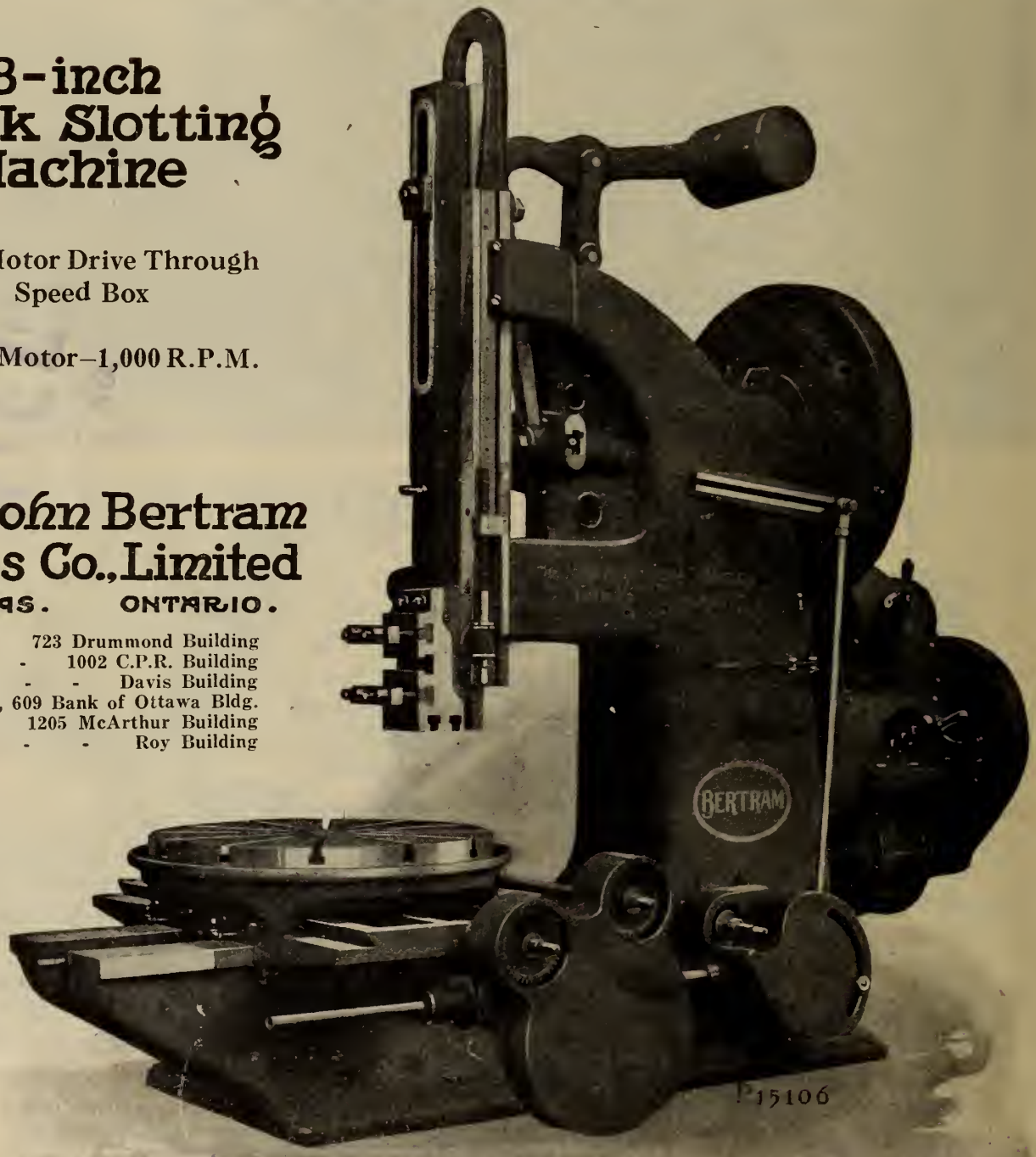

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WEEKLY—To the United Kingdom, Liverpool, London, Glasgow, Cardiff, Swansea, etc.

FORTNIGHTLY—To British West Indies and Demerara.

EVERY THREE WEEKS—To Santiago, Cuba and Jamaica.

MONTHLY—To Brazil and River Plate.

MONTHLY—To India, Straits Settlements and Dutch East Indies.

MONTHLY—To Australia and New Zealand.

From VANCOUVER, B.C.

MONTHLY—To Australia and New Zealand.

MONTHLY—To China and Japan.

MONTHLY—To Straits Settlements, Java and India.

B. C. KEELEY,
General Agent, Vancouver, B.C.

F. G. WOOD,
General Ontario Freight Agent, Toronto, Ont.

R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, Acting General Freight Agt.,
230 St. James Street, Montreal, P.Q.

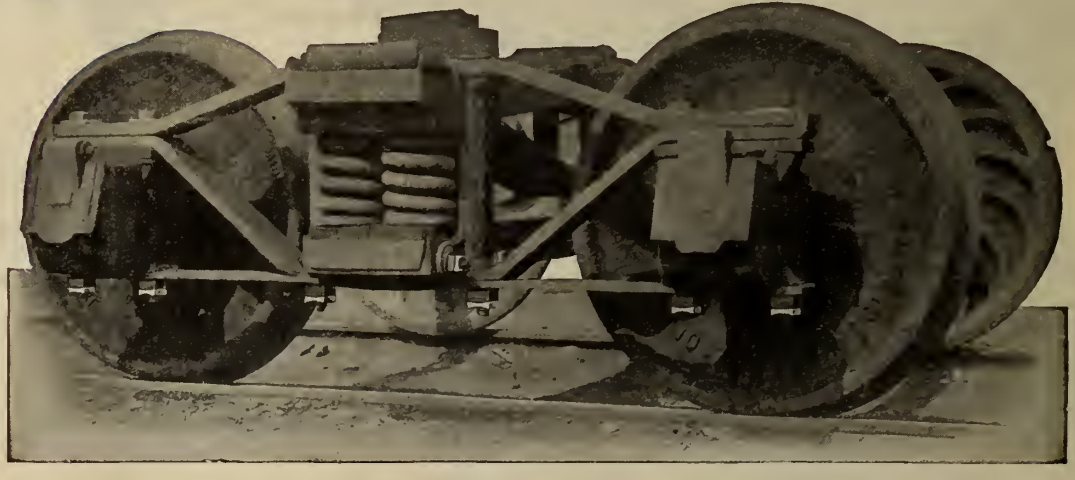
Canadian National Railways

"THE BOSS"

The ***Boss*** now being on the job beware of any substitutes.

All the principal railroads in this country are now safeguarding their equipment by the use of **BOSS LOCK NUTS.** The Nut that positively cannot shake loose. The railroads now using **BOSS LOCK NUTS** know they are insuring against accidents by simply **"writing it right"** when specifying lock nuts, like this

"Boss Lock Nuts"



Above Shows Boss Nuts Applied to Box and Column Bolts.

Made in Canada from ore to finished product.

Boss Lock Nut Company
of Canada, Limited

Write for latest catalogue.

HEAD OFFICE:
263 St. James St.
MONTREAL, Que.

McIntyre Block
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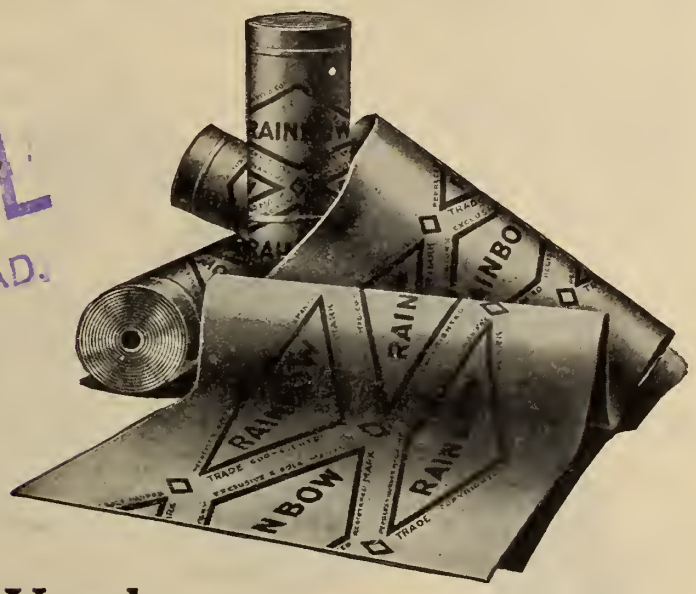
KILL
LAST AD.



Steam Engineers Know Rainbow's Worth

Practical men best appreciate the sterling value of Rainbow Sheet Packing because they know the better service it gives.

They know the saving that is effected when joints are tight and stay tight. They appreciate the absence of frequent shutdowns to re-gasket steam lines.

Rainbow Sheet Packing

is the *original red sheet.* Look for the "Rainbow" Diamond trade mark—it means economy through service.

Write for a catalogue. Our technical experts are always at your service to help overcome your packing problems.

Genuine Rainbow sheet is made in Canada.

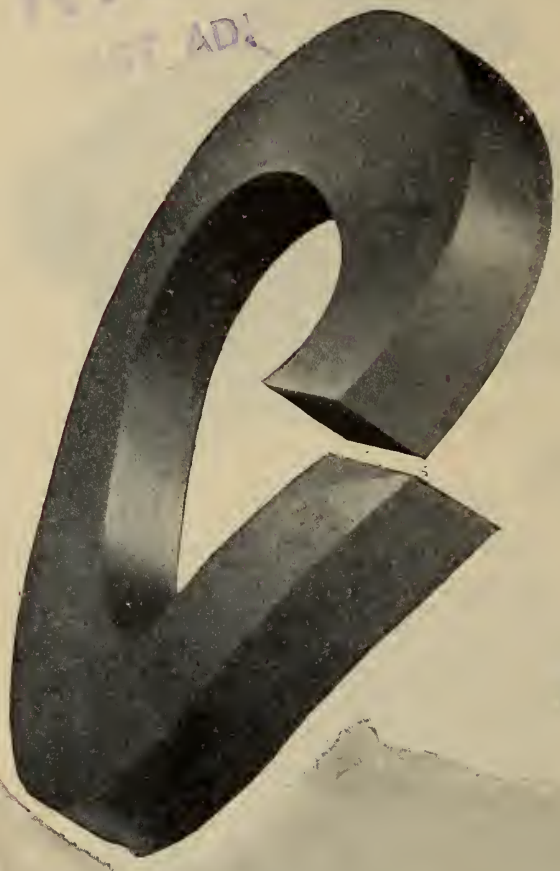
CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Dominion Rubber System

Rainbow Rubber Products Department

201 Inspector Street - - Montreal

HIPOWER NUT LOCKS



increase the security of railroad track joints, in the same manner that safety valves give protection to the steam locomotive. Engineers would not operate a locomotive without them. It isn't safe; and safety is the password on all railroads.

That is why we advocate the use of HIPOWERS on your rail joints, frogs, switches and crossings. They add that feeling of safety and confidence to your road.

The great reactive pressure plus the resilient properties of Hipowers give them a compensating feature which retards initial looseness of joint and later compensates for the small but continual wear.

Specify HIPOWER, if only for the sake of safety.

THE NATIONAL LOCK WASHER COMPANY

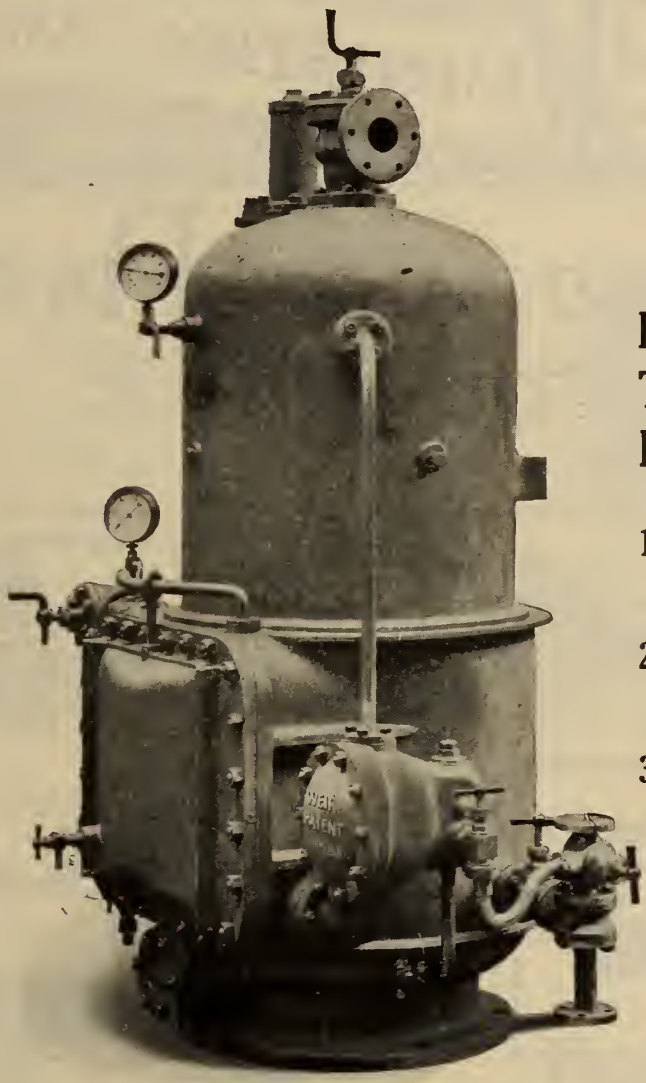
Established 1886

NEWARK, N. J.

New York Chicago Detroit

EVAPORATORS

The New Weir Evaporator



WEIR PATENT CONTINUOUS BRINING & AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

G. & J. Weir, Limited, Scotland

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Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

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PEACOCK BROTHERS, LIMITED

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GR MINISTRY of MUNITIONS

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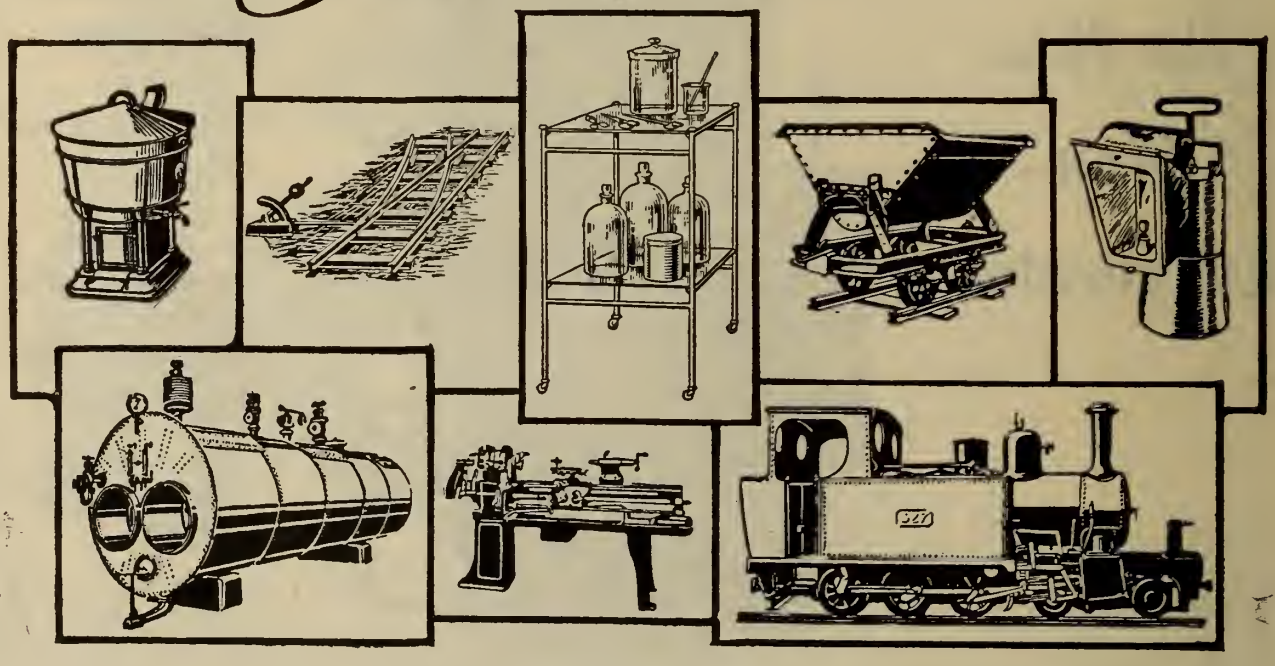

The Disposal Board
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lying in the United Kingdom and Available for Export
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Buyers should instruct their representatives in the United Kingdom to communicate with the Secretary, Disposal Board, Ministry of Munitions, Caxton House, Tothill Street, London, S.W.1.

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CAR WHEEL BORING EFFICIENCY

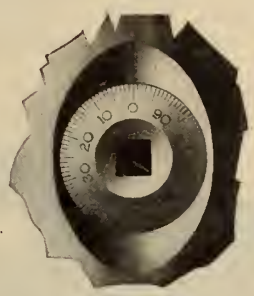
THE gradual installation of Davis Expansion Car Wheel Boring Tools into almost every wheel boring shop, of any note, in the United States, and the universal adoption of the Davis System of Car Wheel boring, tells a story of success based on merit alone. To-day, fully 98% of all car wheels are bored with Davis Expansion Car Wheel Boring Tools—a positive guarantee of their efficiency and economy.

Wheel boring mills equipped with Davis Tools will bore more wheels per day, absolutely accurate and at a 25% saving in costs. Greatest efficiency and economy is possible by the Davis method of boring all wheels to fit the axles, instead of turning down the axles to fit the wheels. On new work, wheels are bored to fit standard gauges and axles are turned to standard sizes to correspond. On repair work all wheels are bored to fit the axles, saving the time and expense of uselessly turning down good axles to fit the wheels. Consider carefully what a saving this practice would effect in your wheel shop.

You can accomplish these results with Davis Expansion Car Wheel Boring Tools, as the cutters are expanded to compensate for wear by a practical micrometer adjusting feature, which insures accurate adjustment to size, in less than a minute.

Let us explain the many advantages of operating your wheel boring mills with these efficient tools. You will not be obligated.

A letter to-day will bring full information.



GRADUATED MICROMETER ADJUSTMENT.
(Actual Size)

This graduated micrometer screw controls the travel of a patented double expanding wedge which forces the cutters out, uniformly, as the screw is turned.

DAVIS BORING TOOL COMPANY
INCORPORATED

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SPECIAL "TWO-IN-ONE"

REGULAR "TWO-IN-ONE"

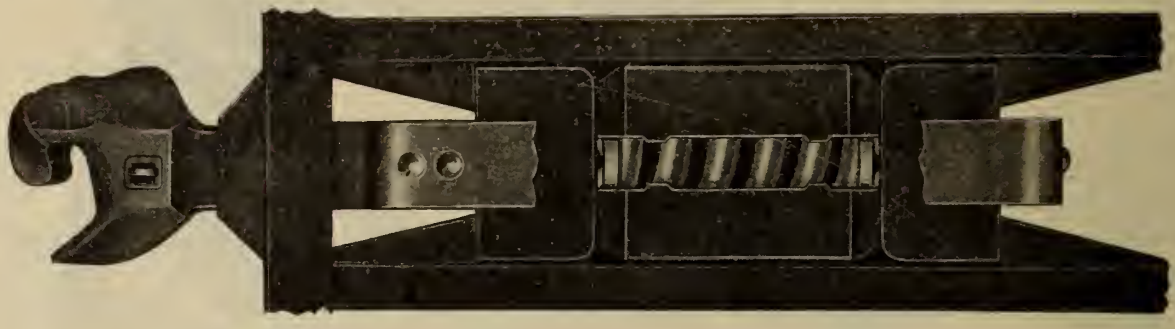
"STANDARD"

Davis Expansion Car Wheel Boring Tools

CAN BE APPLIED TO ANY MAKE WHEEL BORING MACHINE

Murray Cast Steel Friction Draft Gear

MADE IN CANADA



If the superiority of this device has never been apparent to you, it will be upon thorough investigation. For it will reveal that our claims for excellence are based on actual facts.

May be used with any draft attachment.

In use on thousands of cars, including U.S. R.A. standard cars.

KEYOKE RAILWAY EQUIPMENT CO.

Monadnock Building

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STEEL & IRON PRODUCTS

Quality Service

OF EVERY DESCRIPTION

HAMILTON PIG IRON
Basic Malleable Foundry

STEEL AND IRON BARS

OPEN HEARTH STEEL SHEETS

RAILROAD TRACK MATERIAL
Angle Bars Track Bolts Tie Plates Tie Rods Spikes

SCREWS	WIRE	NAILS
Steel	Steel and Brass, Copper and	Wire
Brass	Bronze, Heavy and Fine,	Cut
Bronze	Bright, Annealed, Coppered,	Boat
Wood and	Galvanized, Tinned, Stranded,	Horseshoe
Machine	Steel and Copper Cable,	Shoe Nails
Screws	Barb, Woven Clothes Line	Tacks

POLE LINE HARDWARE
Pole Steps Cross Arm Braces Guy Clamps Guy Rods

WROUGHT PIPE	FORGINGS	LEAD PRODUCTS
Black Pipe	Car Axles	Lead Pipe
Galvanized Pipe	Shape and Drop Forgings	White Lead
Nipples	Carriage and Automobile	Shot
Couplings	Hardware	Putty

BLOOMS
BILLETS
PLOW BEAMS
ANGLES
CHANNELS

THE
STEEL COMPANY
OF
CANADA
LIMITED
HAMILTON MONTREAL

WIRE RODS
HORSE SHOES
FENCING
RIVETS
BURRS

YOU HAVE FIGURED OUT THE VALUE OF A LOCOMOTIVE DAY

On that basis you must figure the loss to your Road for the days your locomotives are in the repair shop, or held for too frequent boiler washings, due to bad water supplies.

DEARBORN TREATMENT

costing but a few cents per thousand gallons of water used, keeps scale from forming, and overcomes corrosion and foaming, thereby materially increasing the mileage between boiler washings, effecting large savings in repairs, reducing the fuel consumption, and eliminating many delays in operation. The life of boiler tubes will be more than doubled.

Gallon samples of the water supplies required for analysis before recommending treatment.

Dearborn Chemical Company
of Canada, Limited

General Offices and Factory, TORONTO

Branch Offices:
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Consolidated Steel Corporation

165 Broadway, New York, U. S. A.

TORONTO: 201 Royal Bank Building. MONTREAL: Eastern Townships Bank Building

SOLE EXPORTER OF THE COMMERCIAL PRODUCTS OF

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BRIER HILL STEEL COMPANY
CAMBRIA STEEL COMPANY
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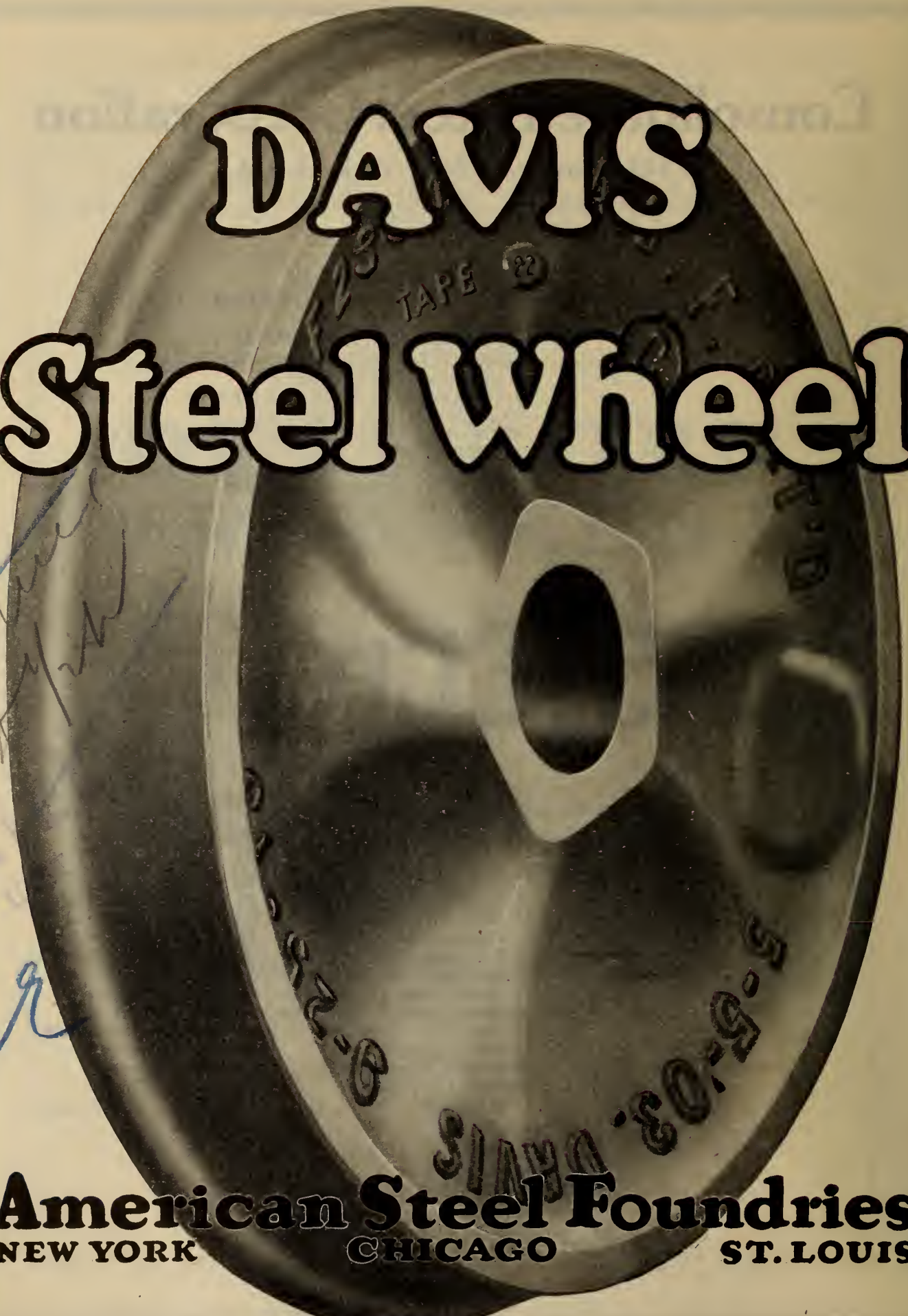
Rio de Janeiro, Brazil
Rotterdam, Holland
San Francisco, California
Santiago, Chile
Seattle, Washington
Shanghai, China
St. John's, Newfoundland
Sydney, Australia
Toronto, Ontario
Valparaiso, Chile
Wellington, New Zealand

CABLE ADDRESS: CONSTECO, NEW YORK

Cable Codes: Consolidated Steel Corporation, Western Union, A B C Fifth Edition Improved, Scott's 10th Edition, Bentley's Complete Phrase, Lieber's

DAVIS Steel Wheel



American Steel Foundries

NEW YORK CHICAGO ST. LOUIS

INTERNATIONAL EQUIPMENT CO., LTD.
Montreal, Que. Canada

Barrett Specification Roofs

Bonded for 20 and 10 Years

On the Pedlar People's New Factory

THE Pedlar People, Limited, one of Canada's pioneer manufacturing organizations opened its first factory at Oshawa, Ontario, in 1861. The steady growth and expansion of this company has paralleled the remarkable development of the other great industries of the Dominion.

The year 1917 found them so large that they were forced to erect a new, giant plant —an imposing building of the most modern construction and equipment.

On the 129,000 square feet of roof area, they laid a Barrett Specification Bonded Roof. They know that for twenty years, at the very least, they will not have to spend a cent on roof maintenance. They also know that Barrett Specification Roofs minimize fire-risk, are absolutely impervious to the most severe weather, and—cost reckoned per year of service — are the lowest-priced roofs that can be built.

Before specifying or closing a contract for a Barrett Specification Bonded Roof, be sure to read carefully all the stipulations in the Specification.

The Barrett Specification Type "AA" 20-Year Bonded Roof represents the most permanent roof covering it is possible to construct, and while we bond it for 20 years only, we can name many roofs of this type that have been in service over 40 years and are still in good condition.

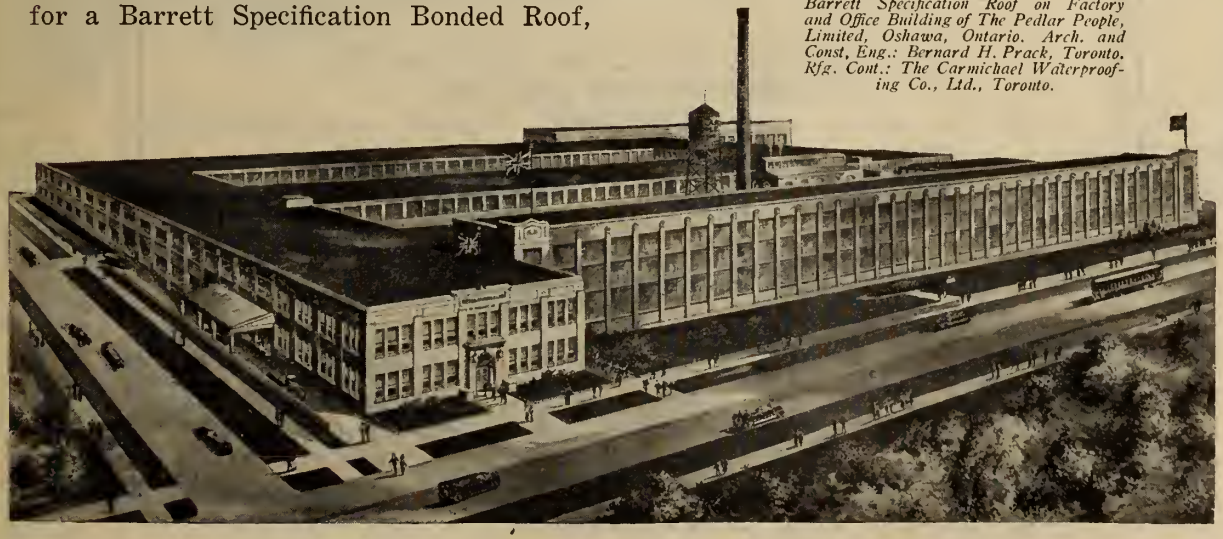
Where the character of the building does not justify a roof of such extreme length of service, we recommend the Barrett Specification Type "A" Roof bonded for 10 years. Both roofs are built of the same high grade materials, the only difference being in the quantity used.

Full details regarding these Bonded Roofs and copies of the Barrett Specifications sent free on request.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S.

Barrett Specification Roof on Factory and Office Building of The Pedlar People, Limited, Oshawa, Ontario. Arch. and Const. Eng.: Bernard H. Prack, Toronto. Rfg. Cont.: The Carmichael Waterproofing Co., Ltd., Toronto.



AN INSTITUTION WHICH SERVES.

There is a genuine appreciation among railway mechanical officials for the need of more vigorous and aggressive action in the application of means to reduce operating costs.

You know the practical advantages which have followed the application of superheaters to road locomotives.

But how far have you developed your switch engines? Economy in fuel and a sustained increase in car movement are factors of as great importance for your switch engines as for your road engines.

And your terminals and shop power plants — what progress toward increasing their efficiency?

It pays to superheat switch engines.

It pays to superheat stationary power plants.

The Superheater Company Limited is an institution which serves railway mechanical men who are working toward reduced operating costs.

We invite you to study the progress our engineers have made in the development and application of the Elesco method of superheating.

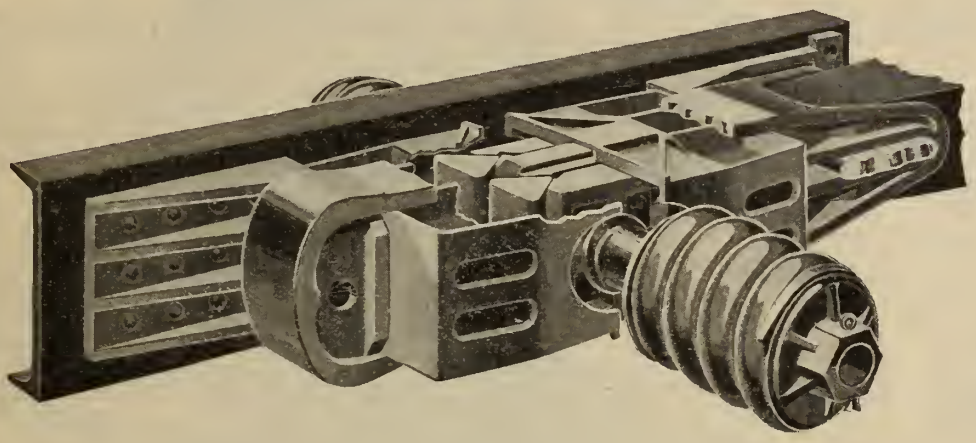
THE SUPERHEATER COMPANY, LIMITED,
TRANSPORTATION BUILDING,
MONTREAL

WORKS AT SHERBROOKE, QUEBEC

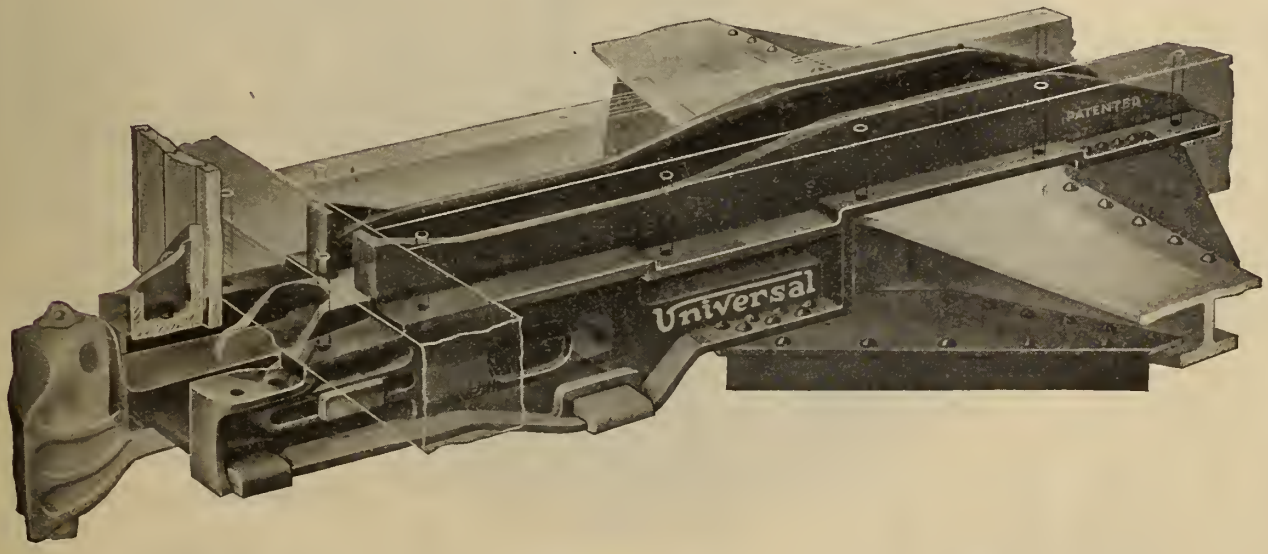
Designing Engineers and Manufacturers of ELESCO Steam Superheaters and pipe coils for all purposes.

Made in Canada

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
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CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER
Transportation Building, MONTREAL

CANADIAN VICKERS LIMITED

Shipbuilders, Engineers, Boilermakers and Repairers

MONTREAL, CANADA

25,000-TON FLOATING DOCK, 600 FEET LONG
Operated in One or Two Sections.

S.S. "ALSACE"
Built for Cie Francaise d'Armement et d'Importation
de Nitrate de Soude, Paris, France

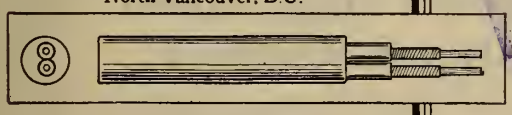
Makers Under License Best British Designs:—
WINCHES, WINDLASSES, ASH HOISTS,
STEERING GEARS, TELEMOTORS

Immediate Deliveries from Stock

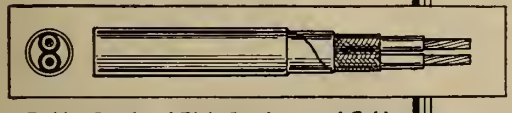
Cables:
VICKERS, MONTREAL

The Launch of the Canadian Highlander at the Wallace Shipbuilding & Dry Dock Co. North Vancouver, B.C.

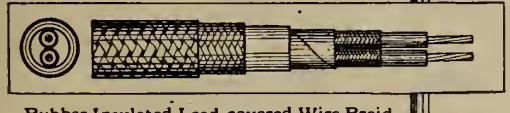
Canada's Merchant Marine Wired with *Northern Electric* CABLES AND FITTINGS



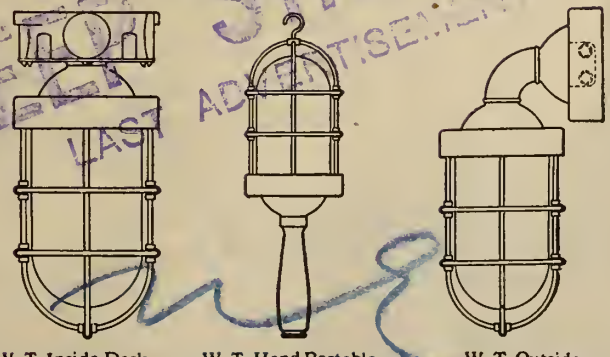
Cab Tire Cable



Rubber Insulated Plain Lead-covered Cable



Rubber Insulated Lead-covered Wire Braid Armored Cable. Two Conductor



W. T. Inside Deck Fitting — W. T. Hand Portable — W. T. Outside Bulkhead Fitting

STOCKS ARE CARRIED AT THE FOLLOWING PORTS:

HALIFAX - MONTREAL VANCOUVER

Northern Electric Company

LIMITED

Montreal	Ottawa		Windsor	Calgary
Halifax	Toronto		Winnipeg	Edmonton
Quebec	Hamilton	London	Regina	Vancouver

Spencer's "Crescent" & "Velos" Steels

for Canada again:

During the war, with its abnormal demand, "Velos," "Crescent" and the other famous steels made by Walter Spencer & Co., Ltd., in Sheffield, England, were not available in Canada. Now we have arranged to stock and distribute them so that you can have the advantages which come from using these reliable steels:

Spencer's High Speed Tool Steels:

Triple Velos

A 25% Tungsten steel for exceptionally severe service; for machining such tough materials as locomotive tires, manganese and chilled steel and iron castings.

Velos U R (18% Tungsten)

A quality steel for any work in a machine shop, or for any tool. The steel to use for quantity production at low cost, in almost any grade of steel or iron.

Spencer's Nickel-Chrome Steels:

S. N. C. 1 and 2—Nickel-Chrome, oil-hardening, for axles, driving and crank shafts, connecting rods and gears.

S. N. C. 3—Nickel-Chrome, air-hardening, for gears, axle shafts and parts subject to severe torsional stress.

S. N. C. H.—Nickel-Chrome, case-hardening, for parts requiring exceptional strength and surface hardness.

Spencer's Carbon Tool Steels:

Extra Special Triple Crescent

A special alloy steel which does not shrink in hardening. For dies, taps, reamers, punches, cams, bearings and similar service, and in a special temper for finish turning chilled rolls.

Special Diamond Cast

An exceptionally tough steel, especially suitable for battering tools — hammers, dies, rivet snaps, chisels and caulking tools.

Special Ardho

An oil-hardening steel which requires no tempering. Easier to forge, harden or weld than any other known steel. No danger of overheating. Especially suitable for tools to withstand shocks.

Crescent Cast

Spencer's standard tool steel. Used successfully for every tool and machine shop service which is within the capacity of carbon steel.

Spencer's High Speed Drills and Reamers:

Made from Velos U R (18% Tungsten) Steel, in Taper and Straight Shank, Jobber and Letter Sizes, and Standard Types of Reamers.

The thoroughly dependable quality of Spencer's steels has long been established and prices are very favorable indeed. Give us an opportunity to quote on your requirements.

Sole Canadian Distributors:

LYMAN TUBE & SUPPLY CO., Limited

MONTREAL TORONTO WINNIPEG NEW YORK

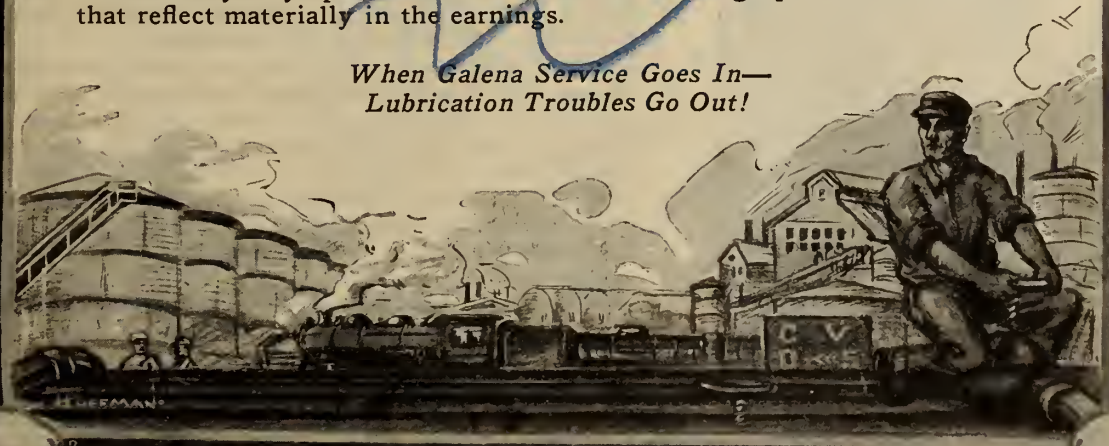
The Advantages of Galena Service

The Galena Service organization is probably more generally known in railway circles—both steam and electric—than any similar body in existence. Co-operation—the practical kind—is what this service brings to the operating departments of railroads. Co-operation that works for efficiency and economy and invariably succeeds in securing highly satisfactory results.

Under present conditions there are plenty of difficulties facing railway officials without the addition of the lubrication problem. Yet there is scarcely an item of more importance, as successful operation is absolutely dependent upon proper lubrication.

Galena Service lifts this burden from the shoulders of the busy executive and assumes the responsibility of the lubrication question. It provides the means and methods by which efficient and economical lubrication is assured and in many ways proves a valuable aid in creating operation betterments that reflect materially in the earnings.

When Galena Service Goes In—
Lubrication Troubles Go Out!



The Galena-Signal Oil Co. of Canada
Limited
TORONTO — MONTREAL

FAIRBANKS-MORSE

A National Institution of Mechanical Service

IN Canada, as in every country in the world, there are names which, through years of service, have warranted national confidence and good-will. In the Canadian world of mechanical and engineering efficiency there is one name which enjoys the distinction of leadership. Its prestige carries through the entire coast-to-coast chain of sales offices and warehouses into every city, town, and hamlet.

Fairbanks-Morse products mark the farmer, the manufacturer, the artisan, and all users as careful and practical buyers of mechanical goods. The Fairbanks-Morse 100% quality seal is the buying guide for the consumer—the guarantee of satisfaction.

The Canadian Fairbanks-Morse general catalogue is a reference of what is standard in design and practice in mechanical goods. This book lists the largest variety of scales, valves, steam goods, oil engines, pumps, electrical machinery, machine tools, woodworking machinery, transmission appliances, railway contractor's and machine shop supplies ever published in Canada in one book. Your copy will be sent on request.

The Canadian Fairbanks-Morse Co., Limited

Halifax, St. John; Quebec, Montreal, Ottawa, Toronto, Hamilton, St. Catharines, Windsor, Winnipeg, Regina, Saskatoon, Calgary, Vancouver, Victoria. 1

Canada's Departmental House for Mechanical Goods

49 *The map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels*

Chicago	3	Boston	Huntingdon W Va
St. Louis	2	Detroit	Wilmington, Del
Buffalo	4	St. Paul	Houston, Tex
Pittsburg	2	Kansas City, Kan	Hannibal Mo
Cleveland	2	Denver	Reading, Pa
Amherst N.S.		Tacoma	Baltimore
Montreal		Rochester, N.Y.	Richmond, Va
Mich. City, Ind		Sayre, Pa	Ft. William, Ont
Louisville		Berwick, Pa.	St. Thomas,
Mt Vernon, Ill		Albany	Hamilton,
Ft. Wayne, Ind		Toronto	Ramapo, N.Y.
Birmingham		New Glasgow N.S.	Marshall, Tex
Atlanta		Madison, Ill.	Los Angeles
Savannah			Council Bluffs

AMERICAN RAILROAD ASSOCIATION STANDARDS

650 lb. wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy Years

Where CHILLED IRON WHEELS *are made for Railway and Street Car Service*

Capacity 20,000 per day
25,000,000 in Service

Association of Manufacturers of Chilled Car Wheels

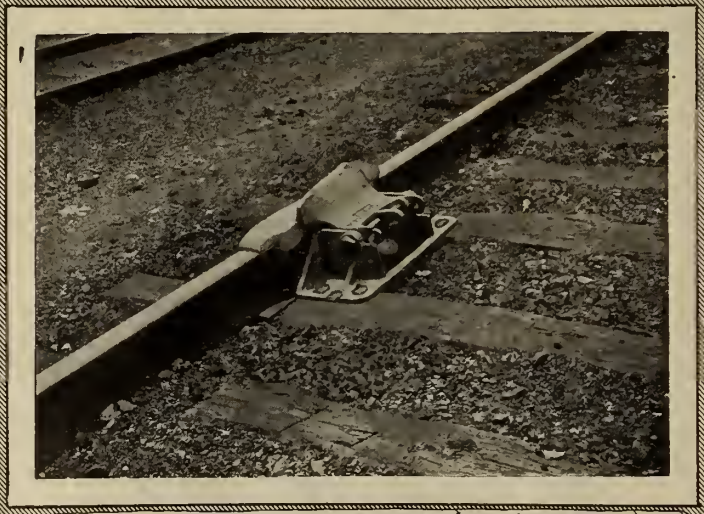
1847 Mc Cormick Bldg.
CHICAGO

STANDARDIZE YOUR DERAILS

A TYPE OF DERAIL FOR EVERY NEED OF SERVICE

Q and C

PORTABLE TYPE (Adjustable)



HAND THROW TYPE (Adjustable)

MECHANICAL THROW TYPE

Portable Type
Single and double throw
Adjustable to any rail section

Hand Throw Type
Single and double throw
Two sizes, adjustable for rails up to 100 pounds

Mechanically operated
Single and double throw
Easily operated from switchstand or tower.

Lowest Initial Cost
Highest Efficiency
Maximum Strength

Canadian Representatives

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NEW YORK
90 WEST ST.

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RAILWAY EXCHANGE BLD'G

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"DOMINION" WIRE ROPE

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The Best Ballast Car Ever Built

Canadian National Railways Standard Ballast Car

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For Coal or General Service

Built of Materials Obtained in Canada

Built to any size or Capacity

Write for Booklet No. 19 for further information.

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We carry only goods of the Highest grade, quote Lowest prices, and GIVE BEST OF SERVICE

"MARION" Steam Shovels

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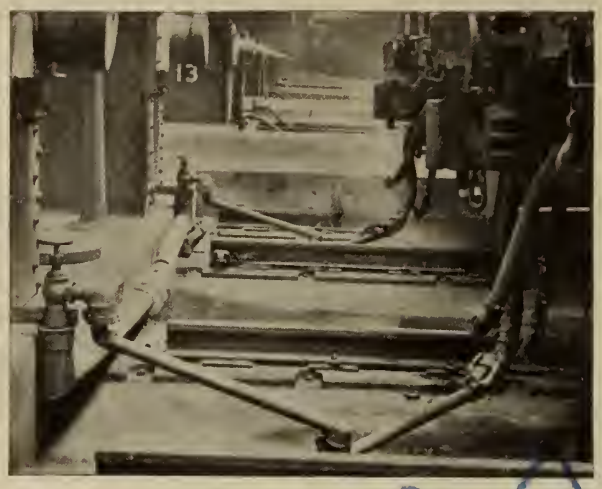

The only wearing parts are the Gaskets, which when lubricated with driving box grease, occasionally, will last indefinitely. Bulletins upon request.

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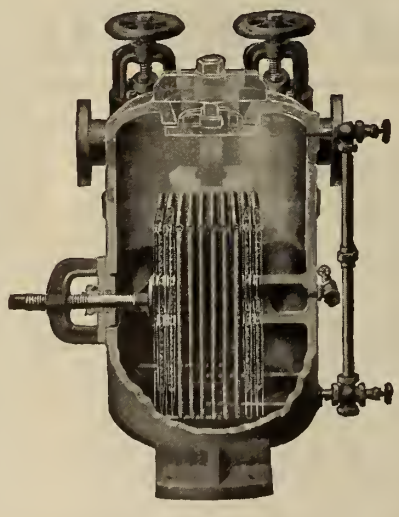

The hot distilled water secured from marine power plants, operating condensing, is ideal for boiler feed after the oil which it contains has been removed.

The Reilly Multiscreen Feed Water Filter and Grease Extractor efficiently removes this oil from the water. It is also suitable for the removal of mud or sand from lake or river water when used for boiler feed.

The area of the filtering surface is 500 times the area of the water inlet passage, far exceeding that of any other filter regularly manufactured, thus insuring a slow and efficient rate of filtration through the filtering cloths.

By-pass valves, allowing the uninterrupted flow of water to the boiler, and a standard manhole in the top of each filter for the removal of the cartridges, make cleaning a very easy operation.

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The Perfect Harness

DRAFT ATTACHMENT

Furnishes the strongest connection between the draft gear and car underframe.

Service buffing and pulling shocks are transmitted to the car frame at a number of points, preventing distortion of sills, breakage of friction barrels or springs, and consequent necessity for repairs.

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New York **Works at Rochester** **Chicago**

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OTHERWISE A HOLE WOULD DO

The reason for using a fire door at all is to keep out cold air.

Franklin Butterfly Door is open just long enough to get the coal into the firebox.

It combines with the quick closing, simplicity in construction and operation, dependability and low cost.

Made in Canada

Franklin
No. 8 Firedoor

Franklin Railway Supply Co. of Canada
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Transportation Bldg. - Montreal

GRAND TRUNK RAILWAY SYSTEM

The Double Track Route

WINTER TOURS
TO
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Or to some Other Pacific Coast Point or to

Alabama	Florida	New Jersey	South Carolina
Arizona	Georgia	New Mexico	Texas
Bermuda	Louisiana	North Carolina	West Indies
Cuba	Mississippi		

Golfing, Tennis, Polo, Bathing, Fishing, etc., or just rest.

Stop-over Privileges Allowed

Apply to any Agent of the Company, who will be pleased to furnish you with complete information as to fares, routes, etc.

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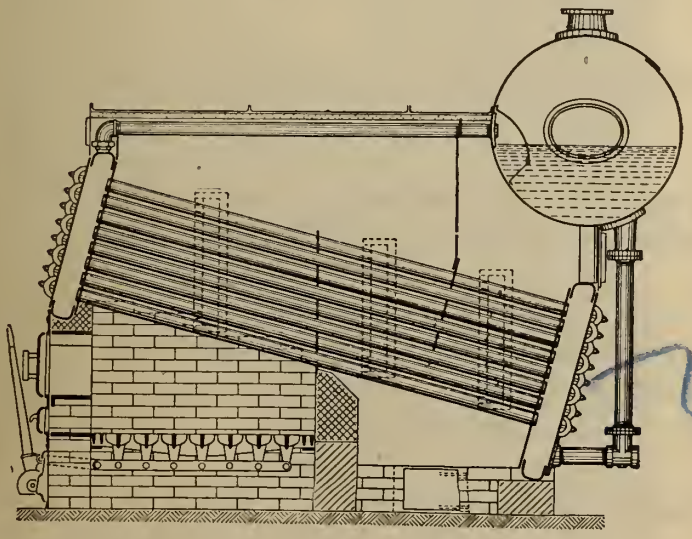
The Victory Heating Boiler



Is a water tube boiler designed for heating, and is the safest boiler that can be used.

It has a steel case lined with asbestos and firebrick and requires no brick setting.

It may be shipped knocked down and taken into a building through ordinary doors.

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FRICTION DRAFT GEAR

CLASS A-18-S

THE PERFECT DRAFT GEAR

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BALANCED SIDE BEARING

SAVES RAILS WHEELS AND COAL

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Can manufacture forgings up to 40 tons in weight to all Admiralty and Lloyd's Tests and specifications.

Also can supply forgings of all shapes and sizes made of ordinary or "Harmet" fluid compressed open-hearth steel, and satisfying the most severe specifications.

Our forges are modern in every respect—designed and installed after close study of the latest developments in all countries. Moreover, we produce the highest grades of steel by the most approved methods.

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POP VALVES
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WHISTLES

Genuine "World" Loco. Pops and Whistles are standard equipment on Canadian railways.

When ordering always specify "World," and in ordering parts for whistles and pops, give part name and figure number.

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Commercial Acetylene Supply Company, Inc.

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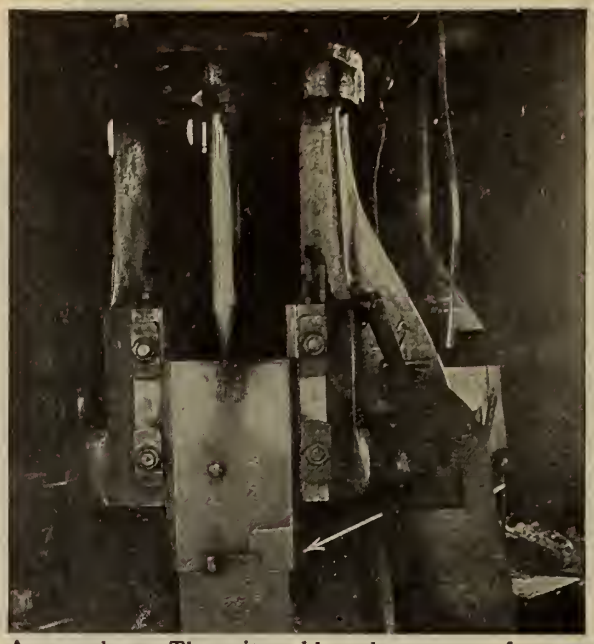

Arrow shows Thermit weld made on ram of steam hammer

Read about this 11-month service test

THERMIT WELDING

of a welded Steam Hammer Ram

While overhauling a steam hammer at the Springfield (Mo.) Shops of the St. Louis-San Francisco Railroad the ram was found to be cracked where the top die fits into the head. The ram is 8¼ in. thick, 24 in. long and 16 in. wide. The ram was at first cut out and an attempt was made to have it oxy-acetylene welded, but a few months later it started to crack again. A new ram was ordered, but the old one gave way and broke off before the new ram was received from the factory. A Thermit weld was then made, the weld machined and the hammer replaced in operation five days after the break. According to latest reports the hammer had been in operation for eleven months and was still in as good condition as ever, in spite of the constant pound on the weld, as the hammer was used for forging soft steel car axles and other work.

Send for Pamphlet 2144.

METAL & THERMIT CORPORATION
15 Emily Street, Toronto

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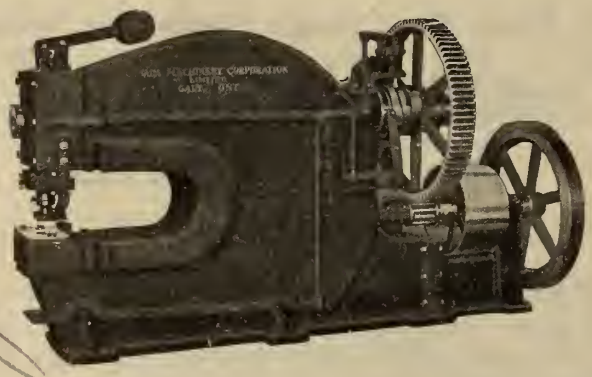

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No. 4, 36" Punching or Shearing Machine

is rigid, heavy and powerful, and is equipped with simple but effective mechanism which keeps the machine under the instant control of the operator. Built with throats from 12" to 48".

CAPACITY: Will punch 1¼" in 1" Will shear 1¾" squares.
Will shear 2" rounds Will shear 7"x1" flats.

Investigate now. Full details and prices on request.

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Engineers, Manufacturers and Erectors of Steel Structures.

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The "F.B.C." Welded Flexible Staybolt

OUR LATEST ACHIEVEMENT
NON-LEAKABLE—
THREE STYLES ONLY
COST OF APPLICATION LOWERED
WRAPPER SHEET STRENGTHENED

Specify for new equipment and use them in repairs.

THE "F. B. C." WELDED FLEXIBLE STAYBOLT IS THE RECOGNIZED SUPERIOR OF ALL THREADED SLEEVE TYPES OF FLEXIBLE STAYBOLTS

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Canada's Premier Machinery House

NEW AND REBUILT

Ironworking and Woodworking Machinery
Engines, Boilers, Motors, Contractors' Equipment

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Water Trips Everywhere

FRENCH SERVICE, HAVRE AND BORDEAUX

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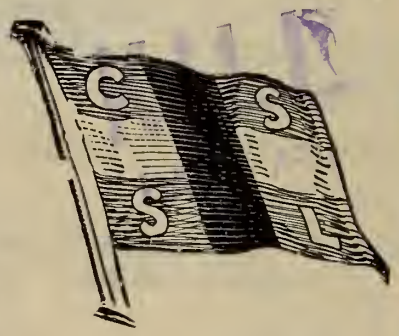
Passenger and Freight Service. Frequent Sailings from Montreal. Further particulars upon request.



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Save both Time and Money. We have excellent facilities for Handling Freight of all Kinds. Through Bills of Lading issued via all Ocean Lines, via Montreal.

CANADA STEAMSHIP LINES, LIMITED

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Head Office, Victoria Square, MONTREAL

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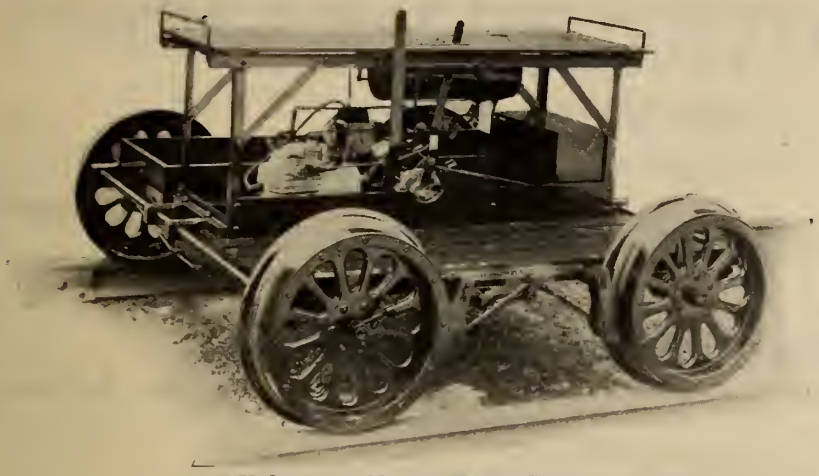
Kalamazoo Motor Cars



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A light sturdy car, particularly adapted for use of Roadmasters, Signalmen and Inspectors. Has through running axles, with four wheels of equal diameter and motor and seat in center of track. Equipped with magneto ignition and free engine clutch with step starting device, features which are very desirable for easy starting of motor.

All Kalamazoo Motor Cars equipped with Hyatt Roller Bearings throughout.

Write us for bulletins and specifications of our various cars.

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Canadian Representatives: Kelly Powell Co., Ltd., Winnipeg.
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BUFFALO BEAMS ARE BEST BEAMS

Offices
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Brake Beams for all Classes of Cars, Locomotives and Electric Equipment

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ANHYDROUS AMMONIA ($N.H_3$.) COLD AIR MACHINERY CARBONIC ANHYDRIDE ($C.O_2$.)

Improved Ethyl Chloride Systems

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SOLE BRITISH LICENSEES AND MANUFACTURERS OF

"Viking" Rotary Pump Rotary Air Pumps and Blowers

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Automatic Steam Traps Thermostatic Control Valves and Fittings Automatic Regulators

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Makers of: "Union" Anti-Fouling and Anti-Corrosive Compositions. High grade material used by the British Government, Admiralty, and other prominent leading Organizations.

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CANADIAN STEEL-TIRE AND WHEEL COMPANY, LIMITED

Locomotive and Car Wheel Tires

Steel Tired Wheels of all kinds

Works:
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Steel Ship Builders and Ship Repairers

Dry Dock, 550 feet long, 102 feet wide

Hull Repairs Electric Welding
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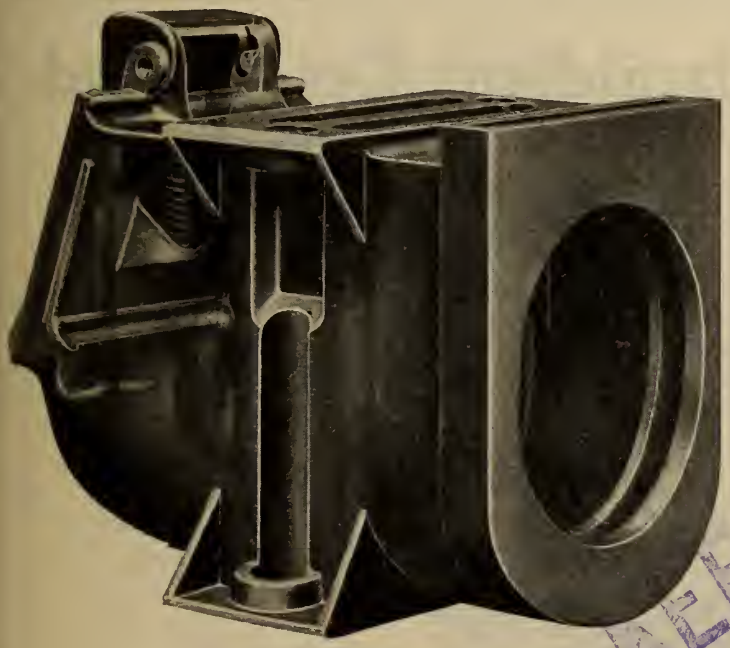

THE reason a lid is lost is because the hinge pin is lost. The McCord Journal Box has no pin to lose. The eccentric trunnions are cast as part of the lid. After lid is applied, it is permanently locked to the box. It means a saving on lid renewals.

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WIRE ROPE

WE are manufacturing Steel Wire Rope for all purposes and have in stock at each of our warehouses a good assortment of standard sizes in Siemens-Martin Steel, Crucible Cast Steel, Plough Steel and Extra Plough Steel Qualities.

We also manufacture and carry in stock all kinds of

BARE AND INSULATED ELECTRICAL WIRE AND CABLE

Write nearest office for quotations

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Canadian Adventurer, launched at Port Arthur, by H.R.H. Prince of Wales, Sept. 8, 1919.

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Wheelbarrows
Winches, ship
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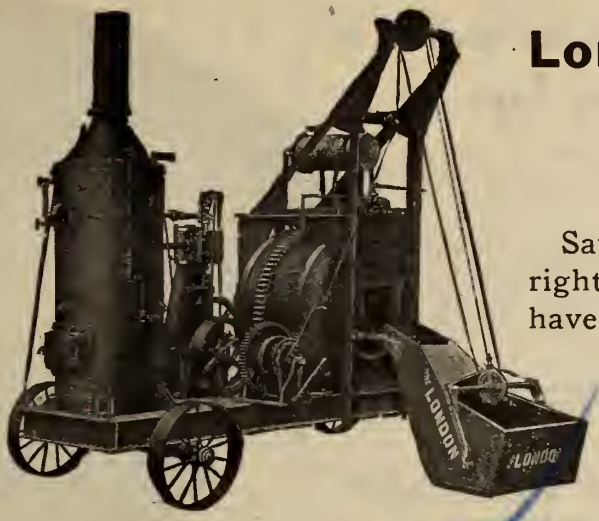

London Concrete Mixers

Save money by using the right mixer on the job you have in hand.

There is a particular type of mixer to suit your requirements.

Information or prices gladly furnished on request.

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Prest-O-Lite Service Is More than a Name

Some of the most valued heating applications in industry were inspired or developed by Prest-O-Lite engineers. Their experience is rich in just such knowledge as may save you much loss through costly experiment or inefficient methods.

Prest-O-Lite Service is built upon proved ability to serve—ample plant and cylinder capacity, broad experience and a smooth-working, nation-wide organization—the fundamentals without which service is no more than a name.

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Dissolved Acetylene

"The Universal Gas with the Universal Service"

has earned its place by force of organized knowledge and facilities.

If you have a metal-working problem, we are pretty certain to have a tested plan to submit—a plan that will show you just what to do and how best to do it.

Send us a sketch and data. We'll send the answer—fair and unbiased—professional rather than commercial.

Our Engineers are at your service, whether you are an active user or a potential user.

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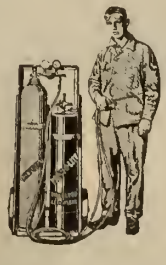
Branches: Montreal, Toronto, Winnipeg
Plants at: Toronto, Ont.; Merritton, Ont.; Shawinigan Falls, P.Q.; St. Boniface, Man.



You can't help noticing the good qualities of Pratt & Whitney Taps

Their free cutting qualities, their extreme accuracy and their extraordinary ability to outlive others distinguish them.

The con-eccentric relief—a distinctive P & W feature—is the secret of their goodness. One-third of the cutting edge is concentric. The remaining two-thirds has eccentric relief. Taps can be sharpened at the only correct point—on the face of the cutting edge. Sharpening in no way affects their size.

Yes, they cost a little more than some others, but they're well worth the difference. Carried in stock as are all other P & W Small Tools at our sales offices and agencies as listed.

PRATT & WHITNEY COMPANY OF CANADA, LIMITED

Works: DUNDAS, Ontario

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WINNIPEG 1205 McArthur Bldg.	HALIFAX Roy Building	VANCOUVER B.C. Equipment Co.

Canadian Railway and Marine World

February, 1921

Concrete Lining of Connaught Tunnel, Canadian Pacific Railway.

The construction, on the C.P.R., at Glacier, B.C., of the Connaught tunnel, a double track bore about five miles long, which was opened for traffic, Dec. 6, 1916, reduced the elevation of the line from 4,340 ft., on the original line over Rogers Pass, 3,787 ft., shortened the rail line by 4.3 miles, eliminated 4½ miles of snow sheds, and cut out curvature to the amount of seven complete circles, at a cost of about $5,500,000, established a record for quick construction, work having been started on the main bore Jan. 15, 1914, and work being prosecuted from both ends. The headings met, and passage through the tunnel was effected, Dec. 15, 1915. The difficult, but less spectacular, task of lining the tunnel with concrete is now being done. Something over 3 cu. yd. a running foot are estimated to be required. Traffic through the tunnel is going on without interruption, one track being reserved exclusively for freight and passenger trains, and the other for the lining work.

As the work is located in the heart of the Selkirk Range of Mountains and far from all ordinary sources of supplies and labor, it follows that the living accommodation for the men, the construction plant and equipment, the storage of materials and all similar operating details have had to be carefully and thoroughly worked out. The camp provides accommodation for a force up to 200 men, and is intended to furnish as complete and comfortable quarters as are possible under the severe winter conditions in the mountains. One of the accompanying illustrations shows a portion of the camp, which was built to comply with all government requirements, and which comprises bungalows for small groups of men, separate quarters for families, bath house, laundry, community dining room, kitchen and storehouse, in all about 60 buildings. The houses are provided with water and electric light.

Portion of Construction Camp, for Concrete Lining of Connaught Tunnel, C.P.R.

With an average snow fall of 40 ft. during the winter, it was quite necessary to provide a considerable amount of storage sheds, both to protect materials from dampness and to be able to find them at all once the heavy snows began. Another of the illustrations shows the facilities under construction for storing gravel, which comprise a timber bunker of 5,000 yd. capacity into which gravel is dumped direct from car set on a high line, and from which it is conveyed into the bins of the concrete mixing cars which are placed on the low level. Steam pipes are installed to keep the gravel from freezing.

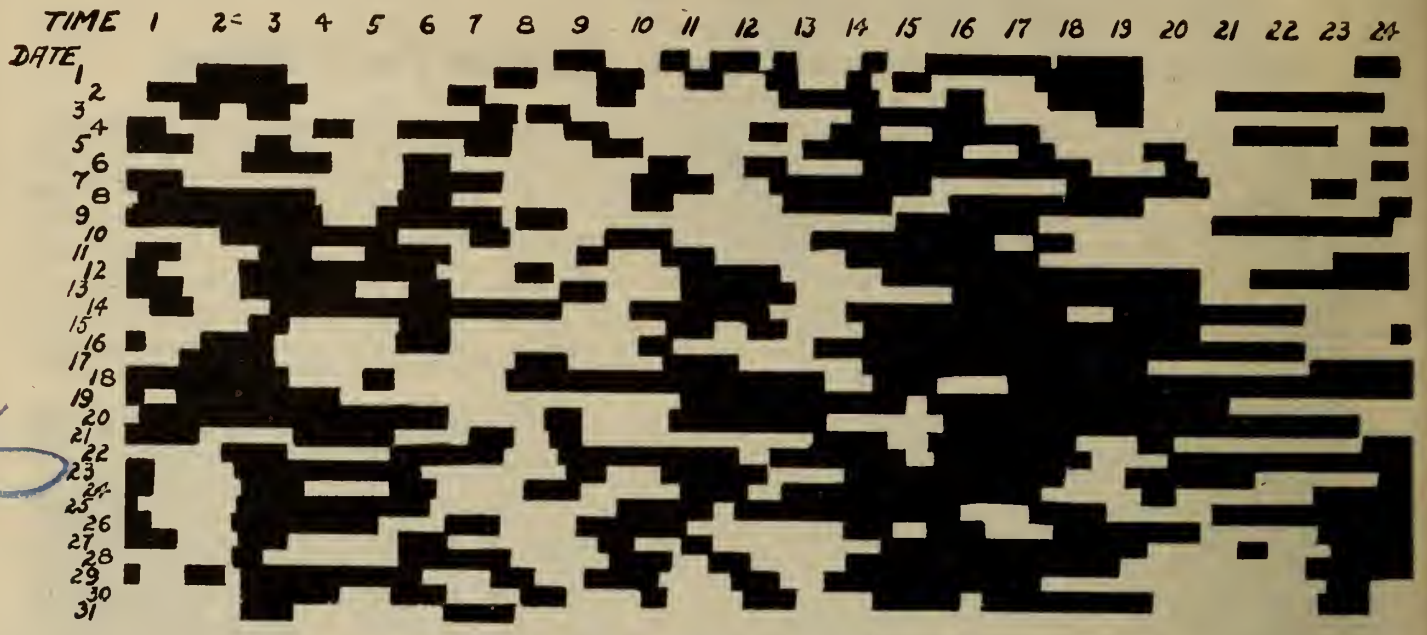
An electric power plant, with coal burning locomotive type boilers, and 300 k.w. nominal capacity of electric generating units, furnishes light and power for all operations both inside and out of the tunnel. The current is led at 2,200 volts a.c. through the pioneer tunnel which was used in constructing the main tunnel and which lies parallel to it 50 ft. away. This current is lowered to 550 and 110 volts for power and light respectively, soon after entering the main tunnel, and is so distributed through the area where concreting operations are going on. Outlets every 5 ft. permit the attachment of the light apparatus used in the working zones, while the line is tapped wherever needed for the operation of the concrete placing equipment.

The heaviest of this apparatus is the concrete mixing and air placing equipment, which, with the necessary storage bins for sand, gravel and cement, is mounted on two heavy pit flat cars, coupled together and run into the tunnel, as needed, by a gasoline locomotive. These cars are spotted under the form to be filled, and connected to the power line, and the concrete, after mechanical mixing, is shot by air, at about 80 lb. pressure, into the forms, the cars carrying enough material for one form, or 20 tunnel feet, before going outside for recharging. The forms are Blaw-Knox collapsible type, with steel arch members

and steel plates. There are six of them, intended to be blown in rotation, so that, in general, one or two forms are being blown, two or three are being filled, one is being collapsed, and one is being re-erected, all the time. These forms are mounted on wheels, clear of all traffic, and after collapsing the whole form is rolled forward to its new position. A movable platform, of light steel and timber, precedes each Blaw form, and provides for the handling of all preliminary work, which includes false forms where the tunnel section is overbroken, the hanging of the false forms to the tunnel roof, the placing of lagging behind the false forms, the placing of reinforcing rods, the side swiping of rock points, and all other work preliminary to the placing of the steel form and the blowing of concrete.

A 1% grade against westbound traffic extends practically the entire length of the tunnel. Many of the trains westbound are double headed and work steam hard during the passage through the tunnel. The smoke, while not dangerous, is at times extremely thick, and under certain weather conditions hangs for a long time in the tunnel, despite the operation of large ventilating fans at the west portal. The smoke chart for Mar. 1920 shown herewith gives an idea of smoke conditions, and it may be said that that month was not one of extreme-ly heavy traffic. It will be apparent that, even with a high degree of artificial illumination, productive working time in the tunnel is seriously cut into. Under certain conditions, when extra sections of trains are running, it is extremely difficult to get work straightened away before it is again stopped by smoke from another train.

The work is being done under the di-



Smoke Chart, Connaught Tunnel, C.P.R., for March 1920.
Clear intervals of less than 10 minutes are disregarded.

Timber Bunker, for Storing Gravel for Concrete Lining of Connaught Tunnel, C.P.R.

rection of the C.P.R.'s Western Lines Engineering Department, W. A. James being Assistant Chief Engineer; Frank Lee, Engineer, Maintenance of Way; and H. Rindal, District Engineer. The Sydney E. Junkins Co. Ltd., of Winnipeg and Vancouver, has the contract for the lining work.

Articles describing the original construction of the tunnel, many of them illustrated, appeared in Canadian Railway and Marine World for April, Oct. and Nov. 1913; Jan., June, Oct. and Dec. 1914; Jan. and Feb. 1915; May 1916, and Dec. 1917.

Railway Companies' Special Instructions re Station Limits Cancelled by Board of Railway Commissioners.

As stated in Canadian Railway and Marine World for January, the Board of Railway Commissioners passed general order 322, Dec. 10, 1920, directing railway companies to withdraw from their respective working timetables, Special Instruction E, and to observe the Uniform Code of Rules for Canadian Railways, approved by general order 42, July 12, 1909, the necessary changes and instructions to employes to become effective June 1, 1921. This order was based on a judgment given by Commissioner Boyce as follows:—

Complaint is made to the Board that what is called "Special Instduction E," as at present contained in the C.P.R. working timetables, should be discontinued as illegal, and not in accordance with, nor a part of, the authorized general train and interlocking rules prepared and authorized under the appropriate provisions of the Railway Act. The complaint is of long standing, and since 1913 has been before the Board for hearing on three occasions. One of the original protests made to the Board, dating back to Nov. 1913, may be referred to for particularity, as follows:

"We, the Members of the Brotherhood of Locomotive Engineers, Division..... of ..... heartily endorse the action taken by Bro. Lawrence, our representative, in opposing rules E and F, in the C.P.R. timetable on eastern and western lines, and strongly protest against any rules that have for their object any changing of the system of protection from that contained in the Standard Code of Rules approved by the Governor in council."

The above is a sample of a great many similar protests received from different lodges of the Brotherhood of Locomotive Firemen and Engineers throughout Canada. Special instruction E complained of, reads as follows:—

"The outer main track switches of passing tracks will be considered 'station limits,' and main track may be used inside of such limits by keeping clear of first and second class trains. All trains, except first and sceond class trains, must, unless otherwise directed, approach and pass through such limits, prepared to stop, unless the main track is seen to be clear. Trains occupying or using the main track outside of station limits must be protected, unless train orders, or schedule, confer the right to use main track. During foggy, smoky or stormy weather, protection as per rule 99 must, in addition, be maintained to ensure absolute safety."

This special instruction was first issued by the C.P.R.'s Assistant General Manager and appeared in the company's timetables on June 27, 1907. A similar instruction appears in the working timetables of the Canadian National Rys., which were represented at the hearing. Special instruction F, which reads as follows:—

"Where there are no yard limit boards, the outer main track switches of passing tracks, unless otherwise directed, will be considered yard limits within the meaning of rule 93."

first appeared in the C.P.R. timetable 6, of the Western Division, June 5, 1910. By the Board's order 108, dated Aug. 11, 1913, the C.P.R. was directed to withdraw rule F and observe uniform rules regarding yard limits.

Neither special instruction E nor special instruction F were ever incorporated into the general train and interlocking rules, nor did they in any way ever receive ratification or approval by order of this Board, or by the Governor General in council, as it is contended by the complainants is essential under the Railway Act to make them valid and legal operating rules.

It was contended by the complainants and very exhaustively and ably argued, that special instruction E, which is now used on the entire C.P.R. system, and is also applied on the Canadian National Rys., including what is known as the Intercolonial System, was not only illegal, in that it was an operating rule requiring the approval as above, but that it was unsafe in operation, as regards the public and the employes of the railways concerned, and has resulted in accidents; that it conflicts with certain rules 93, 99, 551 and 552, and with definitions of terms of the general train and interlocking rules duly sanctioned under the Railway Act.

The railway company, with equal force, urged upon the Board that the instruction which had been in force since 1907, had, by practical application and operation, been found to be the safest plan of operation under the circumstances intended to be provided against; that the accidents referred to by complainants had, in the majority of cases, not been caused by the application of the instruction, but by the non-observance of the instruction, and that the safety of the public and of the employes of the railway and the most efficient operation had been best attained as a result of operating under the instruction since 1907, and that to modify or change the plan of operation mentioned in instruction E would be to create a danger which hitherto operations thereunder had avoided, and the railway company asked that should the Board be of opinion that special instruction E is open to the objection that it lacks approval and ratification in the form required under the Railway Act, the Board shall issue an order, under the provisions of sec: 287 of the Act, authorizing the company to continue the present method which, the company submits, has been demonstrated, upon the evidence, to be an eminently safe and proper one.

If, as is contended by the complainants, that which is called, and promulgated to its employes as, instruction E appears only in the company's working timetable as an "instruction," and does not appear in the book of operating rules approved under the Railway Act, then it is necessary to consider the contentions of the railway company that the instruction was not one requiring to be approved under the provisions of the Railway Act in order to attain legality. The operation provided by instruction E may be, as is contended by the railway company, an eminently safe and proper one. It was contended that it provided the safest and most proper method of operation of the character provided for in the instruction, and yet, if the instruction is, in fact, a rule or regulation of the character contemplated under secs. 290 et seq. of the Railway Act it can only become effective as a legal rule on complying with the requirements of the Act as regards approbation. To designate that as an instruction which is, in fact, an operating rule of general application, would be an evasion of the sections referred to. To permit such a practice to continue would be to disregard the Board's duty, imposed by sec. 288 of the Railway Act, to endeavor to provide for uniformity of rules for the operation and running of trains, and might expose the public and the employes of the railway, to the danger resulting from a system of operation, of general application on any railway, not governed by, and, perhaps, inconsistent with, the operating rules approved according to law.

Sec. 290 of the Railway Act is as follows:—

"The company may, subject to the provisions and restrictions in this and in the special act contained, and subject to any orders or regulations of the Board made under secs. 287 and 288, make bylaws, rules or regulations respecting:

"(a) the mode by which, and the speed at which any rolling stock used on the railway is to be moved;

"(b) the hours of arrival and departure of trains;

"(c) the loading and unloading of cars, and the weights which they are respectively to carry;

"(d) the receipt and delivery of traffic;

"(e) the smoking of tobacco, expectorating, and the commission of any nuisance in or upon trains, stations, or other premises occupied by the company;

"(f) the travelling upon, or the using or working of the railway;

"(g) the employment and conduct of the officers and employes of the company; and,

"(h) the due management of the affairs of the company."

Sec. 292 provides that

"All bylaws, rules and regulations, whether made by the directors or the company, shall be reduced to writing, be signed by the chairman or person presiding at the meeting at which they are adopted, have affixed thereto the common seal of the company, and be kept in the office of the company."

Sec. 293 provides that

"(1) All such bylaws, rules and regulations, except such as relate to tolls, and such as are of a private or domestic nature, and do not affect the public generally, shall be submitted to the Governor in council for approval."

Upon a report from this Board (ss2) the Governor in council may sanction such bylaws.

"(ss3) No such bylaw, rule or regulation shall have any force or effect without such sanction, or after such sanction has been rescinded.

Sec. 294 provides that

"Such bylaws, rules and regulations, when so approved, shall be binding upon, and shall be observed by all persons, and shall be sufficient to justify all persons acting thereunder."

Reference was made to the general train and interlocking rules, which were approved by the Board's order 7,563 (now general order 42), July 12, 1909, adopted by bylaw 96, passed by the C.P.R. Board of Directors on Mar. 14, 1910, and approved by the Governor General in council. These rules, it was contended by complainants, are the rules, and the only rules and regulations, which govern, and legally can be intended to govern, "the using or working of the railway." By reference to the memorandum on page 3 of these working rules, legalized under the Railway Act, it will be seen that there is a memorandum, signed by the Vice President of the railway company, which contains the following intimation:

"The rules herein set forth govern the railroads operated by the Canadian Pacific Railway Co. They take effect June 1, 1910, superseding all previous rules and instructions inconsistent therewith. Special instructions may be issued by proper authority."

There was also filed a copy of a working timetable of the company, such as is placed in the hands of its operating men, and in this working timetable, and under the head of "Special Instructions," is to be found instruction E, which is complained of. All other instructions, except instruction E, contained under the head of "Special Instructions" in this timetable, are of minor importance and are "special" with regard to special conditions therein referred to.

It is contended that this special instruction E is inconsistent with rule 99 of the general train and interlocking rules, approved as above, as follows:

"When a train stops or is delayed on the main track under circumstances in which it may be overtaken by another train, the flagman must go back immediately with stop signals, a sufficient distance from the train to ensure full protection at least:

"In day time, if there is no down grade toward train within one mile of its rear, and there is a clear view of its rear of 2,000 yards (40 telegraph poles) from an approaching train, 500 yards, 10 telegraph poles;

"At other times and places, if there is no down grade forward train, within one mile of its rear, 1,200 yards. 24 telegraph poles;

"If there is a down grade toward train, within one mile of its rear, 1,800 yards, 36 telegraph poles.

"The flagman must, after going back a sufficient distance from the train to ensure full protection, take up a position where there will be an unobstructed view of him from an approaching train of, if possible, 500 yards (10 telegraph poles), first placing two torpedoes, not more than 200 or less than 100 ft. apart on the rail on the same side as the engineer of an approaching train, 100 yards (2 telegraph poles) beyond such position. The flagman must remain in such position until recalled or relieved.

"If recalled before another train arrives he must, at night, or when weather or other conditions obscure day signals, or when snow ploughs or flangers may be running, in addition to the two torpedoes, leave a fusee burning red at the point he returns from and at such other points on his return as may be necessary to ensure full protection.

"The front of a train must be protected in the same way when necessary by the front brakeman, or if there be none, by the fireman.

"Flagmen must always, on the approach of a train, display stop signals, and if not already done, place two torpedoes on the rail as before described, and then return 100 yards (2 telegraph poles) nearer the protected point.

"Flagmen must each be equipped for day time with a red flag and four torpedoes, and for night time, and when weather or other conditions obscure day signals, with a red light, a white light, and four torpedoes, three red fuses and a supply of matches.

"A train should not stop between stations at a place where the view from following trains is obstructed."

Under the provisions of instruction E if a train stops, or is delayed, on the main track, within the boundaries defined by special instruction as "station limits," it appears clear that the intention of the company is that tthe provisions of special instruction E shall control the operation as against the provisions of rule 99; i.e., that a rule, no. 99, duly approved under the Railway Act, shall, under certain conditions, be superseded by an instruction in the timetable. The railway company states that this is not the case, that rule 99 is self contained, but I do not so read it, because it provides for a contingency of a train being stopped or delayed on the main track. If it be stopped or delayed on the main track, outside of what are called or said to be considered "station limits," under special instruction E, the method of operation provided by rule 99 will be employed under the general rules, but under special instruction E the main track within the boundaries considered therein as "station limits" may be used inside of such limits, by keeping clear of first and second class trains, thereby abrogating, to that extent, the application of the provisions of rule 99 against other than first or second class trains within that portion of the railway which is to be considered under special instruction E as station limits." It cannot be said, giving to this so-called "instruction," the broadest possible interpretation, that it is free from the charge of interference, or confusion with, the provisions of rule 99, as regards the special conditions mentioned in special instruction E. The same contention is made with regard to rule 93, which is as follows:

"Within yards defined by yard limit boards, the main track may be used, keeping clear of first and second class trains.

"The main track must not be so used within yard limits until it is known that all sections of overdue first and second class trains have arrived.

"All trains, except first and second class trains, must, unless otherwise directed, approach and pass through yard limits prepared to stop, unless the main track is seen or known to be clear.

"Yellow lights must be attached to the yard limit boards to be kept lighted from sunset to sunrise."

Here "yard limits" are referred to as being defined by yard limit boards, and the main track may be used under the rule, provided first and second class trains are cleared. The contention is that the regulation contained in special instruction E conflicts with rule 93 in its operation, in that, under special instruction E the outer main track switches of passing tracks are to be considered "station limits" (not yard limits), and under the conditions mentioned in that instruction the main track inside of such "station limits" may be used, but as rule 93 is an approved rule, as is also rule 99, there is force in the contention that the provisions of rule 99 co-ordinate with the operation contemplated by rule 93 as part of a general legally approved operating system governing the railway.

Rules 551 and 552 are as follows:—

"551. A train finding a station protection signal indicating 'stop,' must stop before passing it, and may proceed with extreme caution, sending a flagman ahead if necessary for complete protection, and expecting to find a train moving in either direction.

"552. Conductors of trains protected by such a signal must also send out a flagman, as an additional protection of the train, if the condition of the weather, location of the train, with regard to grades or curves, makes it necessary for the absolute protection of the train."

It is urged, as has been said, that under the operation provided for by the so-called special instruction E, the outer main track switches or passing tracks will be considered "station limits" and within such limits the main track may be used under the conditions and restrictions in the instructions specified, but here is a rule (551) providing that a station protection signal within the station limits may indicate a stop, and that a train finding such a station protection signal indicating "stop," must stop before passing it, sending a flagman ahead, if necessary, for complete protection. To my mind the operation of this rule is not altogether free from the objection that its clarity and exactness is interfered with, or obscured, by the existence of the special instruction E, which applies generally throughout the whole system.

It would appear that to give effect to what is contained in special instruction E, if it is to be applied as a general operating rule, the main track switches of passing tracks are, for the purpose of operating under the instruction, to be considered as "station limits," i.e., that these main track switches are to be regarded as "fixed signals," indicating the boundary of station limits within which operation is to be carried on under instruction E. It is contended, and I think with force, that a switch stand is not a "fixed signal" within the meaning of the rules. A "fixed signal" is defined by the approved rules as "A signal of fixed location indicating a condition affecting the movement of a train." In operating under special instruction E, the outer main track switches must be considered as "fixed signals," which, in my opinion, and having regard to the approved rules governing switch signals, are different regulations from those relating to "fixed signals." This operation is very similar to that which was in issue in Walker v. C.P.R. Co., reported at 23 C.R.C. p. 390, the decision in which was affirmed by the Supreme Court of Canada, 24 C.R.C. 399, and where it was held that a switch stand is not a "fixed signal," within the meaning of the railway regulations, and is governed by different rules; an engineer is not guilty of negligence in passing a red light on a switch stand, although compelled by the railway rules to stop where such is shown as a signal other than on a switch stand.

Open as it is to the objections as to inconsistency with the published and legalized operating rules governing the movement of trains, and while it is not necessary to decide upon the evidence, on the facts before us, as to whether there is, in fact, an interference by the instruction E with any of the general operating rules so ratified, there are, in my opinion, in special instruction E, provisions applicable to and governing to some extent, the general operating and working of trains over the whole system of the C.P.R., and of the other railways operating under the same method, and that because it makes provisions applicable to the working of trains over the whole railway systems using it, and does not provide only for particular and inconsequential operations, I am of opinion that instruction E is a "regulation" governing the using or working of the railway within the meaning of sec. 290 (f) of the Railway Act, and as such, to establish its legality, must comply with the sections of the Railway Act, which I have indicated, including the sanction of the Governor General in council.

The question raised is very similar to that which was an issue in Fralick v. G. T.R., 43 S.C.R. 494, and I feel constrained to adopt the reasoning and opinions of Justices Girouard and Anglin in that case, that what is contained in the instruction in that case, as in this, was, in fact, a regulation, and was not a valid regulation, or a legal regulation, until made so under the provisions of the Railway Act. At the same time I would point out that the so called instruction referred to in the judgment in Fralick v. G.T.R. (supra) was less general in the scope of its character, and in the extent of its operation, than is special instruction E now under consideration.

Mr. Flintoft, for the C.P.R., contended that should the Board hold that special instruction E is a regulation necessitating the statutory approval referred to, the Board should make an order under sec. 287 of the Railway Act. Being of the opinion as expressed above, that the so-called special instruction E is a regulation requiring the statutory sanction referred to, I would point out that the provisions of sec. 293 (3) require that no such bylaw, rule, or regulation, shall have any force or effect without such sanction, or after such sanction has been rescinded under sec. 294, "that such . . . regulations, when so approved shall be observed by all persons, and shall be sufficient to justify all persons acting thereunder." Now, sec. 287 referred to by Mr. Flintoft, provides that the Board may make orders and regulations

"(1) Generally providing for the protection of property, and the protection, safety, accommodation and comfort of the public, and of the employes of the company, in the running and operating of trains and the speed thereof, or the use of engines, by the company or on or in connection with the railway."

It seems to be clear that what is contemplated by the subsection above quoted is that the Board may make general provisions for protection of property and the protection, safety, accommodation, and comfort of the public, and of the employes of the company, **in the running and operating of trains** and the speed thereof, or the use of engines, by the company on or in connection with the railway, but gives no power, nor do I see that it contemplates the giving of any power, nor can I presume that his Board can obain thereunder any power of providing for the **method of running and operating trains.** That power can only be derived, in my opinion, by the operation of sec. 290 et seq. and subject to the performance of the statutory restrictions and with the approval therein provided for. I am, therefore, of opinion that it is not within the Board's power, under sec 287 of the Railway Act, or any other section, to make that a regulation which is not made so under sec. 290 et seq.

The special instruction complained of has been in force, and the railway has been operated under it for a great many years, and the submissions indicate that though open to strenuous objection by a part, at least, of the employes of the railway operating under it, it has been, it is said, operated with success, and is still in general use throughout the entire system. Under sec. 288 it is the duty of the Board to endeavor to provide for uniformity of rules for the operation and running of trains, and it is important in the interests of such uniformity that if such an operating provision as contained in special instruction E is necessary, or desirable, for the safe and efficient operation of the railway, it should be made a regulation as soon as possible, not only upon the Canadian Pacific, Canadian National, and any other railways now using it, but consistently with that uniformity of operating rules which it is the duty of the Board to ensure, as far as practicable, upon every other railway operating under the jurisdiction of this Board, and any rules, now in force, which may be inconsistent with it, so modified as to remove that danger. I recognize, however, that a change from one system of operation, however it may have grown up, cannot immediately be made, having regard to the safety of the public and of the employes of the railways involved. I would, therefore, in the order to be made by the Board, insert that the elimination of special instruction E, as now in the timetables of the railways concerned, shall not take effect until June 1, 1921, by which time the railway companies concerned will have been able to make all necessary changes in order to bring the operation under the general rules approved under the Railway Act, if, in compliance with the act, such a rule is decided, by statutory authority, to be a proper one to receive approval in statutory form. An order will, therefore, go, requiring the C.P.R., and all other railway companies under the Board's jurisdiction, to withdraw special instruction E from their respective working timetables, and hereafter observe the uniform code of rules for Canadian railways, approved by order 7,563, now general order 42, dated July 12, 1909, the necessary changes and instructions to employes to become effective on June 1, 1921.

This judgment was concurred in by Chief Commissioner Carvell, Assistant Chief Commissioner McLean, Deputy Chief Commissioner Nantel and Commissioner Rutherford.

The Board on Dec. 10 passed general order 322 requiring all railway companies subject to the Board's jurisdiction to withdraw special instruction E from their respective working timetables, and hereafter observe the uniform code of rules for Canadian railways approved by general order 42, dated July 12, 1909; the necessary changes and instructions to employes to become effective on June 1, 1921.

Track Section Prize Competition on Canadian Pacific Railway, Eastern Lines.

For the past eight years an annual track section prize competition has been carried out on the C.P.R. Eastern Lines, which has aroused a healthy spirit of rivalry and keen competition among the section forces of the different divisions and districts. Sixty-three prizes are awarded in the competition, as follows:—A General Manager's prize to the foreman having done the best season's work on Eastern Lines. Four general superintendent's prizes, to the foreman on each district who has done the best season's work, exclusive of the winner of the General Manager's prize. Fourteen division superintendent's prizes, to the foreman on each division who has done the best season's work, exclusive of winners of higher prizes. Forty-four roadmaster's prizes, to the foreman on each roadmaster's territory who has done the best season's work, exclusive of winners of higher prizes.

Under this system no man can win more than one prize, and all foremen have an equal chance, as the quality of the work done throughout the season is the deciding factor, and not the actual physical condition of the section at the end of the season. The basis on which the sections are judged is entirely efficiency, and careful consideration is given throughout the season to the condition of, and work done on, ditches, gauge, spiking, line, surface, bolts, rail wear, so far as it can be controlled by the section forces, switches, sidings, right of way and station grounds, track signs, cattle guards and fences. The amount of work done and the hours of labor put in, both by regular force and extra gang, are also carefully considered, and the foreman accomplishing the best work with the least amount of labor—the physical condition of the section, as to grade, alignment, drainage, and character of roadbed being considered—wins the first prize.

The number of hours of regular labor and the number of hours of extra labor on the section are figured against the number of ties renewed, tie plates installed or changed, rails changed over on curves and ditching done, etc. The amount of track handled, right of way, spikes and bolts, is fairly uniform on all sections, so that the condition with respect to these items at the end of the season is unusually a criterion of the amount and quality of the work done thereon throughout the season. Where special conditions affect such work they are taken into consideration. Some idea of the care exercised in judging a foreman's work can be formed by following the work in connection with the selection of a prize section. Towards the end of the season, on each of the 44 roadmasters' territories, a section is picked out as the most deserving in point of work done during the season with the material and labor available. These are carefully inspected by the superintendent and resident engineer, who select the best one on each district for inspection by the general superintendent and division engineer. All divisions of a district are covered by these two officers, and the section selected which they consider eligible for the General Manager's prize. The judging for the General Manager's prize is done personally by the General Manager, the Engineer of Maintenance of Way, the Assistant Engineer of Maintenance of Way, and district officials.

Following is a list of the successful section foremen for 1920:—General Manager's prize, $100—S. McCarthy, Chalk River, Sec. 2, North Bay S'd., Sudbury Division, Algoma District.

New Brunswick District, General Superintendent's prize, $50—J. Meulendyk, Sec. 2, Moosehead S'd., Brownville Div.

Brownville Division, Superintendent's prize, $25—C. Lamontagne, Sec. 17, Mooshead S'd. Roadmasters' prizes, $10 each—H. Taylor, Sec. 8, Shore Line S'd.; W. Tracey, Sec. 11, St. John S'd.; V. Newman, Sec. 7, Mattawamkeag S'd.; E. Gagnon, Sec. 18, Moosehead S'd.

Woodstock Division, Superintendent's prize, $25—F. W. Richardson, Sec. 1, St. Andrew's S'd. Roadmasters' prizes, $10 each—S. R. McCrum, Sec. 2, St. Andrews S'd.; F. Dickinson, Sec. 11, Shogomoc S'd.; J. St. Peter, Sec. 6, Edmundston S'd.

Quebec District, General Superintendent's prize, $50—E. Brown, Sec. 6, Newport S'd., Farnham Div.

Farnham Division, Superintendent's prize, $25—E. Demeules, Sec. 10, Adirondack S'd. Roadmasters' prizes, $10 each—C. Prangley, Sec. 8, Megantic S'd.; D. Chabot, Sec. 5, Adirondack S'd.; E. Bessette, Sec. 1, Newport S'd.; J. Thompson, Sec. 3, St. Guillaume S'd.

Montreal Terminals Division, Superintendent's prize, $25—A. Belec, Sec. 3. Roadmaster's prize, $10—D. Lavoie, Sec. 6.

Laurentian Division, Superintendent's prize, $25—X. Crete, Sec. 13, Trois Rivieres S'd. (West). Roadmasters' prizes, $10 each—N. Langlois, Sec. 21, Trois Rivieres S'd. (East); A. Pillard, Sec. 4, St. Agathe S'd.; A. Pauguette, Sec. 7, Lachute S'd.

Ottawa Division, Superintendent's prize, $25—H. Hano, Sec. 11, M. & O. S'd. Roadmasters' prizes, $10 each—A. Seguin, Sec. 3, M. & O. S'd.; T. A. Kelly, Sec. 8, Waltham S'd.; A. Martineau, Sec. 11, Maniwaki S'd.

Smiths Falls Division, Superintendent's prize, $25 — A. Scheels, Sec. 12, Chalk River S'd. Roadmasters' prizes, $10 each—P. Lapier, Sec. 11, Winchester S'd.; A. Logan, Sec. 13, Chalk River S'd.; H. Foster, Sec. 2, Carleton Place S'd.

Ontario District, General Superintendent's prize, $50—R. Young, Sec. 4, Oshawa S'd., Trenton Div.

Trenton Division, Superintendent's prize, $25—W. Hannah, Sec. 14, Belleville S'd. Roadmasters' prizes, $10 each—W. Lillie, Sec. 6, Havelock S'd.; L. Linton, Sec. 13, Peterboro S'd.; V. Adair, Sec. 7, Port McNicoll S'd.; C. McCullough, Sec. 10, Kingston S'd.; T. Whiticar, Sec. 1, Belleville S'd.; G. Pickell, Sec. 1, Oshawa S'd.

London Division, Superintendent's prize, $25—D. Ramsey, Sec. 10, Galt S'd. Roamasters' prizes, $10 each—A. Fairbanks, Sec. 4, Windsor S'd.; P. Laur,

Sec. 16, Galt S'd.; J. Bishop, Sec. 16, H. & G. S'd.; F. Skinner, Sec. 14, St. T. & Pt. B. S'd.

Bruce Division, Superintendent's prize, $25—J. Courtney, Sec. 8, MacTier S'd. Roadmasters' prizes, $10 each—J. Telford, Sec. 14, O. & W. S'd.; J. McMiner, Sec. 10, MacTier S'd.; J. Hissop, Sec. 2, Teeswater S'd.

Toronto Terminals, Superintendent's prize, $25—R. Gollinger, Sec. 15, Hamilton Terminals. Roadmaster's prize, $10—F. Tuckley, Sec. 14, Galt S'd.

Algoma District, General Superintendent's prize, $50—M. Cetchuk, Sec. 2, Parry Sound S'd., Sudbury Div.

Sudbury Division, Superintendent's prize, $25—T. A. Hall, Sec. 15, Thessalon S'd. Roadmasters' prizes, $10 each—J. Whyatt, Sec. 12, North Bay S'd.; W. Evans, Sec. 6, Cartier S'd.; A. Bouillon, Sec. 17, Thessalon S'd.; T. Penfold, Sec. 6, Parry Sound S'd.

Chapleau Division, Superintendent's prize, $25—M. Pikarchuk, Sec. 8, White River S'd. Roadmasters' prizes, $10 each—M. Hakkinen, Sec. 24, Nemegos S'd.; R. Beaupre, Sec. 14, White River S'd.

Schreiber Division, Superintendent's prize, $25—T. Michaud, Sec. 6, Heron Bay S'd. Roadmasters' prizes, $10 each—J. Didych, Sec. 22, Heron Bay S'd.; G. Person, Sec. 21, Nipigon S'd.

Piston Ring Work in a Railway Shop.

The accompanying illustrations show some methods employed in machining piston valve rings and piston rings in a railway shop in the west. Fig. 1 shows a piston valve complete and also illustrates the bushing or liner in which the valve operates. The rings are shown in double offset form, though for some classes of piston valves the rings are made with single offset. The other illustrations show some of the tool equipment for machining both single and double offset rings.

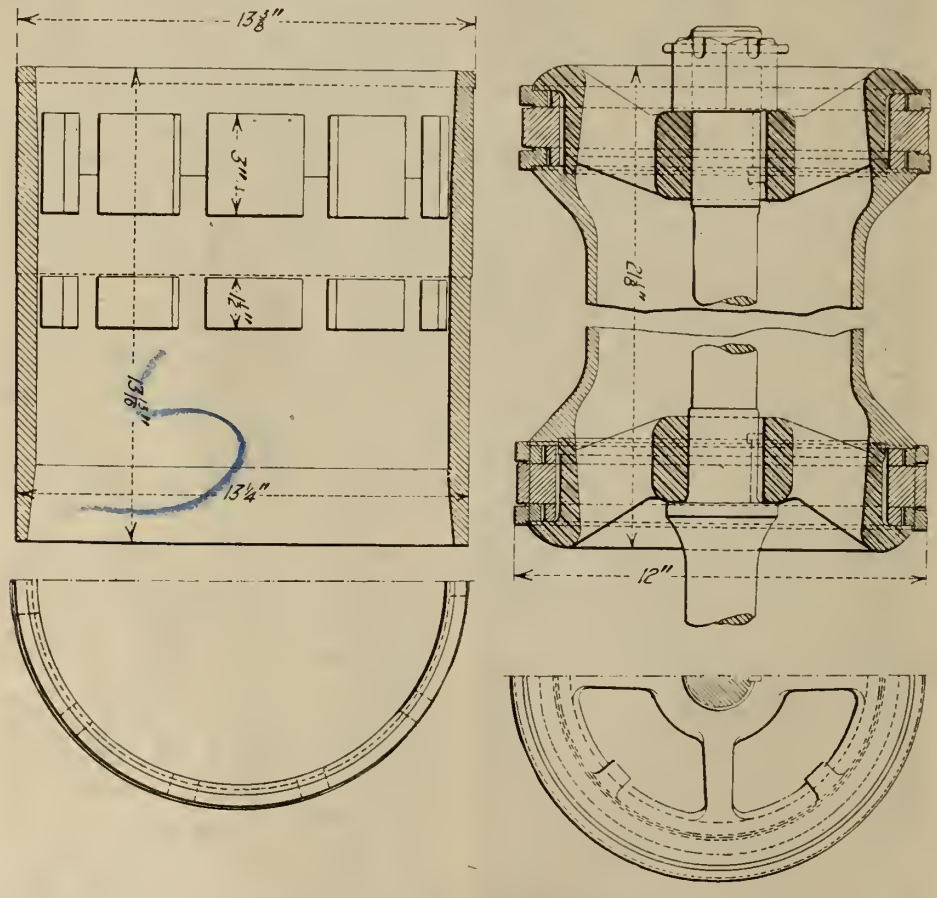


Fig. 1. The Piston Valve and Sleeve.

The turning and cutting off of the rings is accomplished in a Libby turret lathe, the turning being done as shown in fig. 2. Here a casting, long enough for 12 rings, is gripped in the chuck jaws, and a roughing cut taken with a tool held in the turret block on the cross slide of the machine. This turret also carries the set of 12 cutting off tools shown in the illustration. The barrel or sleeve casting from which the rings are to be cut is turned to 1/16 in. over size in the rough cut, the metal removed on a side being about ¼ in. The feed for turning is 1/32 in. per revolution. This 1/16 in. is the amount left for finishing and compression and spring in the ring when finished. That is, after the rings are cut off in the turret lathe, as described later in this article, they are put into a form or pig which is bored 1/32 in. above size and here an arbor is put in, with plates for clamping the rings for finish turning after they have been slipped out of form. As the form is 1/32 in. above size and as the rings are placed therein when they are themselves 1/16 in. above size, there is a compression of 1/32 in. required to put them into the form or jig. Consequently when the rings are finish turned they still have 1/32 in. spring for actual operation.

Now, to return to the ring cutting off operation. In fig. 3 the cross slide turret is shown with the 12 tools withdrawn from the ring casting, and a special turret toolhead carrying cutters for operating up the face and interior of the outer ring. The process is first to feed the cutting off tools part way through the casting wall, then withdraw the tools, reset 1/16 in. to the side by adjusting the cross slide carriage, then feed the multiple cut off tools in again, thus forming the offset at one side of the rings. The metal at the inside of the ring casting still holds the whole sleeve casting intact and the outer face of the ring is machined before it is cut off from the casting.

In fig. 3 the facing and boring tools in the head on the main turret are shown. The facing tool acts as a recessing device to bore out the face of the ring to the depth required for the offset on that face of the ring. This tool is carried by an auxiliary slide and toolholder seen at the front of the special toolhead of the main turret. A better view of this auxiliary device is obtained from fig. 4. It consists of a body attached to the main toolhead and in this a slide is operated by a handwheel and screw to feed the tool parallel to the axis of the work. There is a stop block or thickness gauge at A which allows the tool to be fed into the ring to face out the recess to exact depth. The tool is then withdrawn, and the boring tool on the main head of the turret is fed in to bore out the interior of the ring and thus sever it from the sleeve casting. The operations of facing each successive ring from the inside is thus continued until the 12 rings in the casting are finished. The thickness of the rings, as determined by the operation of the multiple cutting off tools in the carriage block, is held accurately to dimension by snap gauges giving a limit of 0.001 in.

The boring out of the rings requires the removal of about ½ in. of metal on each side, this being done in one cut. The speed of the work, while the cutting off tools are operating, is eight revolutions a minute, or a surface speed of about 26 ft. a minute. This enables the series of tools to operate without chatter, and leaves a smooth surface where the tools are run in the second time for facing down to the shouldered offset. The original casting for the 12 rings is 13 in. long and only 1 in. of metal is lost in the grip for the chuck jaws.

The facing of large piston rings in a vertical boring mill is shown by fig. 5. A quick acting chuck is used on the table of the machine, for holding the work securely while a facing tool is fed across the surface. The chuck consists of a set of four jaws which serve to hold the ring from the interior and force it against four properly located stops secured in the slots of the table. The interior jaws are really similar to the planer "toes" commonly used when thin work is to be held to the planer table. They are in the form of short pointed rods, at a slight angle to the horizontal, and when set up against the inside of the work they tend to held the latter down securely to the table. The four "toes" are actuated by four straight jaws, which are forced outwardly by a flat disc with a beveled edge. This disc is drawn down to set out the jaws, by the binder handle operating on a screw at the top. The outer ends of the flat jaws are also bevelled slightly inwardly, so that they always hold the rear ends

of the "toes" from lifting. The facing tool is forged and ground to present a slightly angular edge to the work surface and thus produces a smooth even cut when fed across the ring face.

The methods shown are in use at the Southern Pacific Rd. shops at Sacramento, California.

The foregoing article, by Frank A. Stanley, is reproduced from American Machinist, to which we are indebted for the photographs and drawings from which the illustrations were made.

Additional illustrations appear on pg. 64.

Fig. 2. Turning the Barrel from which the Rings are cut.

Steel Rail Weight Increases. — The Pennsylvania Rd. has replaced 100 lb. rails in main line tracks, by 125 and 130 lb. rails on 44% of the main line trackage in the New York, Philadelphia, Baltimore, Maryland and Middle divisions and at the Philadelphia terminal. The total main line trackage in these divisions is 1,612 miles and the replacements with heavy rails now covers 705.1 miles. The 130 lb. rails have been used on heavy grades and curves, where the strain is greatest. The Pennsylvania Rd. started using 60 lb. rails in 1875, in 1894 70 lb., in 1886 75 lb., in 1887 85 lb., and in 1892 100 lb.

British Railway Managements.—A London, Eng., press cablegram states that the Railway Companies' Association, in its reply to the Government's proposals for future organization of transport undertakings in Great Britain, says it will strenuously oppose any suggestion that "workers elected by the workers" should be appointed to boards of management, discounting the question of the advantage resulting from the association of workers in the consideration of certain operating problems.

Canadian National Rys. and Marine Association.—An association of officials and employes of the Canadian National Rys. has been formed in Montreal, on lines similar to the one in Toronto. The first meeting on Dec. 12 was addressed by G. Stephen, Freight Traffic Manager, Toronto; A. T. Weldon, Assistant Freight Traffic Manager, Montreal; R. E. Perry, Assistant General Freight Agent, Montreal; and C. Grassley, representing the Toronto association.

Standard Size for Cattle Pass Construction.

The Board of Railway Commissioners passed general order 325 Dec. 20, 1920, as follows:—Re the question of the adoption of a standard size for cattle pass construction. Upon reading what has been filed in this matter on behalf of the railway companies, the reports of the Board's Chief and Assistant Chief Engineers; and in pursuance of the powers conferred upon it by secs. 272 and 287 of the Railway Act, 1919, and of all other powers possessed by the Board in that behalf, the Board orders that all cattle passes hereafter constructed by railway companies within the legislative authority of the Parliament of Canada be at least 5 ft. wide and 6 ft. high, which dimensions are hereby required to be adopted as a stanadard for cattle pass construction, unless otherwise ordered by the Board, where, upon application, it is shown that special conditions call for a departure from such standard.

Fig. 3. Gang and Turret Tools in position.

Chicago Railway Electrification.—The Illinois Central Rd. has taken another step toward electrifying its Chicago terminal and suburban lines by the appointment of a board of engineers to consider the different systems and prepare general plans. The board is composed of A. S. Baldwin, Vice President, Illinois Central Rd.; D. J. Brumley, Chief Engineer, Chicago terminals; Bion J. Arnold, consulting engineer; George Gibbs, consulting engineer; Cary T. Hutchinson, consulting engineer; W. M. Vandersluis, Signal Engineer. Under the ordinance of July 21, 1919, work must be commenced by 1922.

Leaside Transportation Co. Ltd. has been incorporated under the Ontario Companies Acts with authorized capital of $50,000 and office in Toronto, to carry on the business of general carriers, railway and forwarding agents, transfer and express agents, to operate motor busses, motor trucks and other vehicles for carrying passengers and goods for hire. The provisional directors are:—J. G. Smith, H. Gallimore, and J. N. Mulholland, Toronto.

Railway Officials' Congratulations. — E. W. Beatty, K.C., President; A. D. MacTier, Vice President, Eastern Lines; J. M. R. Fairbairn, Chief Engineer; and G. H. Ham, of the headquarters staff, C.P.R., also Sir Geo. Bury, ex-Vice President, C.P.R.; were among those who telegraphed from Montreal, to Thos. L. Church, on his election as Mayor of Toronto for the seventh year.

The Canadian National Rys. Amateur Athletic Association has been formed at Winnipeg. A. E. Warren, General Manager, Western Lines, was present at the organization meeting and promised the management's support.

The Everyday Duties of a Roadmaster.

By R. E. Keough, Assistant Engineer, Maintenance of Way, Eastern Lines, Canadian Pacific Railway.

The roadmaster is a railway official in charge of the maintenance of a subdivision of roadway and track, varying in length from 75 to 200 or more miles, according to the traffic or physical conditions. This is subdivided into track sections, which usually vary from 6 to 10 miles, that are under direct charge of the section foreman. He uses extra gangs to take care of the extra work which arises, such as relaying rail, ballasting, etc. His payroll for labor also varies according to the importance of the subdivision, but often runs up to $250,000 yearly. He is entrusted with the safe and economical handling of large quantities of material, such as rail, ties, ballast, frogs, switches and crossing frog. The roadmaster, or supervisor as he is termed on some roads, reports to the operating superintendent or engineering department officials. He is selected either directly from the track force where he has obtained his experience for the position from actual work done as a section hand, foreman of a section, or later as foreman of larger extra gangs in charge of more important work: or, starting as an apprentice at the work, with the expectation of working into the official positions as quickly as he can absorb sufficient knowledge. The roadmaster of today, however, is usually found to be the man who started out early in life as a track laborer, and formed a liking for the work. He must have shown interest in the various classes of the work, and quickly surpassed the ordinary laborer, who shows no further interest than that of putting in his time and doing only the minimum amount to satisfy the foreman.

At the time when most of our present roadmasters started work on a section, good men were more plentiful than they have been in the past several years, and regular section men were retained through the slack season, entirely according to their ability. Section laborers were known as first, second, and third men, and so on. During the busy season, whenever necessary for a man to lose a day or two he was first obliged to secure a substitute in order to hold his place while away. With men of this kind at hand everywhere the selection of foremen was made easy. A laborer, after a few years, was given a trial at relieving foreman, and, if he made good, was considered for a regular position. The extra gang foreman was selected by the roadmaster from the most promising section foremen. The fellow who succeeded in standing out ahead of the others, or always endeavoring to do the job a little better than the other fellow, is the man who usually found plenty of room ahead and is the man now usually found in roadmaster positions.

In early day railroading, the roadmaster was a disciplinarian of the highest power. With always good men waiting to step ahead, foremen were easily replaced should their work in any way prove unsatisfactory. Almost every foreman was an expert on track, in at least one or more branches of the work, and took great pride in keeping the better section. Of late years, however, the roadmaster finds it necessary to show tact in handling the class of men he has been called on to use during the past several years. He must act as an instructor to the inexperienced foremen he is compelled to accept. Just now, however, we seem to be experiencing a change for the better, owing to more plentiful labor, better wages and working conditions.

While the roadmaster is supposed to be purely a maintenance man, he is such only where roadbed is old and well ballasted. After construction, the track is turned over to the maintenance of way department, with the expectation that construction days are over. This is usually erroneous, as it is generally found that construction as practised on this continent is only well commenced when the maintenance of way department takes charge. Sufficient attention is not given to proper drainage to cuts, or crowning and settling of fills. The present practice of hurried construction work calls mostly for machine work, such as train filling from steam shovels or heavy blasting, all of which tend to lower the cost of construction.

Soundings may be made to determine the depth of muskegs, but aside from this no such accuracy is used in building roadbed as is followed in bridge construction. The construction engineer merely hopes to see the earth's crust stand up under the heavy wheel loads. Although it does this to everyone's satisfaction, in the majority of cases there are, however, numerous instances where the roadbed is found to be anything but desirable. There are places which cause much worry to the roadmaster and maintenance engineer. If they are ever entirely cured it is only after long years of constant work. Ideal construction would mean that such places would be broken down and the bottom found, when the grading was being done, rather than allowing it to do so gradually under several years of operation and maintenance. It is, however, certain that the greater portion of our present roadways would

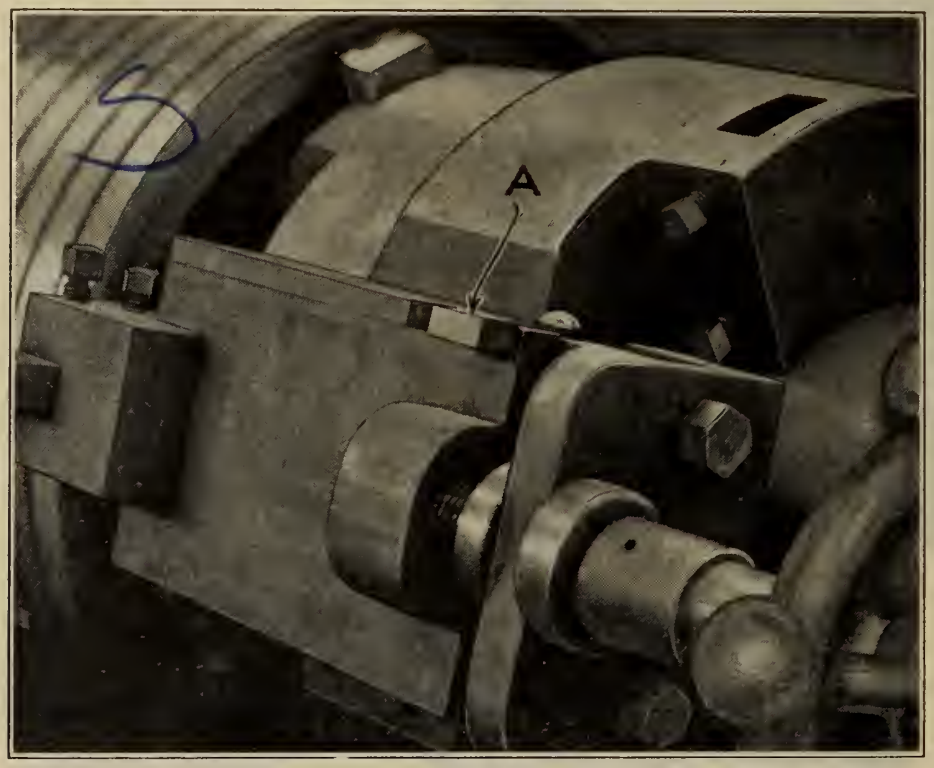


Fig. 4. Auxiliary Facing Tool in Turret. See page 63.

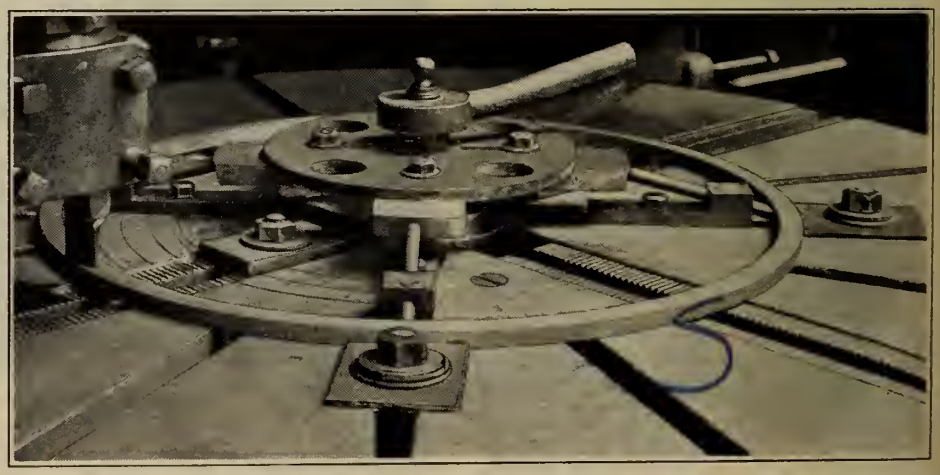


Fig. 5. Facing Piston Rings in a Boring Mill. See page 63.

not have been built had permanent roadway construction been demanded at the time, owing to the considered extra cost necessitated.

Oftentimes cuts are taken out or fills made which are scarcely passable even for light construction equipment, and will in no degree cope with the heavy traffic which is to follow. Lines have frequently been built and ballasted, but inspected while "frozen in," and pronounced satisfactory and afterwards the same road is found impassable. I merely mention this to show how poor construction is reflected to maintenance. The roadmaster is often whipped over the back for rough track made by such conditions as these, and where money is available he must see to it that these early day defects are corrected, either gradually or otherwise.

Although improper construction shows up in any part of the country, it is perhaps more pronounced in the northern portion, where frost enters deeply into the roadbed, causing excessive heaving, or in the gulf states, where rainfall is heavy during the winter. This is one of the hardest jobs a roadmaster has to combat. Heaving spots must be carefully marked, so as to have them "dug out" during the summer. Much care is needed when digging in order to avoid going too deeply, which will cause a hole that will ride as badly as the high spot did before.

It is usually found that roadbeds contain enough moisture, in a climate similar to this, to cause heaving by frost to a certain degree. It is only the irregularity of heaving that gives us trouble. This is often noticed where we originally had open pit cattle guards, which were later filled up with clean ballast or cinders, which do not permit the track above them to heave correspondingly to the track approaching them. The result is we have shimmed track at such points, even on our oldest lines.

When making an inspection with a roadmaster some time ago, he called my attention to two cattle guards which he had treated while foreman of that section several years before. He had, with two men, in one day, dug out all the ballast from two old pit guards, and had back filled them with clay up even with the clay found in the adjoining roadbed. He then applied a depth of ballast similar to the track at either side. The result is entirely satisfactory, as it is found that these places have never given trouble since. There are still many such places which can be corrected on our roads, equally as easily, by observing trackmen who are given the money and labor to do the work.

Since heavier power and wheel loads have come into use, lightly ballasted roadbeds have been broken down, in many cases, and the work has got entirely beyond temporary repair of the trackmen. I have in mind track over a bad clay tableland, where the ballast has been pounded into the roadbed many feet in depth, forming great pockets under each rail, resulting in a cross section similar to the letter W. Although this line is well ballasted, with more being applied frequently, good track is not to be had, and, owing to the flatness of surrounding country, drainage cannot be had without heavy machine ditching. Relief may be given by literally burying the roadbed at such places under a heavy coating of cinders, burnt clay, or other porous material, which will absorb the rainwater and thus prevent it from entering the roadbed.

Although usually we find such trouble confined to cuts, we also frequently find fills which have been built with a top dressing of impervious clay, which has become pocketed by ballast. Such places, on high fills on being tapped, have expelled large quantities of water by draining several feet longitudinally along the roadbed. Best results are found for such places by prohibiting water from first entering the roadbed, either by tile or French drain, or, as mentioned above, a heavy coating of porous material over roadbed. We have many such places in western Ontario, but they are more easily cured than where there is no chance for drainage. It is, therefore, necessary that the roadmaster be a close observer in order to see all that is taking place on his subdivision. In the most northern states metal cattle guards are sometimes used, as well as wooden ones, both of which are left in over winter. The roadmaster soon notices the track does not stay as low under metal guards as it does with the wooden ones, owing to the steel guard permitting frost to enter easily, allowing track to heave a corresponding amount under them. He will also find that he can often save considerable shimming and rough riding track, by putting a temporary door over culverts which are close to the surface, and where it is found the frost goes up from the culverts, as well as down from the top of ballast, causing double heaving.

Another big problem for the roadmaster which has grown in magnitude since the universal adoption of heavier wheel loads and air brakes, is rail creeping. There is naturally a considerable wave movement ahead of wheels, but generally the brakes cause the rail to slide ahead, much the same as when one tries stopping quickly on a hall runner. Although rail anchors are provided, and almost universally used, as a preventive for this, the roadmaster on the busier main line one way tracks finds that, even when anchors are used, they are at best only partially effective in holding rail and it is up to him to study each and every local condition on his subdivision, in order to provide surplus expansion at certain points where his observations have taught him the rail is given to bunching. His total expansion allowance per mile certainly must tally with that given by his table of expansion. Unless this method is carefully practised it will be found impossible to retain even fair track and avoid future maintenance trouble on the heavier traffic main lines of this country.

The curving of rails is a live subject, and one which has been handled with perhaps less regularity than is generally supposed by most of those not immediately connected with the work. We frequently notice angular looking joints on the inner side of curves, and on enquiry learn that this is due to the fact that these rails were not curved when laid. Close scrutiny will prove that the rail was very likely laid with excessive expansion on the curve and that the joint bolts were badly neglected at one time or another. These two factors, taken together, allow rail ends to tend to straighten out and appear kinky. It is found that, even at the sharpest curves, curving need not be done throughout the full length of a rail, nor will they show signs of joint kinking if a slight set is given each rail close to each end with a jim crow. This will care for even neglected bolts or excessive expansion, as well as if curved throughout the entire length of the rail.

You will not see kinky looking switches on the more observing roadmasters' territory. In fact, under normal conditions, a switch should be the last to go out of line, as there are at this point four rails instead of two, as well as heavy timber, which make for better conditions. Such defects are the result of improper attention given to expansion on rail approaching the switch, or hunching of rail at this point, which has been neglected through ignorance or shortage of labor. The roadmaster who studies his conditions will know that frogs of all kinds, when used on high speed tracks, will last and ride better where gauge is kept snug. This is more important when frogs are located on inner rail of curves. With good close gauge, the wheel flanges are directed through the flange way provided for them, instead of being allowed to pound the frog to pieces by striking the wing rails sharp blows while passing.

"Sun kinks," often described as acts of God, and considered to be beyond the power of man to prevent, should, in the opinion of the writer, be put up to the roadmaster in the majority of cases. Practically every one is due to sheer neglect. The conditions leading up to trouble of this sort should have been discovered long before and corrected by him. They will be found to be the result of either improperly laid rail, or the bunching of it, due to insufficient anchoring, etc. The bunching usually occurs in moderately cool weather while joints are open. It naturally follows, therefore, that the majority of "sun kinks" show up on the first warm days of spring, when ballast is mellow, and its cleavage to the ties is reduced. On down grades, or one way tracks, all such troubles can be further greatly reduced by insisting on surfacing and tie renewals being done up grade, or in the opposite direction to the traffic.

With a good class of foreman the roadmaster's duties are reduced, but it is usually found he always has a few men who require a lot of his time checking up their work.

Under normal conditions, a roadmaster should work with the express purpose of maintaining his subdivision from a maintenance viewpoint, rather than follow the reconstruction idea of tearing up the line every few years, knowing that new rail, new ties, or new ballast will improve his subdivision and allow him credit for good track without considering the cost. Operating officials sometimes praise a piece of track without first consulting the cost data. Where this is done the roadmaster naturally finds no incentive to keep the expenses where they should be, but is often given to extravagance, unless held in check by his superior officers. Take, for instance, tie renewals. This is a very large item, and one which causes equally as much comment from our management as rough riding track. Usually the culling of ties is left to the foremen in charge of track, supervised by the roadmaster and other local officers. It is here we so often see extravagance shown to a high degree. With so many different viewpoints from the various foremen in charge we often see poor judgment used. It is almost entirely up to the roadmaster to see that his foremen use uniform judgment in handling this important item, therefore he too must be put aright concerning the condition the ties must be in before they should be removed.

With the native ties of this country, especially jack pine or hemlock, it is invariably found the upper surface of the ties above the ballast line is the first to decay. This, although being satisfactory so far as track bearing is concerned, of-

ten provides an excuse for good ties being removed some two or more years before they should be. Track men also are given to following the lines of least resistance. We often find renewals of ties made by bunching, or in pairs. This naturally saves extra digging, but also allows numerous good ties to be removed long before their time, merely because they are adjoining a rotten or worn out one. This is a subject too important to be left to the track foreman's judgment alone, but one which should concern every official connected with the railway. By adopting some uniform method to be followed it may be checked by every official interested in maintenance.

There are but two methods practised for tie renewing. One is known as "out of face" method, where all ties are removed in a stretch for a given distance each year, and the other or more prevalent practice, as well as the more abused method, is the one known as "single tie renewals." These two methods were freely discussed by the American Railway Engineering Association some six or more years ago, and although there were ardent advocates for the continuous renewal method, the single tie one met with most favor. The latter is the method followed by the C.P.R. and is with us everything the name implies. We do not allow more than one new tie in a place, except for inaccessible places, such as at road crossings or in certain places in yards. We also follow the same method for switch tie renewals, and while a few of the more extravagant foremen were at first reluctant, our roadmasters knew this would give them more uniformly strong track, as well as be an assistance to them in supervising this class of work, due to the fact that every official is checking this with equal interest.

Many other important subjects might be mentioned and discussed in a paper of this sort, but time does not permit. The all important subject "Line and surface" would alone furnish material for an evening discussion among maintenance men. So would insulated joints, non slotting of joints, labor saving devices, piece work applied to maintenance, ballasting, switch lay outs and numerous other phases of the work.

In conclusion, it seems trite to mention that the roadmaster's ability may easily be summed up by results shown. He should, however, be given considerable leeway for working out local problems in a way better adapted to them than those laid down by a set of general instructions.

The foregoing paper was read before the Canadian Railway Club, in Montreal, recently.

First Aid Contests.—The competitions of first aid teams under the auspices of the St. John's Ambulance Association in Canada have been reported upon by Col. C. A. Hodgetts, C.M.G., M.D. In the Wallace Nesbitt rosewater dish competition the G.T.R. station team, Stratford, Ont., secured first place and the G.T.R. shop team, Montreal, second place, and in the Montizambert cup competition the G.T.R. station team, Stratford, was second. The winning team was entertained at dinner Jan. 14, by officers and men of the Stratford Division, when the trophy was presented by Dr. C. A. Hodgetts and Lieut.-Col. R. J. Birdwhistle, representing the Association, and received by W. S. Robb, Vice President, on behalf of the team.

Railway Rolling Stock Orders and Deliveries.

Canadian National Rys. have received 7 Mikado locomotives from Canadian Locomotive Co.

The Eastern Car Co., during 1920, delivered 1,150 coal cars, and 302 box cars, 40 tons capacity, to Canadian National Rys.

The C.P.R., between Dec. 14, 1920, and Jan. 14, received 2 dining cars, 90 refrigerator cars and 8 single track steel snow ploughs, from its Angus shops, Montreal; and 453 steel frame box cars from Canadian Car & Foundry Co., Fort William, Ont.

The G.T.R. has received 3 switching locomotives from its Montreal shops, 680 automobile cars, 80,000 lb. capacity, from American Car & Foundry Co., St. Louis, Mo., and 399 automobile car, 80,000 lb. capacity, from American Car & Foundry Co., Madison, Ill.

The Toronto Globe says:—"The requirements of Canada for electrical equipment and for railway rolling stock constitute one of the bright spots in the industrial field. . . Canadian car builders have a promising outlook for the year. There is admittedly a serious shortage of rolling stock on all Canadian railways, and although financial conditions and the hope of lower prices may delay the placing of orders, such a policy of waiting cannot be of great duration."

Canadian National Rys., between Dec. 2, 1920, and Jan. 8, 1921, received the following additions to rolling stock:—5 Mikado (2-8-2) locomotives, out of an order for 15, from Canadian Locomotive Co.; 224 box cars, out of an order for 1,500, and leaving 405 to deliver, from National Steel Car Corporation; 210 refrigerator cars, out of an order for 600, and leaving 39 to deliver, from Canadian Car & Foundry Co.; 414 box cars out of an order for 500, and 6 steel snow ploughs, completing an order, from Eastern Car Co.; and 2 cabooses, completing an order for 20, from Preston Car & Coach Co.

The Rio Grande de Sul State Rys. have ordered 20 Mikado (2-8-2) locomotives from Montreal Locomotive Works. Following are the chief details:—

Gauge	39¾ in.
Weight on drivers	80,000 lb.
Weight on truck	13,000 lb.
Weight on trailer	17,000 lb.
Weight, total	110,000 lb.
Weight of tender	76,000 lb.
Wheel base, driving	11 ft. 3 in.
Wheel base, total, engine	25 ft. 4 in.
Cylinders, diar. and stroke	16 x 22 in.
Driving wheels, diar.	42 in.
Driving journals	7 x 8 in.
Trailing wheels, diar.	740 m/m (20⅛ in.)
Engine truck wheels	700 m/m (27½ in.)
Boiler, type	Straight top
Boiler pressure	180 lb.
Boiler diar., first ring	52 in.
Firebox, length and width	72⅛ x 48¼ in.
Tubes, no. and diar.	90—2 in.; 14—5⅜ in.
Heating surface, tubes	679 sq. ft.
Heating surface, flues	284 sq. ft.
Heating surmace, firebox	87 sq. ft.
Heating surface, total	1,050 sq. ft.
Superheater surface	235 sq. ft.
Grate area	24.2 sq. ft.
Tractive power	20,800 lb.
Factor of adhesion	3.86
Superheater	Superheater Co.'s type A
Reverse gear	Alco screw gear
Cab	Steel plate
Tender frame	Steel channels
Tender truck wheel diar	740 m/m (29⅛ in.
Tender journals	4¼ x 8 in.
Tank	U shape
Water capacity	13 cub. met.
Fuel capacity	10 met. tons

A German engineering firm has secured the contract for 40 locomotives for a British Dominion. Some of the leading British engineering firms were invited to compete, but their best price was £680,000 against the German price of £400,000. Moreover, the German firms offered speedy delivery, whereas British engineers said they could not guarantee delivery owing to labor conditions. This is one of the important engineering contracts wrested from Great Britain by the Germans since the armistice.

Montreal Locomotive Co.'s Deliveries.

Montreal Locomotive Co.'s Deliveries.

We are advised that deliveries were made during 1920, as follows:—

	No.	Type.	Cylinders.
Boos & Co.	3	9-4-2	11 x 16 in.
Canadian National Rys.	32	4-6-2	23½ x 28 in.
Canadian National Rys.	10	4-62	24 x 28 in.
Canadian National Rys.	25	2-10-2	26 x 32 in.
Canadian Pacific Ry.	1	2-8-2	25½ x 32 in.
Cordoba Central Ry.	16	2-8-2	21½ x 24 in.
Halifax Shipyards Ltd.	1	0-4-0	14 x 22 in.
Haytian American Corporation	1	0-4-0	11 x 16 in.
Haytian American Corporation	1	2-6-0	15 x 20 in.
Kipawa Co.	1	0-4-0	14 x 22 in.
Log Supply Co.	1	0-4-0	14 x 22 in.
Roumanian Government Rys.	25	2-8-0	21 x 28 in.
Singer Mfg. Co.	1	0-4-0	14 x 22 in.
Sorocabana Ry.	8	2-8-2	19 x 20 in.
Sorocabana Ry.	4	4-6-2	18 x 20 in.
Timiskaming & Northern Ontario Ry.	2	0-8-0	23 x 28 in.

Reid Newfoundland Railway Operating Results.

A St. John's, Nfld., paper states that an agreement was made in the summer of 1920 between the Reid Newfoundland Co. and the Newfoundland Government under which the Government undertook to assume the full cost of the operation of the railway from July 1, 1920, to June 30, 1921, the Reid Newfoundland Co. agreeing to contribute not exceeding $100,000 towards any deficiency that might occur. The paper says that the loss in operating the line for the year ended June 30, 1920, was $638,000, and that it would have been considerably more but for the fact that the operation of the cross country line was suspended for the greater part of the winter owing to the snow blockade in the Topsails area. The loss for the year ended June 30, 1919, was $645,549.02, and the paper, after referring to the present operating conditions, expresses the opinion that the deficit for the year ending June 30, 1921, will exceed $1,000,000.

Traffic Conference.—Some 60 traffic officers of the Canadian National Rys. and the G.T.R. from throughout Canada and many United States points met in Toronto, Jan. 19 and 20, to discuss improvement of services and increasing of passenger travel. They were addressed, among others, by C. A. Hayes and J. E. Dalrymple, Vice Presidents in charge of traffic, C.N.R. and G.T.R. respectively, and by G. T. Bell and H. H. Melanson, Passenger Traffic Managers, G.T.R. and C.N.R. respectively.

American Railroad Association. — At the annual meeting of directors in New York, N.Y., Jan. 6, Daniel Willard, President, Baltimore & Ohio Rd., was elected chairman of the board. Other officers are: President, R. H. Aishton; Vice President, W. G. Besler, President, Central Rd. of New Jersey, and Hale Holden, President, Chicago, Burlington & Quincy Ry.; General Secretary and Treasurer, J. E. Fairbanks.

Fifty-Ton Single Track Coaling Stations, Canadian Pacific Railway.

A number of small capacity coaling stations have been built on the C.P.R. at intermediate points, so that locomotives delayed by adverse weather or other conditions may be recoaled between terminals. The accompanying cross section shows the general outline and construction quite clearly. The structure consists of an elevated coal pocket, supported on wooden bents, with a coal dump hopper in the rear, and an elevator for the coal conveyor in the center. The coal brought by cars is discharged into the dump hopper, runs by gravity to the receiving boot, where it is picked up by buckets operating on endless chains, and conveyed to the coal pocket above.

Where electric power is available, a motor is used for hoisting, and the motor and necessary machinery are housed in the roof of the structure; provision being made for stopping motor on either side of the coal car at track level.

Where electric power is not available, a gasoline engine is used, and the house is located at ground level. The capacity of the plant is 50 to 60 tons, and this, with the storage in the hopper, allows for two car loads of coal being on hand for emergencies. A 15 h.p. motor or engine is used for elevating.

The dump hopper is elevated 6 ft. above the ground line, which is reached by grading the approach track from 2% to 5%, depending on the amount of room available, and local conditions. The hopper is made long enough to accommodate half a car only, in order to get the floor and sides steep enough to keep the coal moving to the boot under adverse weather conditions. It was found that a hopper large enough to take a full car, would require too much height and depth to get a steady flow of coal, and was too costly to be considered for this size of plant.

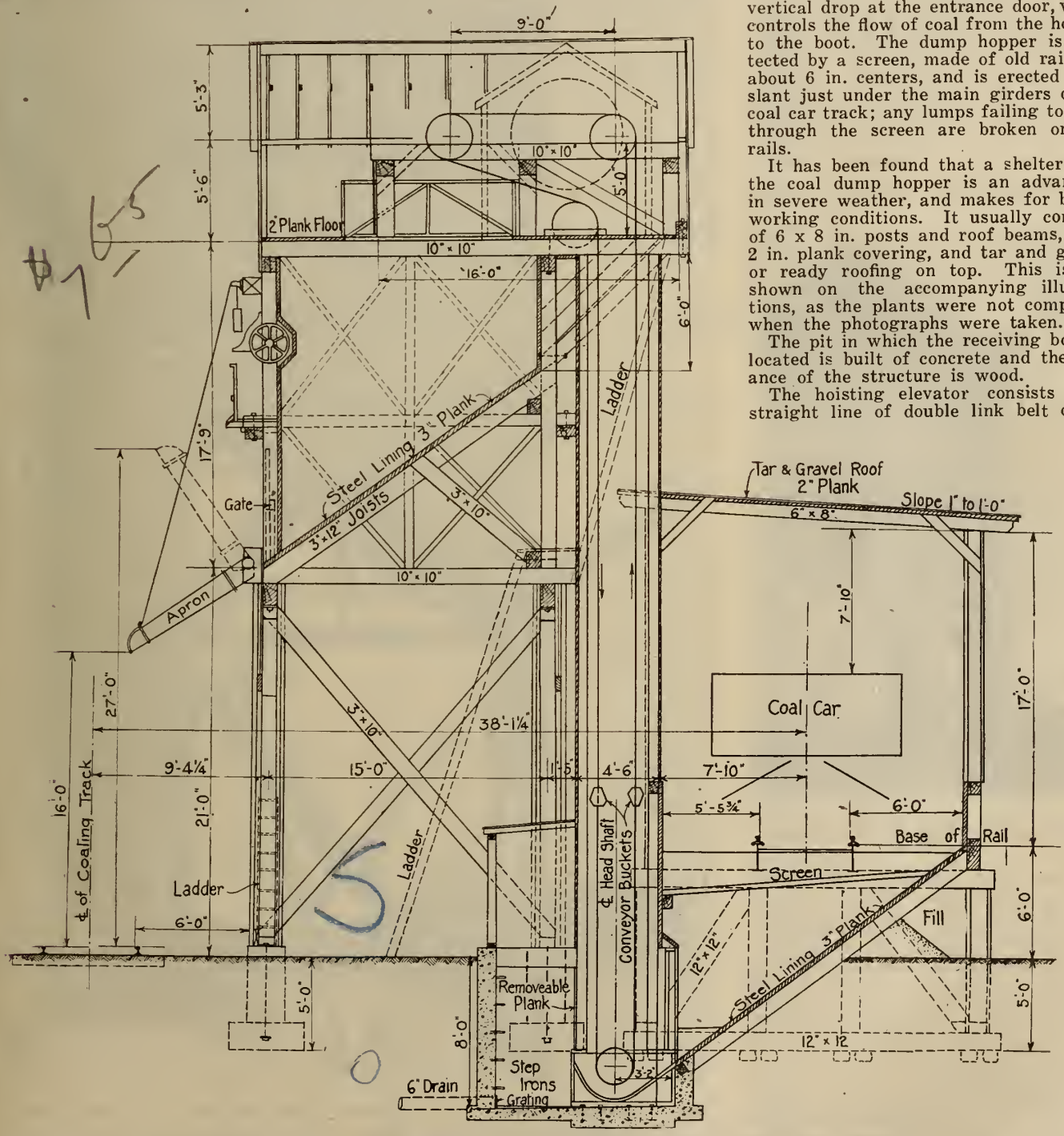
As a further aid to feeding coal to the boot, the sides of the hopper are given a vertical drop at the entrance door, which controls the flow of coal from the hopper to the boot. The dump hopper is protected by a screen, made of old rails, at about 6 in. centers, and is erected on a slant just under the main girders of the coal car track; any lumps failing to pass through the screen are broken on the rails.

It has been found that a shelter over the coal dump hopper is an advantage in severe weather, and makes for better working conditions. It usually consists of 6 x 8 in. posts and roof beams, with 2 in. plank covering, and tar and gravel or ready roofing on top. This is not shown on the accompanying illustrations, as the plants were not completed when the photographs were taken.

The pit in which the receiving boot is located is built of concrete and the balance of the structure is wood.

The hoisting elevator consists of a straight line of double link belt chain, to which buckets are attached at intervals. At the top of the shaft, the chain and buckets are diverted to travel across the house for a short distance, to enable the coal to be dumped about the center of the pocket.

The coal pocket is supported on ordinary frame bents, 3 in. plank is used for the floor, and 2 in. plank for the sides of the pocket. Both floor and side are covered with no. 10 sheet steel lining. The



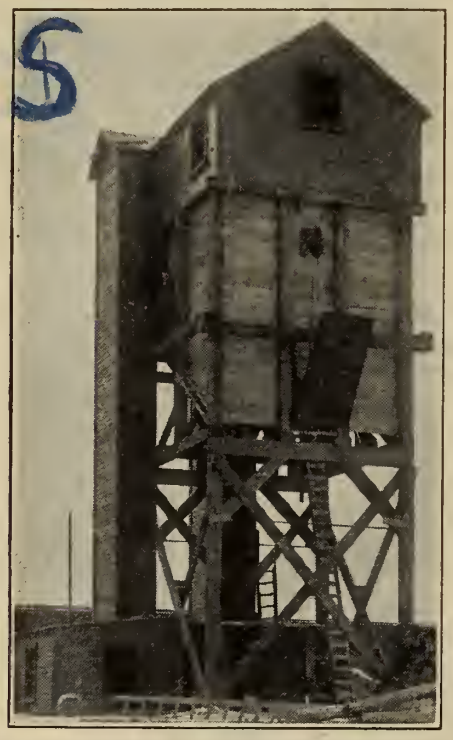
Cross section, Single Track Coaling Plant, for Intermediate Points, Canadian Pacific Railway.

pocket is roofed over, and has sufficient housing overhead to accommodate the shafts, gears, sheaves and operating machinery. The pocket was first built with one apron, and coal chute door, for supplying the locomotive, but later this was changed to provide two outlets.

To facilitate repairs, and the proper maintenance of the door and apron mechanism, a light gallery, with rail, is placed on front of the coal chutes just above the drop doors.

A number of these coaling plants have been built by Williams & Wilson, Montreal, who have supplied the two photographs reproduced herewith, illustrating plants built at Guelph, Ont., and Sutton, Que., this company making a specialty of this class of work, and having developed to a high point of efficiency many of the details, such as steel boots, aprons, operating machinery, cut off gates and the like.

It is well known that coaling plants



Fifty-ton, Single Track, Gasoline Drive, Coal Handling Plant, Canadian Pacific Railway, Guelph, Ont.

in general are subject to very rough usage, and adverse weather conditions, and for these reasons it is necessary, if the best results are to be obtained, that the operating mechanim be made extra strong, especially in regard to chain and buckets, as well as gears, sheaves and shafting, and that these, whenever possible, be made interchangeable for all plants, in order to keep down the number of parts to be carried in stock and to facilitate repairs.

Canadian Railway and Marine World is indebted for the foregoing information to J. W. Orrock, Principal Assistant Engineer, C.P.R., Montreal, to whom credit should also be given for the design.

Railway Lands Patented.—Letters patent were issued during Dec., 1920 for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

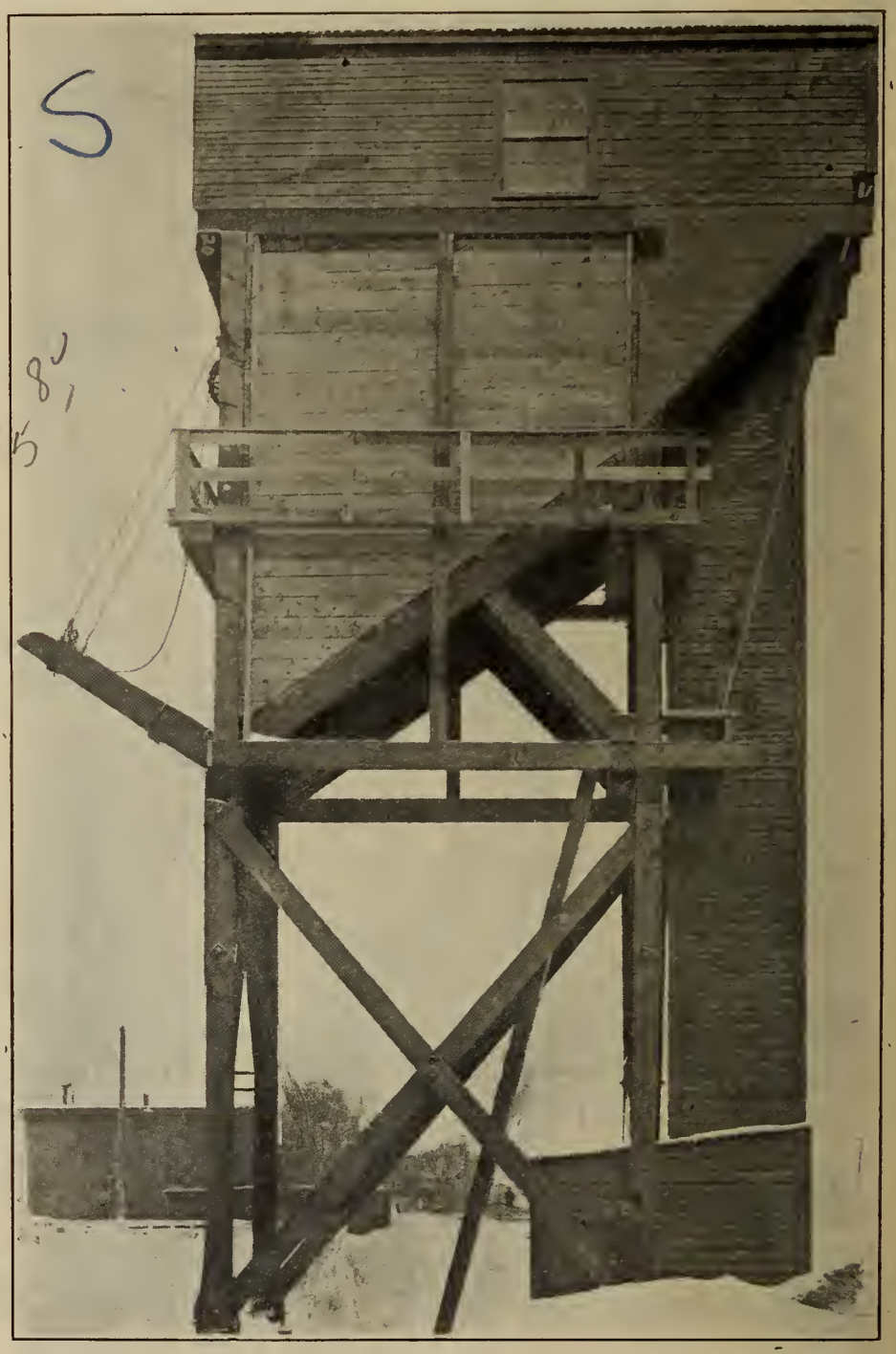
	Acres.
Canadian Northern Ry.	960.00
Canadian Northern Pacific Ry.	78
Grand Trunk Pacific Branch Lines Co.	2.34
Total	963.12

Railway Finance, Meetings, Etc.

Grand Trunk Railway Loan.—A prospectus was issued in New York recently of $12,000,000 Grand Trunk Ry. of Canada (Canadian National Rys.) 15-year, 6½% equipment trust gold certificates, series F., issued under the Philadelphia plan to be dated Feb. 1, 1921, and become due Feb. 1, 1936, the issue price being 95.40, yielding approximately 7%. The prospectus states, on the authority of F. Scott, Vice President and Treasurer, G. T.R., that these certificates are issued against new railway equipment costing $16,000,562, an initial payment of $4,000,562 or 25% of the cash contract cost being made. Under the provisions of the Canadian statutes the rentals payable under the lease of this equipment rank as a railway working expenditure and constitute a claim against earnings prior to both principal and interest of mortgage debt.

New York Central Rd. Co.—There has been deposited with the Secretary of State at Ottawa an agreement dated Dec. 15, 1920, between John Cartensen and others, vendors, the Guaranty Trust Co. of New York, trustee, and the New York Central Rd. Co., in pursuance of the provisions of the Dominion Statutes of 1907, chap. 38.

Quebec, Montreal & Southern Ry., Napierville Junction Ry.—The Board of Railway Commissioners has been asked to recommend the sanctioning of an agreement between these two companies, which are owned by the Delaware & Hudson Co., for the transfer by the Quebec, Montreal & Southern Ry. Co. of that part of the loop line at Dolson Jct., Que., heretofore belonging to it, to the Napiereville Jct. Ry. Co.



Fifty-ton, Single Track, Electric Drive, Coal Handling Plant, Canadian Pacific Railway, Sutton, Que.

The Importance of Railway Passenger Departments.

By W. H. Snell, General Passenger Agent, Eastern Lines, C.P.R.

The passenger department of a modern railway consists of numerous branches and ramifications contributing to the safe and expeditious travel of the public and its comfort en route. Broadly, its jurisdiction covers the responsibility for all classes of business carried out by the passenger service, comprising the carriage of passengers and their baggage, the transportation of milk, and the superintendence of sleeping and parlor car services. It also decides to what routes these cars shall be assigned and their schedules, superintends the make-up of train, as to dining cars, day cars, express cars, and other equipment, and must be in a position to reckon out the revenue producing possibilities of each.

Whilst these responsibilities form the basis of the department's work, being its service to the travelling public, there are incidental lines of activity of as great importance to the parent company as contributing largely to the profitable operation of passenger trains over the company's lines. Of first importance is the securing of traffic by solicitation through passenger agencies, not only along lines of the railway, but at foreign points — for a Canadian company, for instance, in the United States, Great Britain, European continent, Asia, Africa, and Australia.

When the enormous number of these agencies throughout the habitable globe, as well as the stations along the company's lines, are taken into account, some conception may be formed of the huge aggregate of employes of the department and the great work entailed in keeping them accurately informed on tariffs, service and the multifarious obligations due to the public and the railroad. A branch work of some consequence is the compiling and supplying of these tariffs, circulars and bulletins, etc., ensuring adequate, easily understood, workable information.

This latter, however ,is only the commencement in the matter of the dissemination of literature from the passenger department, for every agency in every part of the world must be a fund of information and in position to give all particulars of travel desired by potential tourists necessary to ensure traffic, and agents are supplied with the fullest matter possible through the issuing of a mass of printed literature covering all phases of travel through the company's territory. Through travelling passenger agents, men trained in the geography and travel of the company's territory, the multifarious tourist and passenger agencies are kept in touch with each other and the head office, whilst in addition, it is the duty of these men to keep agents of other lines informed regarding their road and its territory, and to solicit traffic personally, through a following up of enquiries as made by letter to the general agencies. Likewise, they assist the agents of other railways acting for their company in routing passengers over their lines.

Of the many units which go to make up a giant railway organization, none reaches the public in so personal and intimate a manner as the passenger department, dealing as it does, continually, with men and women both in the aggregate and as individuals. As temperaments vary, so must treatment, and the successful passenger agent must be diplomatic in endeavoring to please all and at the same time serve the company he represents.

A passenger department with vision and enterprise can be the most instrumental factor in developing the country in which it is operating, especially if that country be in the first stages of its growth, and in advertising broadcast its potentialities, inducing immigration and capital. Railway and national progress go hand in hand, and the progress of the passenger service, with its widespread branches, is a large factor in both developing company and country.

It will be generally conceded that it is, in a great measure, due to the vision of the passenger department of the C.P.R., organized 40 years ago, that the public of many foreign countries are so well acquainted with Canada and Canadian possibilities, whilst immigration has been largely served and stimulated by its endeavors and activities.

Canadian Pacific Railway Construction, Betterments, Etc.

Sand Point Baggage Shed.—An extension to the second story of the baggage shed at Sand Point, St. John, N.B., is under construction by J. A. Grant & Co., contractors. It will provide sleeping and dining accommodation for 500 people, bringing up the accommodation for immigrants to 1,000.

St. John River Bridge.—The Board of Railway Commissioners sat at St. John, N.B., Jan. 15, to hear evidence and arguments in favor of increasing the height of the new C.P.R. bridge over the St. John River, above water level. The C. P.R. is replacing its bridge at the reversible falls, and obtained the approval of the Public Works and Marine Departments for a bridge 2.58 ft. higher than the line of the present one. The marine interests of the port asked that the height above water level be increased so as to permit greater freedom of navigation, and there was also the question of doing away with the level crossing at Douglas Ave., by the provision of a subway at an estimated cost of $110,000, which would necessitate an increased height of the bridge above water level of 7 ft. After hearing considerable evidence, Chief Commissioner Carvell stated that approval of the gradients for the new bridge would be withheld for two weeks in order to give an opportunity to local interests to agree to the height being increased 2 ft., which the C.P.R. engineers said would be practicable within the present plans, or to have a petition sent to the Government to rescind the order in council approving of the present plans. Unless the bridge is made 7 ft. higher there will be no subway.

The substructure work for the new bridge, which was described in Canadian Railway and Marine World, Dec., 1920, pg. 651, is practically completed.

Timiskaming District.—In opening the Quebec Legislature Jan. 11, the Lieut. Governor said:—"A railway will shortly be under construction which will connect the heart of the Timiskaming District with our great railway systems and hasten the development of that important district." This reference is to the line for the construction of which a contract has been entered into between the Quebec Government and the C.P.R., which owns the Interprovincial & James Bay Ry. Co.'s charter for a line from near Kipawa to near Ville Marie, Que.

Ottawa, Northern & Western Ry. — The Dominion Parliament will be asked at its ensuing session to extend the time for the commencement and completion of the line authorized in 1919 from Waltham, Que., to a junction with the C.P.R. at or near Chalk River, Ont., and to increase the bonding powers.

Manitoba & Northwestern Ry. Co.— The Dominion Parliament will be asked at its ensuing session to authorize this company to build the following lines:— From Tp. 30, Range 10 or 11, west 2nd Meridian, near Tuffnell, northwesterly, northerly and westerly to a crossing of the North Saskatchewan River, in Tp. 49, 50 or 51, Range 14 or 15, west 2nd Meridian, thence westerly to Prince Albert, Sask.; from Tp. 28, Range 6 or 7, west 2nd Meridian, near Theodore, generally westerly to between Govan and Lanigan on the C.P.R. Pheasant Hills branch. Authority is also desired to issue securities for $40,000 a mile in respect of these lines. (Jan., pg. 14.)

Langdon North Branch.—The Board of Railway Commissioners has approved revised location plans for a portion of the Langdon North Branch, Sask., mile 78.59 to 86.84, and authorized the crossing of highways.

Handling and Sorting New and Old Rails.

More general use of mechanical means of handling heavy rails and old rails at railway store yards, together with greater care in sorting old rails for further use, were among the suggestions made by the rail handling committee at the last annual meeting of the purchases and stores section of the American Railroad Association. It was considered that economy could be effected by the use of locomotive cranes, rail loaders, ditching machines and steam derrick cars. The committee stated that it is more economical to distribute new rails along the track than to unload them into stock-piles.

Inspection of old rails should be performed by stores department men, whose qualifications are satisfactory to the engineering department. They should be classified for main track, for branch lines, and for yards and sidings, those of each class being further classified into four divisions according to height measured to 1/32 in. To distinguish the rails, the committee proposed painting the ends green, white and red for the three main classifications, and marking the ends with numbers 1 to 4, in white paint, for the four secondary classifications. At the rail docks, each class and sub-division would be piled separately, the rails being in opposite directions in alternate layers, with one end of each layer carefully lined to facilitate counting and measurement. These piles should be as high as they can be built with the machine, and it is suggested that many railways incur considerable unnecessary expense through lack of apparatus for handling rails.

Instead of leaving the disposal of scrap rail to track supervisors, it is thought likely that much of this scrap could be resold by the purchasers as second hand rails. For this reason the committee considers that all rail classed as scrap hould be sent to the division or general stores department for inspection and classification.

Canadian National Railways Employes Attempt to Enter Political Field.

On Sept. 23, 1920, J. A. Robinson, of the Independent Labor Party, Moncton, N.B., telegraphed to D. B. Hanna, President, Canadian National Rys., who was then on an inspection tour of the Maritime Provinces, at Sydney, N.S.:—"Have you any objection to any C.N.R. employes becoming candidates for the New Brunswick Legislature, and if so could you give reasons? Please wire reply immediately."

Mr. Hanna replied on Sept. 25 from Truro, N.S.:—"Your message yesterday. Under no circumstances can an employe continue as such with the Canadian National Rys. and become a candidate for legislature, either provincial or Dominion. The moment he does so he automatically severs his connection with the railway. The reasons are too obvious for discussion."

This decision was at once resented by many of the employes' organizations and a movement was started to endeavor to secure its withdrawal, which Mr. Hanna declined to do. The matter having been brought to his attention while he was in Winnipeg towards the end of Oct. 1920, he issued the following statement to the press:—"Considerable discussion seems to have arisen amongst certain classes of employe of the Canadian National Rys. regarding the attitude of the management towards employes seeking Dominion or provincial parliamentary honors. One would imagine from what appears in the newspapers that something new had been promulgated in railway practice. The fact is, so far as the old Canadian Northern lines are concerned, the management then in control had a clear understanding that any officer or employe identifying himself with any party and seeking parliamentary honors automatically severed his connection with the company. This rule was strictly observed and the same practice has been extended under the present board of directors. Prior to the date the lines passed under the control of the Dominion Government by stock purchase, it will be remembered that Sir Robert Borden, then Prime Minister, both in and out of the House of Commons, clearly defined the status of the management, which was in effect that the business of the railways would be carried on free from political interferences of all kinds; and the selection of the board of directors later was in accordance with this understanding, indeed it can be said that each member of the board made it a condition of his acceptance that freedom from political control must be maintained. The first vacancy on the board was due to one of its members accepting a nomination and being elected to the Saskatchewan Legislature. If, therefore, the board of directors scrupulously recognize the obligations under which they joined the management, how much more important is it from the standpoint of public service that officers and employes alike of the C.N. Rys., should do so also. We are told no man can serve two masters, and it is inconceivable that any employe could give public service where all classes of politics are included and at the same time be so closely identified with one particular party as to hold a seat in parliament, either Dominion or provincial. In municipal, educational and other organizations of a social kind our officers and employes generally have always taken more or less interest and we gladly welcome it. In politics, officers and employes, of course, have their own opinions and will naturally express them through the ballot. It is no affair of the management what party they may support, but when an officer or employe undertakes to accept nomination for any political party, and is permitted to do so by the railway's management, he brings the National System into politics, and that cannot under any circumstances be permitted. In other words, therefore, when an officer or employe accepts nomination from any party for parliamentary honors, Dominion or provincial, he automatically severs his connection with the National System. There can be no middle course; there is too much at stake in the interests of the Dominion as a whole to compromise with the situation."

Two of the C.N.R. employes, G. H. Palmer, train dispatcher, Dauphin, and A. E. Moore, a machinist in the Fort Rouge shops, Winnipeg, became candidates for the Manitoba Legislature, for Dauphin and Springfield respectively, were elected, and were dismissed from the service. Jas. Higgins, a boiler maker in the Leaside shops, Toronto, became a candidate for the representation of Northeast Toronto in the Ontario Legislature, resigning his position with the company to do so, and was informed that he could re-enter the service. He was defeated, but had he been elected, it is doubtful whether he could have sat in the Legislature, as the Ontario Legislative Assembly Act contains the following provision:—"Except as hereinafter specially provided, no person accepting or holding any office, commission or employment, in the service of the Government of Canada, or of the Government of Ontario, at the nomination of the Crown or at the nomination of any of the officers of the Government of Canada or of the Government of Ontario to which any salary, fee, wage allowance, emolument or profit of any kind is attached shall be eligible as a member of the Assembly or shall sit or vote therein."

Mr. Hanna Explains His Position.

Early in Dec. 1920, the co-operative committee of C.N.R. employes met in Toronto for about a week and had a long interview with Mr. Hanna, following which he wrote them as follows:—"I have given very serious consideration to all that was said at the conference on Friday afternoon last, and I regret, having regard to what I sincerely believe would inevitably follow if the management permitted the thin edge of politics to enter the railway organization, that I cannot do otherwise than re-affirm the position already taken, viz., that any officer or employe of the railways accepting nomination from any political party, automatically severs his connection with the railways.

"In re-affirming this, it may not be amiss to briefly review our reasons for taking this position. The board of directors and active executive management accepted office on an expressed understanding with the Dominion Government that politics would not be permitted to play any part in the administration of the properties. This understanding has received Dominion-wide notice, not only through statements made by the Prime Minister and his colleagues in Parliament, but reiterated in speeches made by the same gentleman on many public occasions, so that it is barely conceivable that members of your organizations had no knowledge of the attitude of the Dominion Parliament in that regard. This understanding has been strictly adhered to; the first change in the composition of the board of directors was occasioned by one of its members accepting a seat in a provincial legislature. The executive has likewise faithfully observed this understanding and had every reason to feel that the employe sof the service generally, after over two years of united effort, were loyally behind the management in the high purpose to show that a great publicly-owned utility could be carried on successfully, free from politics, and thus give the lie direct to those doubting Thomases who have in and out of season said it could not be done.

"In the discussion on Friday afternoon it was stated, time and again, by your representatives that your interest in the matter began and ended with the employes who are members of your various organizations. Unfortunately, this does not settle the matter, as the executive of the railways must take cognizance of all officers and all employes outside of recognized organizations. It is obvious, if the railways permitted members of your organizations to enter the political field and still retain their standing, the same privilege would necessarily have to be extended to every other employe who is unrepresented in your organizations, and to all officers as well. Carrying this through to itis logical conclusion, I pointed out to your representatives that it would be humanly impossible to prevent the system becoming in time a hot-bed of political intrigue, to the disruption of discipline in every department, and to the utter ruin of the great properties in which all the people of Canada are so vitally concerned. I reminded you also that the rule which we had applied was, in its general effect, the same on state railways in Australia, New Zealand, South Africa, British India, France, Belgium, Italy and other countries. Coming closer home, we find the City of Toronto with a bylaw preventing municipal employes taking part in elections, other than to record their vote. The same general rule is in effect in all Canadian cities; and where the city operates its street car service, as in Calgary for instance, those employed on the civic car service cannot at the same time be councillors.

"I took issue with your representatives when they stated that the executive was prohibiting employes of the railways from exercising their political franchise. I did say, however, that in the case of a railway owned by the people—and they having expressed themselves through the only authoritative channel to the effect that this railway system must be kept clear of politics—a political career and a railway career for an employe at one and the same time were obviously impossible. I said that this conclusion had been reached because fo what I believed were sound and valid reasons. The executive goes no further than probiting employes from becoming candidates for election to the Dominion Parliament or provincial legislatures. Employes are free to, and will no doubt continue to, express their political preference through the ballot, and they may, as heretofore, when opportunity offers, take their seats in council chambers,

boards of education and boards of other organizations which have for their purpose the betterment of the communities in which they reside, and in which party politics are not concerned.

"The board of directors having accepted office under the conditions already stated and the executive being parties thereto, it is clear that any change in the rule laid down must necessarily carry with it the resignation of all those approving the rule. This in itself is of little moment, and it is only stated to definitely emphasize the fact that this was an imporant condition of their acceptance of office. But because of the important question at issue, I am appealing to all employes, represented by their organizations or otherwise, through this communication, to seriously consider if the issue raised at this time compares in magnitude with the greater question, shall we, by word or deed, permit any officer or employe to enter the political arena, and at the time claim the option of returning to employment with the railways as and when he may elect, or shall we not rather say 'Take no chances; keep politics out of the railways?'

"If it can be shown that the three employes dealt with entered the political field ignorant of the rule laid down, I will very gladly consider their reinstatement, provided, however, that the employes elected to the Manitoba Legislature give an undertaking that immediately on the opening of the house in Winnipeg a few weeks hence they will present their resignations and withdraw from it. I make this proviso as I understand resignations cannot sooner be accepted.

"While the matter has been fully discussed and there seems to be no occasion for further conference, yet if your committee should desire another meeting with us, we will, of course, be glad to arrange for it."

Board of Conciliation.

On Dec. 10, 1920, H. E. Barker, of Winnipeg, and R. J. Tallon, of Calgary, chairman and secretary, respectively, of the co-operative committee of employes, applied to the Minister of Labor for the appointment of a board of conciliation for investigation under the Industrial Disputes Investigation Act, 1907, stating that the application was made on behalf of all classes of employes on the C.N.R., belonging to or represented by the following organizations working in co-operation:—Brotherhood of Locomotive Firemen and Enginemen, Order of Railway Conductors, Brotherhood of Railroad Trainmen, Order of Railroad Telegraphers, Canadian Brotherhood of Railroad Employes, International Brotherhood of Blacksmiths and Helpers, International Brotherhood of Boilermakers and Helpers, Brotherhood of Railroad Carmen of America, International Brotherhood of Electrical Workers, International Association of Machinists, United Association of Plumbers and Steamfitters, International Alliance of Sheet Metal Workers, United Brotherhood of Maintenance of Way Employes and Railroad Shop Laborers.

After citing Mr. Hanna's order that no employe can accept a nomination for any political party, for the Dominion Parliament, or a provincial legislature, the application says that as a result of it employes were discharged as follows: Jas. Higgins, boilermaker, Toronto, Nov. 1, 1920; A. E. Moore, carman, Winnipeg, Nov. 5, 1920; and G. H. Palmer, dispatcher, Dauphin, Man., Nov. 11, 1920; that the general chairmen and grand lodge officers of the various organizations mentioned above met in Toronto from Nov. 29 to Dec. 9, 1920, inclusive, and on Dec. 3 endeavored to secure Mr. Hanna's sanction for the withdrawal of the objectionable order and the installment of the men discharged. The application continues as follows:—"Failing to secure President Hanna's concurrence in the request made upon him, the co-operative committee, consisting of the general chairman and the grand lodge officers, unanimously decided and agreed to request a board of conciliation, in the full belief that the situation created by the issuance of the objectionable order referred to was so tense that the men in various of the organizations specified and on certain parts of the railway were even now seriously talking of engaging in a strike without delay. The general chairman and the grand lodge officers associated with the co-operative committee are firmly convinced that the men belonging to the organizations specified above would generally and promptly vote for, and leave the service, on a strike, in resentment against the objectionable terms of the order which is the subject fo this controversy."

The Minister of Labor granted the application for a conciliation board promptly. The employes nominated as their representative on it, D. Campbell, barrister, Winnipeg, and the C.N.R. management having declined to nominate a representative, the Minister of Labor named F. H. McGuigan, of Toronto, at one time Vice President, G.T.R., to act as the C.N.R. representative; J. M. Godfrey, barrister, Toronto, being subsequently appointed chairman of the board, which sat in Toronto from Jan. 18 to 21 for the hearing of evidence.

Railway Presidents' Christmas and New Year's Greetings.

The following messages were sent by the presidents of the three principal Canadian railways:—

E. W. Beatty, K.C., President, C.P.R.: "I desire to express my very deepest appreciation of the loyalty and efficiency which has characterized the service of all officers and employes during the past year, and which has resulted in the company emerging from a difficult period with credit to itself and satisfaction to the public it serves. At the opening of the New Year, which I trust will be a very happy one for all of you, let me suggest three resolutions:—1. To maintain unswerving loyalty to the company and its high ideals. (2. By our enthusiasm and energy to keep the C.P.R. the foremost transportation system in the world. 3. To have unquenchable faith in the great future of Canada, our country."

D. B. Hanna, President, Canadian National Rys.:—"This message extends to you every seasonable greeting and goodwish for your happiness at Christmas and for your well being throughout the year."

H. G. Kelley, President, G.T.R.:—"On this closing day of 1920, I desire to wish each officer and employe of the G.T.R. System all health and happiness during the coming year and to extend through them to the members of their families my most sincere wishes for their continued well being. Efficient and wholehearted co-operation on the part of each and every one in the service will, I feel assured, produce results gratifying to us all during the New Year."

Fuel Oil for C.P.R. British Columbia Locomotives and Steamships.

As stated in Canadian Railway and Marine World for Dec. 1920, and January, the C.P.R. decided, on account of its inability to secure a satisfactory supply of fuel oil, to convert its oil burning locomotives on its Pacific District, and its British Columbia coast steamships to coal burners, but the situation has changed, respecting which an official has written us as follows:—"Our contract with the Union Oil Co. of California expired on Dec. 1920, and not getting satisfactory assurances that we would be supplied with sufficient fuel oil for our operations, we proceeded to convert for coal, starting with our yard locomotives at terminals and our stationary boilers, and then our freight locomotives on the Cascade and Shuswap Subdivisions. We had converted all the yard locomotives and stationary boilers and about 40 of our locomotives, when the Union Oil Company gave us a satisfactory assurance that it could supply us with sufficient oil to operate our Mountain Subdivision, and handle our passenger trains on the Shuswap Subdivision between Revelstoke and Kamloops. This will enable us to continue during the summer the operation on the rear of our passenger trains of our open observation cars, which have become so popular with tourists. These cars could not be operated with coal fuel, with comfort to passengers, on account of cinders, but with oil the absence of cinders makes them very attractive, and we put them on our passenger trains during daylight between Field and Kamloops. Our British Columbia Coast Steamship Service, for the same reason, had started to convert its steamships for burning coal and got four of them into that service, viz., Charmer, Princess Mary, Princess Adelaide, and one of the tug boats, when, on receiving the same assurance from the oil company, the Manager, Capt. Troup, decided not to make further conversions.

Reduced Meal Rates on Railways.

The Canadian National Rys.' Sleeping, Dining, Parlor Car, Hotel and News Department announced on Jan. 5 a further reduction in prices of meals in its dining cars and hotel. Walter Pratt, Manager of the department, stated that while prices had been most reasonable, despite the high cost of commodities and expenses, he anticipated a further reduction during the year. The hotel rates on the system are as follows:—The Prince Arthur, Port Arthur, Ont., $4.50 and upwards a day, American plan.

The Fort Garry, Winnipeg, $3 and up a day, European plan.

The Prince Edward, Brandon, Man., $4.50 and up a day, American plan.

The Macdonald, Edmonton, Alta., $3 and up a day, European plan.

The C.P.R. put in operation on Jan. 1 reduced meal tariffs at its hotels and on its dining cars. The hotel room rates remain unchanged.

Advances aggregating more than $205,000,000 were made to U.S. railways in 1920, from the $300,000,000 revolving fund provided in the Transportation Act. Loans aggregating $51,653,594 may be made on applications pending before the Interstate Commerce Commission.

Canadian National Railways Construction, Betterments Etc.

Construction Plans.—A press report states that the estimates for appropriations for construction work for the year have been prepared and are being given final consideration for submission to the Dominion Parliament. It is not anticipated that much, if any, new construction will be undertaken, but that the expenditures will be confined to improvements on existing lines, and to carrying on construction on lines already under contract. It is reported, however, that it has been decided to build a 30 mile cut off between the Canadian Northern Ry. and the National Transcontinental Ry., but that its construction will not be undertaken this year.

Halifax-Dartmouth Bridge. — A proposal for the construction of a railway and general traffic bridge to connect Halifax and Dartmouth, N.S., was discussed at a recent meeting of one of the Halifax County Council's committees. It was stated that preliminary surveys had been made for a local committee, of which A. H. Whitman, President, Halifax Board of Trade, was at the head, and that the Dominion Government had been approached on the subject.

St. John Station. — A press report states that a plant has been set up in front of the St. John, N.B., station, to make test borings in connection with the foundation work of the proposed new station.

Caraquet Ry.—L. S. Brown, Assistant General Manager, Eastern Lines, C.N.R., is reported to have stated at Newcastle, N.B., recently, that although no funds had been appropriated for the Caraquet Ry., some money had been obtained to make some repairs since it was taken over by the Dominion Government on July 1, 1920, and that an appropriation would be asked for to bring the line up to standard during this year. A telegraph line is being put in at present, so that if a train got stuck it would be possible, at least, to know where it was. He is reported to have expressed the opinion that the line might be extended from Tracadie to the Mirimichi River. The population on the line from Bathurst to Tracadie is 35,000, that between Tracadie and Newcastle, 15,000, and there are existing branch lines less valuable than that would be.

Allenby Jct. Connection.—The Board of Railway Commissioners has approved of a connection of the St. Maurice and Montreal Divisions, at Allenby Jct., mile 5.6 St. Lawrence Division.

Forfar to Findley or Gananoque. — Canadian Railway and Marine World for Sept. 1920 contained a reference to a proposal to build a line from Forfar, Ont., on the Canadian Northern Ry., to Findley, on the G.T.R., and that we had been advised that while a survey for such a line had been made, its construction had not been seriously entertained by the C.N.R. management. Residents of the localities interested have been discussing the matter, and it has been proposed that connection be made with the G.T.R. at Gananoque instead of Findley. The Gananoque Board of Trade took up the matter and the President communicated with members of Parliament and of the Ontario Legislature and with the C.N.R. management. Sir Thomas White, M.P., in reply agreed with the importance of the suggested line; A. W. Gray, M.L.A., informed the Board of Trade that he suggested that a line be built from Forfar to Thousand Islands Jct., while A. J. Mitchell, Vice President, C. N.R., is reported to have said that if a connection between the two lines should be decided on, Gananoque's claims would be fully considered.

Construction Betterments in 1920. — Important progress was made during 1920 in improving the western lines, despite the shortage of labor and the disturbances in industrial conditions. Many lines were brought up to the standard which existing traffic justified, and these standards are to be improved on as traffic increases, finally reaching the position where the facilities will provide a slight margin over the immediate traffic requirements, so that when emergency traffic develops there will not be congestion. With respect to many sections of the main lines, this margin of capacity now exists. Betterments and construction were proceeded with ,with the result that better facilities were provided for farmers in handling grain and wholesalers in transportation of their goods to districts where, formerly, inferior modes of transportation were necessitated.

On lines under construction, considerable grading was done and a large number of miles of steel laid. Grading past the end of steel on these lines under construction was also completed. The Branch lines under construction include: Acadia Valley; Esten, southeast; Hanna-Medicine Hat, north of Red Deer River; Hanna-Medicine Hat, south of Red Deer River; Jackfish Lake; Luck Lake, MacRorie west; Melfort-Humboldt; Moose Jaw (Grand Trunk Pacific connection); Melfort, northeast; Munson double track; Oakland; Oliver, northeast; Oonoway; Peebles-Lampman; Prince Albert northeasterly; Red Deer spur; Swift Current; Thunderhill; Turtleford east; Kamloops, Kelowna and Vancouver Island branches.

In line with the management's policy of improving existing facilities on western lines and making provision for the maintenance of the property in the best possible condition, considerable moneys were expended, as follows: Port Arthur, express building; Prince Arthur hotel, new dining room and alterations to barber shop, etc. Mission, car repair shop. Fort Frances, new 5-stall locomotive house, new freight office. Rainy River, new ash pit. Hunter, 100-ton coaling plant. Machand, new station. Ste. Anne, new station, Transcona, extension to passenger car paint shop. West yard, Fort Rouge, extension to battery building, new concrete chimney, 210 ft. high, new turntable, rebuilding transfer table foundation, rebuilding and extending warehouse. Winnipeg, alterations to express building. Eight section houses on government line between Winnipeg and Fort William. Grand Beach, hotel, new bath house, incinerator, shelter building for picnic parties, new power house, new lavatory building, extension to water supply, ice cream plant, fixing up athletic grounds. Russell, Margo, Melfort, Punnichy, one hundred ton coaling plants. Kamsack, new turntable, new ash pit. Humboldt, new turntable. Saskatoon, fifteen stall locomotive house, boiler and machine shop, new turntable, store building, bunk houses, sand house, two ash pits, carmen's work and material building, new express office and addition to express room. Prince Albert, three-stall addition to locomotive house, addition to station building. Eaton, new five-stall locomotive houses, turntable, tank and other terminal facilities. North Battleford, new track scales. Big Valley, new freight shed. Boston Bar, four workmen's cottages. Victoria, new five-stall locomotive house.

At various places along the system the following buildings were erected: Forty-eight section houses, 11 third class stations, 12 fourth class stations, 14 freight and passenger shelters, 36 sectionmen's houses, two no. 2 locomotive men's bunk houses, two no. 3 locomotive men's bunk houses, five locomotive foreman's cottages, four 24 x 40 ft. freight sheds, two 24 x 60 freight sheds, three express buildings, three carmen's work and material buildings, three dope reclaiming plants, two sand houses, 12 tanks, nine pump houses, detached, 40 stockyards, 53 loading platforms, five ice houses.

Regina Right of Way.—A proposal is reported to have been submitted to the Regina, Sask., City Council to build a line along Fourth Ave., between Albert and Winnipeg Sts., to replace the Grand Trunk Pacific Ry. right of way along the north boundary of the city. It is stated that the G.T.P.R. in 1910 asked for a right of way on Fourth Ave. and that the offer of a right of way on the north boundary of the city was accepted by the company. The city council's reasons for objecting to the use of Fourth Ave. in 1910 for a railway right of way are said to be just as strong, if not more so.

Arizona, Alta.—The Board of Railway Commissioners has approved of location and detail plans for a freight and passenger shelter at Arizona.

Edmonton, Alta.—A. E. Warren, General Manager, Canadian National Rys., Western Lines, is reported to have had a conference with the Mayor of Edmonton, Alta., Jan. 13, in regard to work to be done there. Among the matters discussed is said to have been the new station, car shops and freight sheds.

Oliver-St. Paul de Metis Branch.—The first regular passenger train into St. Paul de Metis, Alta., over the newly completed branch line, was run Dec. 20, 1920, the event being made the occasion of a public demonstration. A freight and passenger station building is reported to be under construction.

Kamloops Bridge and Connection. — The operation of train service on the C. N.R. in and out of Kamloops, B.C., was started Dec. 26, 1920. The main line runs along the opposite bank of the North Thompson River from Kamloops, and the trains now run in and out ove ra short piece of line and a bridge, the work on which was completed recently.

Port Mann Coal Docks.—Tenders were received recently for pulling old piling and driving 83 piles at the coal dock at Port Mann, B.C.

Victoria Terminals.—A press report states that application is being made to the Dominion Public Works Department for permission to build a car ferry extension slip and approach at the terminals on the old Indian Reserve, Victoria, B.C. The report states that the slip will be within 100 yards of the Point Ellice bridge on the old Indian Reserve; that the length of the approach will be about 500 yards; that the transfer slip will be completely tracked, and provided wih a movable apron so as to enable cars to be loaded and unloaded at all stages of the tide.

Mainly About Railway People Throughout Canada.

Clarence W. Adams, whose appointment as Superintendent of Shops, Michigan Central Rd., Jackson, Mich., was announced in a recent issue, was born at St. Thomas, Ont., Mar. 17, 1885. He entered M.C.R. service Sept. 1, 1902, as machinist apprentice, and on completion of his apprenticeship in 1906, he transferred to Pere Marquette Rd. service, and was afterwards in private employ in Detroit, Mich. He returned to M.C.R. service in Oct. 1907, since when he has been, to 1912, machinist, St. Thomas, Ont.; 1912 to 1916, gang foreman and erecting foreman, St. Thomas; 1916, locomotive house foreman, St. Thomas, and latterly, to the date of his present appointment, General Foreman, Locomotive Department, St. Thomas, Ont.

Andrew Allerton, whose appointment as General Superintendent of Hotels, C. P.R., Montreal, was announced in our last issue, entered C.P.R. srevice in 1890 in Dining Car Department and in August 1893 was appointed Manager of the dining hall at Windsor St. Station, Montreal. From June 1894 to Jan. 1897, he was dining car conductor; Jan. 1897 to Feb. 1905, at Chateau Frontenac, Que.; Feb. 1905 to Apr. 1906, clerk, Place Viger Hotel, Montreal; Apr. to June 1906, Manager, Place Viger Hotel, Montreal; June 1906 to Nov. 1919, Manager, Algonquin Hotel, St. Andrews, N.B.; and from Nov. 1919 also Manager, Place Viger Hotel, Montreal. Prior to entering C.P.R. service he was for some years in Allan Line Steamship Co.'s service.

E. W. Beatty, K.C., President, C.P.R., as Chancellor of Queen's University, Kingston, Ont., presided at a special convocation there, Jan. 12, when the degree of LL.D. was conferred on Hon. E. C. Drury, Prime Minister of Ontario. On Jan. 21, Mr. Beatty was one of the speakers at the Canadian Club's dinner, New York, N.Y.

Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., arrived in Canada, Jan. 10, on a visit.

L. S. Brown, recently appointed Assistant General Manager, Eastern Lines, Canadian National Rys., Montreal, was presented at the end of December with a chest of silver by the staff at Moncton, N.B., where he had been General Superintendent, Maritime District, C.N.R.

Roy Bullen, at one time Western Canada representative, Chicago Great Western Ry., Winnipeg, and later General Agent, G.T.R., Minneapolis, Minn., until the appointment of the United States Railroad Administration, died suddenly on board his yacht at Daytona, Fla., at the end of December, aged 48. He left railway service in 1917.

Lieut.-Col. Frederick F. Clarke, D.S.O., whose appointment as Chief Land Surveyor, Canadian National Rys., Toronto, was announced in our last issue, was born at Hamilton, Ont., Aug. 22, 1878, and educated at Upper Canada College and the School of Practical Science, Toronto University. During the summer of 1897 he was chainman for Tyrrell & Ford, Ontario land surveyors, and from Sept. 1897 to Mar. 1, 1900, continued his studies in civil engineering at Toronto University. From Mar. 1, 1900 to Nov. 1, 1902, he was Lieutenant and Captain, successively, Royal Canadian Regiment, Halifax, N.S., and Assistant Adjutant in charge of Field Engineering, during the later portion of the Boer War in South Africa. From Nov. 1, 1902 to May 1, 1903, he resumed his course in civil engineering at Toronto University, and from May 1, 1903 to Feb. 1, 1905, was instrument man for J. H. Moore, O.L.S., Smiths Falls, Ont.; Feb. 1, 1905 to Apr. 1, 1906, in private practice as Ontario land surveyor, Winchester, Ont.; Apr. 1, 1906 to Aug. 4, 1914, Ontario Land Surveyor, Canadian Northern Ry., Toronto; Aug. 4, 1914 to May 1, 1919, Lieutenant-Colonel, 4th Battalion in Canada, 127th Battalion in England and 2nd Railway Troops in France. On his return from active service he was appointed acting Chief Land Surveyor, Canadian National Rys., Toronto, and on Dec. 1, 1920, Chief Land Surveyor.

C. H. N. Connell, who has been appointed Engineer, Ontario District, Canadian National Rys., Toronto, was born at Woodstock, N.B., Aug. 26, 1876, his railway record being, from Aug. to Oct. 1897, chainman, Crowsnest Pass branch, C.P.R.; Oct. 1897 to Nov 1898, clerk in

Lt. Col. F. F. Clarke, D.S.O.,
Chief Land Surveyor, Canadian National Railways.

Division Engineer's office, same road; Nov. 1898 to Aug. 1899, topographer, C.N.R. survey between Port Arthur and Winnipeg; Aug. 1899 to Oct. 1900, Assistant Resident Engineer on construction, same road; Dec. 1900 to Nov. 1902, Resident Engineer on construction, Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont.; May 1903 to Oct. 1, 1909, Locating and Resident Engineer, Alberta Ry. and Irrigation Co., Lethbridge, Alta.; Oct. 1, 1909 to July 1914, Engineer of Maintenance, Canadian Northern Quebec, and Quebec and Lake St. John Rys., Montreal; July 1914 to Jan. 1, 1919, Engineer, Maintenance of Way, Quebec Division, Canadian Northern Ry., Montreal; Jan. 1, 1919 to Jan. 15, 1921, District Engineer, Montreal and Sageuenay Divisions, Canadian Northern Ry., Montreal, and from June 1919, at Quebec, Que.

J. C. Crombie, who retired from the position of Superintendent, G.T.R., and Wabash Ry., St. Thomas, Ont., recently, was presented with a diamond ring by employes on that division, Jan. 9, and the Misses Weisbrod, who have lived with him for several years, were presented with a cabinet of silver and a silver tea service.

Stockwell Day and Mrs. Day, the latter of whom is the daughter of Grant Hall, Vice President, C.P.R., arrived in Vancouver, from Montreal, Jan. 3, in the official car, Mount Royal, en route to San Francisco and Honolulu on their wedding trip.

Lieut. Commander C. P. Edwards, Director of Radiotelegraphs, Naval Service Department, has been elected chairman, Engineering Institute of Canada's Ottawa branch.

A. Ferguson, Inspecting Engineer, Railway and Canals Department, has been elected a member of the executive committe, Engineering Institute of Canada's Ottawa branch.

K. E. Graburn, son of A. L. Graburn, General Fuel Agent, Canadian National Rys., was married in Toronto, Jan. 19, to Miss M. M. Davies.

George A. Harrison, who has been appointed General Agent, Passenger Department, Canadian National - Grand Trunk Rys., at Portland, Me., was born at Russell, Ont., July 4, 1882, and entered railway service Sept. 1, 1903, since when he has been, to Sept. 1, 1904, car checker, G.T.R., Brockville, Ont.; Sept. 1, 1904 to June 1, 1905, night operator, G.T.R., Colborne, Ont.; June 1, 1905 to June 1, 1907, night operator, G.T.R., Brockville, Ont.; June 1, 1907 to July 1, 1912, day operator and ticket agent, G. T.R., Brockville, Ont.; July 1 to Sept. 15, 1912, Travelling Passenger Agent, G.T.R., Alexandria Bay, N.Y.; Sept. 15, 1912 to Feb. 1, 1913, ticket clerk, G.T. R., Bonaventure station, Montreal; Feb. 1, 1913 to June 17, 1914, Assistant Sociliting Passenger Agent, G.T.R., Montreal; June 17, 1914 to May 1, 1916, City Passenger and Ticket Agent, G.T.R., Sherbrooke, Que.; May 1, 1916 to May 1, 1920, Passenger Agent, G.T.R., Portland, Me.; May 1, 1920 to Jan. 1, 1921, General Agent, Passenger Department, G. T.R., Portland, Me.

Charles J. Haigh, Commercial Agent, G.T.R., Philadelphia, Pa., died there, Jan. 9, aged 71. He had been in G.T.R. service for about 50 years, and among the positions held at different times are the following:—Commercial Agent, Detroit, Mich.; Freight Claims Agent, Montreal; Manager, Grand Trunk-Lehigh Valley Fast Freight Line, Buffalo, N.Y.; Travelling Freight Representative, New York; and Commercial Agent, Philadelphia, Pa. The funeral at Toronto, Jan. 13, was attended by a number of transportation representatives.

J. M. Hannaford has retired from the Northern Pacific Ry. Presidency, after 48 years continuous service with the company. He remains a director.

L. W. Hill, Chairman of the Board, Great Northern Ry., returned to St. Paul, Minn., recently, after a moose hunting trip in Alberta.

William Mitchell Hood, who has been appointed General Agent, Passenger and Freight Departments, Canadian National-Grand Trunk Rys., North Bay., Ont., was born at Harrow, Ont., Nov. 25, 1865, and entered railway service, Nov. 1, 1892, since when he has been, to Mar. 1900,

station agent, Lake Erie & Detroit River Ry., McGregor, Ont.; Apr. to Aug. 1900, Soliciting Freight and Passenger Agent, same road, Cleveland, Ohio; Sept. 1900 to Nov. 1901, Travelling Freight and Passenger Agent, same road, Walkerville, Ont.; Dec. 1901 to Aug. 1905, Local Freight Agent, Pere Marquette Rd., Sarnia, Ont.; Sept. 1905 to Feb. 1911, Local Freight Agent, same road, Chatham, Ont.; Mar. 1911 to Feb. 1913, Travelling Passenger Agent, same road, London, Ont.; Mar. 1913 to Jan. 1915, Travelling Passenger Agent, Canadian Northern Ry., Toronto; Feb. to Nov. 1915, City Freight and Passenger Agent, same road, Oshawa, Ont.; Dec. 1915 to Dec. 1916, Travelling Freight and Passenger Agent, same road, North Bay, Ont.; Dec. 1916 to Jan. 6, 1921, District Freight and Passenger Agent, Canadian Northern Ry., latterly Canadian National Rys., Sudbury, Ont.

A. L. Johnston, City Ticket Agent, Great Northern Ry., Winnipeg, was presented with a walrus travelling bag by a number of his associates, on leaving Winnipeg, Jan. 6, for St. Paul, Minn., where he has been appointed Travelling Passenger Agent, G.N.R.

Harry Linwood Johnston, whose appointment as District Engineer, Vancouver Island Lines, Canadian National Rys., Victoria, B.C., was announced in our last issue, was born at Fredericton, N.B., Aug. 29, 1862, and entered railway service in 1882, since when he has been, to 1888, chainman and Resident Engineer, C.P.R., Mattawa and Lake Superior district, Ont.; 1888 to 1893, instrument man and Resident Engineer, Great Northern Ry., Stevens Pass, and near Spokane, Wash.; 1894 to 1905, Assistant Engineer and Roadmaster, C.P.R., Spences Bridge, Greenwood and Nelson, B.C.; 1905 to 1911, Locating and Division Engineer, Grand Trunk Pacific Ry. in Manitoba and Prince Rupert, B.C.; 1911 to 1917, Division Engineer, Canadian Northern Ry., Kamloops, B.C.; 1917 to 1919, District Engineer, British Columbia Public Works Department, Vancouver; 1919 to Nov. 1920, Division Engineer, Canadian National Rys., Armstrong and Vernon, B.C.

Louis Lavoie, whose appointment as General Purchasing Agent, Canadian National Rys., Toronto, was announced in a recent issue, was born at Rimouski, Que., June 22, 1879, and entered railway service Oct. 1, 1894, since when he has been, to Nov. 1901, clerk in General Manager's office, Intercolonial Ry., Moncton, N.B.; Nov. 1901 to Sept. 1902, secretary to General Manager's assistant, I.R.C., Moncton; Sept. 1902 to Apr. 1903, secretary to General Superintendent, I.R.C., Moncton; Apr. 1903 to Sept. 1905, chief clerk to General Superintendent, I.R.C., Moncton; Sept. 1905 to Apr. 1908, Assistant, Operating, to General Manager, I.R.C., Moncton; Apr. to Nov. 1909, Assistant to General Superintendent, Canadian Government Rys., Moncton; Nov. 1909 to Mar. 1910, Purchasing Agent, Canadian Government Rys., Ottawa; Mar. 1910 to Jan. 1, 1919, Purchasing Agent, Railways and Canals Department, embracing Canadian Government Rys., Dominion canals, Hudson Bay Ry. and Hudson Bay Port Nelson terminals, Ottawa; Jan. 1, 1919 to Dec. 1, 1920, Assistant General Purchasing Agent, Canadian National Rys., Toronto.

George W. Lee, who has been appointed Chairman, Timiskaming & Northern Ontario Ry. Commission, was born at White Lake, Ont., Apr. 15, 1871, and entered railway service Nov. 1, 1898, since when he has been, to June 1, 1900, freight clerk, C.P.R., Renfrew, Ont.; June 1, 1900 to Jan. 1, 1901, in tie and timber business, C.P.R., North Bay, Ont.; Jan. 1, 1901 to Sept. 1, 1905, in charge of freight sheds, C.P.R., North Bay, Ont.; Sept. 1, 1905 to Apr. 16, 1914, General Agent, Timiskaming & Northern Ontario Ry., North Bay, Ont.; Apr. 16, 1914 to Dec. 31, 1920, Commissioner, T. & N.O. R., North Bay, Ont. He was entertained to dinner by the North Bay municipality, Jan. 20.

R. C. W. Lett, General Agent, Colonization, Industrial and Resources Department, Canadian National-Grand Trunk Pacific Rys., Edmonton, Alta., was entertained to dinner at Winnipeg, Jan. 6, and presented with a pipe, by a number of railway friends. He was for some time Tourist and Colonization Agent, Grand Trunk Pacific Ry., at Winnipeg.

D. O. Lewis, whose appointment as Assistant Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry., Toronto, was announced in our last issue, was entertained at luncheon by the Engineering Institute of Canada's Victoria

Robert Preston,
Superintendent of Motive Power and Car Department, Eastern Lines, Canadian Pacific Railway.

branch at the end of December, on leaving Victoria, B.C., where he had been, for some years, District Engineer, Vancouver Island Lines, Canadian Northern Pacific Ry.

Capt. Walter J. Loudon, of Toronto, who died in Cuba Jan. 26, was formerly on the C.P.R. and Canadian Northern Ry. engineering staffs. He went overseas with the 102nd battalion and was shell shocked.

Owen McKay, who died at Walkerville, Ont., recently, after a prolonged illness, was born in Ross Tp., Ont., Mar. 13, 1848. After teaching in public schools for about 12 years, he took a course in civil engineering at the School of Practical Science, Toronto, and became a land surveyor for Ontario in 1887. In the same year he joined the late Jos. deGurse, and was engaged in survey work on the Lake Erie & Detroit River Ry., remaining with him in his local practice, and as Assistant Engineer, L.E. & D.R.R. until Mar. 1898, when he was appointed Engineer, and in Dec. 1901, Chief Engineer. When the L.E. & D.R.R. was taken over by the Pere Marquette Rd. in 1902, he remained with the company, until the Canadian Division was absorbed into the parent company, when he resigned, and was appointed Chief Engineer, Essex Terminal Ry., which position he retained until he became incapacitated through illness in 1920.

J. A. Mackenzie, G.T.R. ticket agent, Woodstock, Ont., resigned, Jan. 6, on account of ill health, after having occupied that position for about 45 years.

George Peter MacLaren, who has been appointed Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry., Toronto, was born at London, Ont., Apr. 4, 1878, and was, from Jan. to Dec. 1897, rodman, draftsman and instrument man on sewage disposal work, under City Engineer, London, Ont.; Jan. to Nov. 1898, Resident Engineer between St. Thomas and Walkerville, Ont., Lake Erie & Detroit River Ry.; Jan. to Dec. 1899, draftsman, Algoma Central & Hudson Bay Ry.; 1900 to 1910, transit man on location, Canadian Northern Ry.; 1902 to 1904, Resident Engineer on construction, same road; 1904 to 1911, Division Engineer on construction, in Nova Scotia, Quebec and Ontario, same road; 1911 to 1915, District Engineer, North Bay District, same road; 1915 to 1916, Division Engineer, Toronto Division, same road. In 1916 he enlisted for military service and went overseas as Chief Engineer of the 10th Battalion, Canadian Railway Troops, and on his return to civil life in July 1919, he was appointed Engineer, Ontario District, Canadian National Rys., Toronto, which position he held until Jan. 15.

Donald McMaster, K.C., D.C.L., who represents the Chertsey Division in the British House of Commons, and who has been created a baronet, acted as one of the arbitrators between the Newfoundland Government and the Reid Newfoundland Co. in 1904-5.

Jas. Mills, formerly a member of the Board of Railway Commissioners, now the Board's Librarian, at Ottawa, and who was President of the Ontario Agricultural College at Guelph from 1879 to 1904, opened the new college residence, which has been named after him, Mills Hall, on Jan. 12.

Brig. General C. H. Mitchell, C.B., C.M.G., D.S.O., Dean, Toronto University's Applied Science Faculty, has been elected President of the Empire Club, Toronto.

J. C. O'Donnell, whose appointment as General Superintendent, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B., was announced in Canadian Railway and Marine World for Dec. 1920, while visiting Winnipeg recently, where he had been Superintendent, Manitoba Division, Central District, C.N.R., for some time, was presented with a diamond ring, and a diamond pendant for Mrs. O'Donnell, by a number of friends.

J. L. Payne, formerly Comptroller of Statistics, Railways and Canals Department, Ottawa, has been superannuated.

T. P. Phelan, President, Canada Railway News Co., had his house in Toronto robbed, Jan. 27, two seal coats, a diamond ring and a pearl necklace of a total value of some $2,600 being taken.

R. Preston was entertained at luncheon at Winnipeg, Jan. 1, by the local C.P.R. staff on leaving Winnipeg, where he had

been Assistant Superintendent of Motive Power, Western Lines, for Montreal, to take up his new duties as Superintendent of Motive Power, Eastern Lines, C.P.R.

J. G. Rutherford, C.M.G., D.V.S., one of the members of the Board of Railway Commissioners, has been elected one of the honorary presidents of the Eastern Canada Veterinary Association.

H. D. Reid, President, Reid Newfoundland Co., and Mrs. Reid, left St. John's, Nfld., in December, to spend three or four months in Great Britain and on the European Continent.

Wm. A. Ritchie, District Superintendent, Pullman Co., Montreal, retired Jan. 1. He was born in Scotland in 1871 and entered Pullman Co.'s service at Montreal in 1876 to supervise portions of the car construction, then being done by the company in the G.T.R. Point St. Charles shops. In 1887 he was appointed Assistant to Superintendent, Pullman Co., Montreal, and in 1889, Superintendent, which position he held for 31 years.

William J. Robider, who has resigned the position of General Master Car Builder, C.P.R., Montreal, was born at Savannah, Ga., Feb. 15, 1869, and entered railway service in Oct. 1884, since when he has been, to Oct. 1905, apprentice, assistant foreman, Car Department, and foreman, Car Department, Central of Georgia Ry., Savannah, Ga.; Oct. 1905 to Oct. 15, 1918, Master Car Builder, same road, and from Oct. 15, 1918 to Nov. 29, 1920, General Master Car Builder, C.P.R., Montreal.

J. K. L. Ross, one of the C.P.R. directors, and Mrs. Ross, expect to leave Montreal for the south early in February.

Lord Shaughnessy, Chairman, C.P.R. Co., has been appointed Chairman, Canadian Advisory Board, National City Co. of New York; and W. N. Tilley, K.C., Consulting Counsel, C.P.R., has been appointed a member of the board.

Archibald Sturrock, who has been appointed Assistant Superintendent of Motive Power, Western Lines, C.P.R., Winnipeg, was born at Dundas, Ont., July 27, 1883, and after serving an apprenticeship with The John Bertram & Sons Co., Dundas, Ont., entered railway service in 1901, since when he has been, to 1902, machinist, G.T.R., Stratford, Ont.; 1902 to 1904, machinist, Santa Fe, and Denver and Rio Grand Rds.; July 1904 to 1911, machinist, C.P.R., Winnipeg; 1911 to 1913, Locomotive Foreman, C.P.R., Fort William, Ont.; 1913 to Apr. 1914, Locomotive Foreman, C.P.R., Vancouver, B.C.; Apr. to Nov. 1914, General Locomotive Foreman, C.P.R. Ogden Shops, Alberta; Nov. 1914 to Jan. 1915, Division Master Mechanic, C.P.R., Cranbrook, B.C.; Jan. to Apr. 1915, General Master Mechanic, Alberta District, C.P.R., Calgary; Apr. 1915 to Jan. 1, 1921, General Master Mechanic, British Columbia District, Vancouver.

Howard Sugden, secretary to D. C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, was married there, towards the end of December, when he was presented with a cabinet of silver by the office staff.

Frederick Byron Tapley, who has been appointed Engineer, Maintenance of Way, Canadian Government Rys., Moncton, N. B., was born at St. John, N.B., Oct. 17, 1876, and entered C.P.R. service in July, 1903, since when he has been, to Apr. 1905, rodman, St. John, to Apr. 1905, to Apr. 1907, transit man, St. John, N.B.; Apr. 1907, to July 1, 1908, acting Resident Engineer, Belleville Jct., Ont.; July 1908 to Dec. 1911, Resident Engineer, Belleville Jct., Ont.; Dec. 1911 to Oct. 1913, Resident Engineer, London, Ont.; Oct. 1913 to July 1916, Assistant Engineer in office of Assistant Chief Engineer, Eastern Lines, Montreal; June 30, 1917 to Jan. 15, 1921, Assistant Engineer, Maintenance of Way, Canadian Government Rys., Moncton, N.B.

C. H. Temple, whose appointment as Chief of Motive Power and Rolling Stock, C.P.R., Montreal, was announced in our last issue, was entertained at luncheon at Winnipeg, Jan. 1, by the company's local officials, on leaving Winnipeg, where he had been Superintendent of Motive Power, Western Lines, C.P.R.

Major A. T. Tomlinson, who died at Toronto, Jan. 20, after a long illness, was born at Grand Falls, N.B., June 22, 1859, and graduated from the Royal Military College, June 1882, with honors in civil engineering. He was, from July 1882 to June 1883, with Toronto Bridge Co., Toronto; Aug. 1883 to June 1884, section engineer, Lake Superior Division, C.P.R.; 1886, Engineer of Maintenance, Burlington & Missouri River Rd., Omaha, Neb.; Feb. 1887 to 1890, Assistant Engineer, Denver & Rio Grande Rd., Pueblo, and Leadville, Col.; 1891 to 1893, Assistant Engineer, Brooklyn Elevated Ry., Brooklyn, N.Y.; 1894 to 1897, Assistant Chief Engineer, Northwestern Union & Lake St. Elevated Railways, Chicago, Ill.; 1898 to 1902, Consulting Engineer, Boston Elevated Rd., Boston, Mass.; 1902 to 1905, Civil Engineer, J. G. White & Co., New York; 1905 to 1908, Civil Engineer, Canadian White Co., Montreal; 1909 to 1912, District Engineer, G.T. Pacific Ry., Cochrane, Ont. In June 1913 he was appointed Chief Engineer, North Ry., Montreal, the project being subsequently abandoned. In 1915 he was appointed to the Canadian Engineers, in charge of the inspection of small arms ammunition in Dominion arsenals. He was a member of the Engineering Institute of Canada, the American Society of Civil Engineers, and the American Railway Engineering Association.

Alfred Tory, Storekeeper, G.T.R., London, Ont., on retiring from the service, Jan. 1, after over 40 years in the company's employ, was presented with a purse of money by his associates.

C. E. E. Ussher, Passenger Traffic Manager, C.P.R., has been elected President, Canadian Forestry Association.

Geo. W. Vaux, General Agent, Union Pacific System, Toronto, and Mrs. Vaux, announce the engagement of their daughter, Frances Ellen, of Montreal, to W. M. Findlay.

David White, who died at Vancouver, B.C., Jan. 5, aged 82, was for over 40 years in Intercolonial Ry. service at Halifax, N.S., and Moncton, N.B., having been Master Car Builder at Moncton shops for about 15 years prior to his retirement on pension in 1908.

Mrs. Wm. Young, wife of the Roadmaster, District One., Timiskaming & Northern Ontario Ry., died at North Bay, Ont., Jan. 8.

The Timiskaming & Northern Ontario Ry. Commission's head office, which has been located in Toronto heretofore, will be removed in the near future to North Bay, Ont., where a number of officials have been located for many years. The offices which will be removed are those of the Chairman, G. W. Lee; Secretary-Treasurer, W. H. Maund, and Auditor of Disbursements and Accountant, D. Hamilton.

Steam Railway Track Laid in 1920.

The figures given in Canadian Railway and Marine World for January in regard to track laid on the C.P.R. during 1920 were estimated up to Dec. 31. We have since been furnished a statement of the actual track laid, which was 100.48 miles, against 102.50 estimated, and have accordingly revised our tabulation for all lines as follows:—

	Miles.	Miles.
Canadian Government Rys.—		
Halifax Ocean Terminals to Halifax & S. Western Ry. Jct.	0.68	
Moncton cut off, mile 1.36, St. John Subdivision, to mile 3.5, Newcastle Subdivision, N.B.	3.86	
		4.54
Canadian National Rys., Eastern Lines—		
St. Marc, Canadian Northern Quebec Ry., to St. Marc, National Transcontinental Ry.	2.00	
St. Prosper connection, same line	0.50	
	2.50	
Canadian National Rys., Western Lines—		
Saskatchewan—		
Melfort-Humboldt line	33.40	
Thunderhill extension	8.30	
Jackfish Branch	10.00	
Swift Current extension	6.70	
Alsask Southeasterly	20.60	
	79.00	
Alberta—		
Red Deer spur	6.40	
Hanna-Medicine Hat line	10.00	
Olive-St. Paul de Metis line	23.10	
Onoway branch	18.10	
	57.60	
Canadian Northern Pacific Ry.—		
Vancouver Island line, mile 52.5 to 74.5	22.00	
		161.10
Canadian Pacific Ry.		
Manitoba—		
Russell Northerly	6.63	
Saskatchewan—		
Consul easterly	1.52	
Lanigan northeastrely	49.34	
Leader southeasterly branch	25.47	
	76.33	
Alberta—		
Lanigan northerly, Acme-Empress	17.52	
		100.48
Kettle Valley Ry.—		
Copper Mountain Branch—		
Allenby to Copper Mountain	8.00	
Mile 7 to concentrator	1.06	
		9.06
Pacific Great Eastern Ry.—		
Deep Creek to Australian Creek, B.C.		34.50
		309.68

The following is the distribution of the mileage by provinces:—

	Miles.
Saskatchewan	155.33
Alberta	75.12
British Columbia	65.56
Manitoba	6.63
New Brunswick	3.86
Quebec	2.50
Nova Scotia	0.68
Total	309.68

In addition to the above mileage of additional new main track laid, the Canadian National Rys. report having laid 4.70 mile of a diversion near St. Rosalie, Que., and second track on 30.76 miles as follows: Springfield Jct. to Maccan, N.S., 9.13 miles; Truro to Belmont, N.S., 7.69 miles; Bagot to St. Rosalie, Que., 10.94 miles, and near Munson, Alta., 3 miles.

In Newfoundland, the Reid Newfoundland Co. have laid 3.5 miles of new track, from Argentia Jct. to Argentia.

Reassuring.

Nervous Tourist: "What if the bridge should break and the train fall into the river?"

Conductor: "Don't worry, sir. This road won't miss it. It has a lot of trains."—Erie Railroad Magazine.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Government Merchant Marine Ltd.—R. SAUNDERS, heretofore chief officer, s.s. Makura, Canada-Australia Mail Line, Union Steamship Co. of New Zealand, has been appointed Assistant Marine Superintendent, C.G.M.M., at Sydney and Melbourne, Australia.

Canadian National Rys.—G. A. BELL has been appointed City Ticket and Freight Agent, Sudbury, Ont.

G. B. BEMISTER has been appointed Manitoba Land Surveyor, reporting to A. G. Weeks, Chief Land Surveyor, Western Lines, Winnipeg. Office, Winnipeg.

L. C. BROUSSEAU, Engineer, Quebec District, has had his jurisdiction extended to include the Montreal and Saguenay Divisions, Canadian Northern Ry., heretofore under jurisdiction of C. H. N. Connell, District Engineer, who has been promoted. Office, Quebec, Que.

E. C. BROWN, heretofore in Grand Trunk Pacific Ry. service, has been appointed Saskatchewan Land Surveyor, reporting to A. G. Weeks, Chief Land Surveyor, Western Lines, Winnipeg.

J. H. BURD has been appointed Alberta Land Surveyor, reporting to A. G. Weeks, Chief Land Surveyor, Western Lines, Winnipeg. Office, Edmonton.

A. CHARD, heretofore Local Freight Agent, Canadian National Rys., Calgary, Alta., has been appointed sub-agent, Canadian National-Grand Trunk Paacific Rys., there.

G. M. CHRISTIE has been appointed British Columbia Land Surveyor, reporting to A. G. Weeks, Chief Land Surveyor, Western Lines, Winnipeg. Office, Vancouver.

JOHN CONDEGAN has been appointed Nova Scotia Land Surveyor, and temporarily in charge of New Brunswick land surveys, reporting to Lieut.-Col. F. F. Clarke, Chief Land Surveyor, Toronto. Office, Moncton, N.B.

C. H. N. CONNELL, heretofore District Engineer, Montreal and Saguenay Divisions, Canadian Northern Ry., Quebec, Que., has been appointed District Engineer, Ontario District, Canadian National Rys., vice G. P. MacLaren, promoted. Office, Toronto.

R. B. DOVER, heretofore Local Freight Agent, Grand Trunk Pacific Ry., Calgary, Alta., has been appointed Local Freight Agent, Canadian National-Grand Trunk Pacific Rys., there.

E. FITZGERALD has been appointed Ontario Land Surveyor, reporting to Lieut.-Col. F. F. Clarke, Chief Land Surveyor, Toronto. Office, Toronto.

W. M. HOOD, heretofore District Freight and Passenger Agent, Canadian National Rys., Sudbury, Ont., has been appointed General Agent, Passenger and Freight Departments, Canadian National-Grand Trunk Rys., reporting to the traffice officials of those railways at Toronto, on all matters pertaining to those departments in the territory assigned to his supervision, and his former position has been abolished. Office, North Bay, Ont.

J. W. KIMBALL, Superintendent, Boarding Car Department, Canadian National Rys., Winnipeg, has had his jurisdiction extended over the Grand Trunk Pacific Ry., the contract which the G.T.P.R. had with C. L. Petersen and Co., for boarding men, having been cancelled.

G. P. MacLAREN, heretofore Engineer, Ontario District, Canadian National Rys., Toronto, has been appointed Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry., vice H. T. Hazen, appointed acting Chief Engineer. Office, Toronto.

W. McPHILLIPS has been appointed Assistant Manitoba Land Surveyor, Winnipeg.

J. M. MILLS has been appointed Chief Dispatcher, Hornepayne Division, Ontario District, vice J. W. Nicholson, promoted. Office, Hornepayne, Ont.

S. MORRISON has been appointed Assistant Engineer, Maintenance of Way, with jurisdiction over all lines west of Edmonton, Alta., not including Edmonton, and including Vancouver Island lines, and the position of District Engineer, Pacific District, Victoria, B.C., hitherto held by D. O. Lewis, whose appointment

Archibald Sturrock,
Assistant Superintendent of Motive Power, Western Lines, Canadian Pacific Railway.

as Assistant Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry., Toronto, was announced in our last issue, has been abolished. Office, Vancouver, B.C.

J. W. NICHOLSON, heretofore Chief Dispatcher, Hornepayne, Ont., has been appointed Assistant Superintendent, Superior Division, Ontario District, vice F. W. Naylor, transferred. Office, Hornepayne, Ont.

S. E. OLIVER has been appointed Quebec Land Surveyor, reporting to Lieut.-Col. F. F. Clarke, Chief Land Surveyor, Toronto. Office, Quebec, Que.

H. J. PAGE, heretofore Chief Special Agent, Eastern Lines, Canadian Northern Ry., has been appointed Superintendent of Police and Special Service, Canadian National Rys. Office, Toronto.

H. T. RAWLINGS, heretofore Lake Forwarding Agent, Fuel Department, Cleveland, Ohio, has resigned to become Vice President, Baier Coal Co., Cleveland.

T. DUFF SMITH, formerly Fuel Agent, Grand Trunk Pacific Ry., Winnipeg, Man., has been appointed Assistant Fuel Agent, Canadian National Rys. at Edmonton, Alta.

F. B. TAPLEY, heretofore Assistant Engineer, Maintenance of Way, Canadian Government Rys., Moncton, N.B., has been appointed Engineer, Maintenance of Way, Canadian Government Rys., and his former position has been abolished. Office, Moncton, N.B.

A. G. WEEKS has been appointed Chief Land Surveyor, Western Lines, reporting to Lieut.-Col. F. F. Clarke, Chief Land Surveyor, Toronto. Office, Winnipeg.

Canadian Pacific Ocean Services Ltd. H. H. BORTHWICK is reported to have been appointed Passenger Agent, Dundee, Scotland, vice R. Ferguson.

W. H. POWELL, Passenger Agent, Southampton, Eng., is reported to have been appointed General Agent, Passenger Department, London, Eng., vice G. Gribbon, resigned.

Canadian Pacific Ry.—H. M. ALLEN, heretofore Locomotive Foreman, Alyth, Alta., has been appointed Master Mechanic, Kenora Division, Manitoba District. Office, Kenora, Ont.

HAROLD A. AMY, formerly Locomotive Foreman, North Bay, Ont., has been appointed Division Master Mechanic at Ottawa.

H. H. BOYD, Assistant Chief Mechanical Engineer, has also had assigned to him the duties pertaining to the position of General Master Car Builder, which has been abolished. Office, Montreal.

W. E. CLINE, heretofore Chief Dispatcher, Kenora, Ont., has been appointed Car Service Agent, Saskatchewan District, vice G. S. Lytle. Office, Moose Jaw.

D. COSSAR, heretofore Locomotive Foreman, Transcona, Man., has been appointed Locomotive Foreman, Winnipeg, vice J. MacRae, transferred.

ERNEST G. FREEMAN, formerly Locomotive Foreman at Cartier, Ont., has been transferred to Locomotive Foreman at North Bay, Ont.

JAS. GIBSON, heretofore Locomotive Foreman, Sutherland, Sask., has been appointed Master Mechanic, Moose Jaw Division, Saskatchewan District, vice A. Peers, promoted. Office, Moose Jaw.

J. W. JACKSON, heretofore Locomotive Foreman, West Calgary, Alta., has been appointed Locomotive Foreman, Alyth, Alta., vice H. M. Allen, promoted.

J. MACRAE, heretofore Locomotive Foreman, Winnipeg, has been appointed Locomotive Foreman, Sutherland, Sask., vice Jas. Gibson, promoted.

A. PEERS, heretofore Master Mechanic, Moose Jaw Division, Saskatchewan District, Moose Jaw, has been appointed Master Meehcanic, Saskatchewan District, vice W. J. Renix, transferred. Office, Moose Jaw.

JOHN REED has been appointed Night Locomotive Foreman, West Calgary, Alta., vice J. W. Sindall, promoted.

W. J. RENIX, heretofore Master Mechanic, Saskatchewan District, Moose Jaw, has been appointed Master Mechanic, British Columbia District, vice A. Sturrock, whose appointment as Assistant Superintendent of Motive Power, Western Lines, Winnipeg, was announced in our last issue. Office, Vancouver.

W. J. ROBIDER having retired from the service, the position of General Master Car Builder has been abolished, and the duties pertaining to that position have been taken over by the Assistant Chief Mechanical Engineer, H. H. Boyd.

F. S. ROSSETER, formerly Assistant Superintendent, Toronto Terminals Division, Ontario District, Toronto; subsequently acting Superintendent, Sudbury Division, Algoma District; and afterwards acting Superintendent, Chapleau Division, Algoma District, has been appointed Assistant Superintendent, Chapleau Division, Algoma District, vice V. T. Boughton, resigned.

JOSEPH ST. LOUIS, formerly locomotive hostler at Cartier, Ont., and who acted as relieving foreman there on several occasions, has been appointed Locomotive Foreman there.

J. W. SINDALL, heretofore Night Locomotive Foreman, West Calgary, Alta., has been appointed Locomotive Foreman there, vice J. W. Jackson, transferred.

Grand Trunk Ry.—M. P. CUNNINGHAM has been appointed Commercial Agent, New Haven, Conn.

J. B. DUNLOP, heretofore Locomotive Foreman, Fort Erie, Ont., has been appointed Foreman, Erecting Shop, Stratford, Ont., vice W. Seeley, promoted.

W. M. HOOD, heretofore District Freight and Passenger Agent, Canadian National Rys., Sudbury, Ont., has been appointed General Agent, Passenger and Freight Departments, Canadian National-Grand Trunk Rys., reporting to traffic officials of these railways on all matters pertaining to these departments in the territory assigned to his supervision, and his former position has been abolished. Office, North Bay, Ont.

G. A. KELL, heretofore Travelling Engineer, Turcot, Que., has been appointed Safety Engineer. Office, Montreal.

J. LIVINGSTON, heretofore of the stores department, Stratford, Ont., is reported to have been appointed Storekeeper, East London, Ont., vice A. Tory, retired from the service.

JOHN McCRAW has been appointed Travelling Representative, New Haven, Conn.

N. T. MAHONEY has been appointed Travelling Representative, New Haven, Conn.

W. RIDDELL has been appointed Locomotive Foreman, Fort Erie, Ont., vice J. B. Dunlop, assigned to other duties.

JOHN ROBERTS, heretofore General Shop Foreman, Stratford, Ont., has been appointed acting Superintendent Motive Power Shops there, vice J. C. Garden, promoted.

W. SEELEY, heretofore Foreman, Erecting Shop, Stratford, Ont., has been appointed General Shop Foreman there, vice J. Roberts, promoted.

N. A. B. SMITH, heretofore relieving agent, London Division, Ontario Lines, has been appointed Town Ticket Agent, Woodstock, Ont., vice J. A. McKenzie, retired.

Great Northern Ry.—S. M. FARRELL, heretofore in Cunard Line's office, Winnipeg, has been appointed City Ticket Agent, G.N.R., Winnipeg, vice A. L. Johnston, promoted.

A. L. JOHNSTON, heretofore City Ticket Agent, Winnipeg, has been appointed Travelling Passenger Agent, St. Paul, Minn., vice V. E. Jones, promoted.

Minneapolis, St. Paul & Sault Ste. Marie Ry.—C. H. BENDER has been appointed Deputy Treasurer and Paymaster. Office, Minneapolis, Minn.

W. R. CALLAWAY, Passenger Traffice Manager, Minneapolis, Minn., having resigned, Jan. 1, that office has been discontinued.

H. M. LEWIS, General Passenger Agent, in addition to his regular duties, has been given charge of matters heretofore under the direction of W. R. Callaway, Passenger Traffic Manager, resigned. Office, Minneapolis, Minn.

H. N. PAIST, heretofore Assistant Treasurer, has been appointed Treasurer, vice C. F. Clement, resigned. Office, Minneapolis, Minn.

Pullman Co.—C. J. SIMPSON, heretofore Assistant Superintendent, Montreal, has been appointed acting District Superintendent there, vice W. A. Ritchie, retired.

Timiskaming & Northern Ontario Ry. G. W. LEE, heretofore one of the commissioners, has been appointed Chairman of the Commission, vice J. L. Englehart, whose resignation took place about a year ago. Office at present Toronto, but will be moved to North Bay, Ont., in the near future.

Co-ordination of Grand Trunk Railway with Canadian National Railways.

Canadian Railway and Marine World for June 1920 gave full particulars of the committee of management appointed, under the agreement between the Dominion Government and the G.T.R., for the acquisition by the Government of the G.T.R. Co.'s properties, and that of its subsidiary companies, to ensure the operation of the G.T.R., as far as possible, in harmony with the Canadian National Rys., the two systems to be treated in the public interest, as nearly as possible, as one system. The Government appointed as its representatives on the committee C. A. Hayes, Vice President in charge of Traffic, Canadian National Rys., and S. J. Hungerford, then Assistant Vice President, Operation, Maintenance and Construction, C.N.R., now Vice President, Operation and Maintenance. The G.T.R. appointed as its representatives F. Scott, its Vice President and Treasurer; and W. D. Robb, its Vice President, Transportation and Maintenance. These four members of the committe elected H. G. Kelley, President, G.T.R., as the fifth member of the committee and its chairman. In the latter capacity Mr. Kelley submitted a report to the Minister of Railways recently dealing with economies effected by the co-ordination up to Nov. 30, 1920, which is summarized as follows:—Although much has been accomplished in the process of consolidation, there are still many matters under consideration in connection with which there are legal or physical difficulties which must be dealt with before parallel trackage can be abandoned, and more direct connections established, which will permit a further considerable saving in train mileage. Capital expenditure connected with the consolidation of facilities to date amount to $508,473, at an annual cost of $75,927, but this expenditure will result in a saving estimated at $965,775 a year. In addition there is a credit to capital account of Canadian National Rys. from salvage, of $338,000. A saving of over $300,000 a year is rendered possible by the routing of freight by Grand Trunk between Toronto and Napanee, by Canadian National between Napanee and Ottawa, and by Grand Trunk between Napanee and Montreal. Similarly a further saving of $100,000 has been made possible by more economic routing of passenger traffic in Ontario. In addition a saving of about $250,000 a year will result from the combining of Toronto passenger and freight terminal facilities and staffs. Thirty two thousand dollars is saved by more direct handling of Toronto and Western Ontario freight, destined to the northwest, and there is a saving of $75,000 from the consolidation of express services. In this connection, it has been necessary, owing to the growth of express business, to put in a special train each way between Montreal and Toronto to handle express traffic solely. These are operated six days a week via the Grand Trunk, and have afforded great relief to the regular passenger train service. Following are particulars of co-ordination of facilities, etc.:—

Aston Jct., Que.—Consolidation of station facilities has been effected, C.N.R. being used by both systems.

Belleville, Ont.—The handling of l.c.l. freight has been consolidated, this work being taken over by the G.T.R.

Brighton, Ont.—In obtaining access to each other's tracks, the two railways are using a temporary connection at Colbright, a short distance from Brighton.

Brockville, Ont.—See Lyn.

Cobourg and Colborne, Ont.—C.N.R. stations have been closed, and the G.T.R. stations are being used.

Eastern Jct., near St. Laurent, Que.—The Board of Railway Commissioners has approved interchange at this point. The present connecting track will meet the requirements in the meantime.

Grafton, Ont.—C.N.R. station has been closed and the G.T.R. station is being used.

Guelph, Ont.—Arrangements have been made for the Toronto Suburban Ry. to use the G.T.R. station.

Hawkesbury, Ont.—Consolidation of facilities and staffs is under consideration.

Kingston, Ont.—Station facilities have been consolidated.

Lyn, Ont.—A section of the Canadian National Rys., formerly part of the Brockville, Westport and Northwestern Ry., parallels the G.T.R. between Brockville and Lyn, approximately four miles. It is the intention to build a joint station at Lyn on G.T.R. property which will permit C.N.R. trains to use G.T.R. tracks into Brockville.

Lyster, Que.—The G.T.R. has taken over the C.N.R. staff.

Montreal.—The staffs at Bonaventure station have been consolidated. The staffs at Montreal Wharf have been consolidated, G.T.R. facilities being used. The C.N.R. staff at Point St. Charles has been taken over by the G.T.R. The two systems' commissary departments at Montreal have been consolidated. The handling of railway mail at Montreal has been consolidated. Consolidation of the staffs and facilities for handling l.c.l. freight in Montreal terminals is awaiting adjustment of certain features of the cartage question.

Napanee, Ont.—The station forces have been consolidated.

North Bay, Ont.—The use by the G.T.R. of the C.N.R. station is under consideration.

Ottawa, Ont.—Consolidation of facilities and staffs is practically completed.

Parry Sound, James Bay Jct., and

Falding, Ont.—The G.T.R. is operating into Parry Sound over C.N.R. tracks.

Pembroke, Ont.—The station facilities and staffs have been consolidated, the C. N.R. using the G.T.R. facilities.

Rockland, Ont.—Arrangements have been made to consolidate both facilities and staffs in the spring.

St. Hyacinthe, Que.—The operations and staffs have been consolidated.

St. Rosalie, Que.—Consideration is being given to increased facilities, the intention being to turn C.N.R. locomotives and crews there, the G.T.R. to handle a portion of the C.N.R. tonnage between Montreal and St. Rosalie.

Trenton, Ont.—The C.N.R. has taken over the handling of all l.c.l. freight.

Udney Jct. and Orillia, Ont.—The C.N. R. line between these points has been abandoned and service withdrawn. The tracks have not yet been removed.

Washago, Ont.—A physical connection has been installed, and a temporary signal to protect movements of C.N.R. passenger trains.

Toronto.—Owing to the C.N.R.'s limited terminal facilities, it has been decided to take care of C.N.R. locomotives and cars, handling of cars in yards, etc., by using G.T.R. facilities, which are being enlarged to meet the joint requirements. It is intended that the C.N.R. shall handle G.T.R. l.c.l. freight at Cherry St. freight house, which is being enlarged. The freight houses at Parkdale have been consolidated. The dining car facilities have been consolidated and additional provision made for taking care of the supplies. The dispatching of C. N.R. trains between Don and Rosedale is now being handled by the C.N.R. dispatchers.

Passenger Traffic. — All passengers moving between Toronto and Ottawa are routed via C.N.R., which provides a shorter and more convenient route.

G.T.R. trains 9 and 10 between Montreal and Toronto are being routed over C.N.R. between Napanee and Colbright. This involves a slight increase in train miles, which is more than offset by the better service afforded.

G.T.R. trains 29 and 30, which ran formerly between Belleville and Toronto, have been changed to run between Kingston and Toronto, to enable the C.N.R. to withdraw trains 32 and 33 between Yarker and Cobourg. This has effected a net reduction in train miles.

C.N.R. trains 51 and 52, which operated formerly between Picton and Kingston via Harrowsmith Jct., are now routed over G.T.R. between Napanee and Kingston. It has been necessary to increase the train mileage between Yarker and Napanee, which offsets the saving made by routing of trains 51 and 52. The service to the public, however, has been materially improved.

The daily passenger service which the C.N.R. operated formerly from Montreal to Ottawa has been extended to Sudbury and Winnipeg.

The G.T.R. formerly had a tri-weekly service between Toronto and Winnipeg, via North Bay and Cochrane. This has been increased to daily, but the C.N.R. trains which operated formerly between Toronto and Winnipeg four days during each week have been withdrawn, so that there has practically been no increase in the service.

The practice of honoring C.N.R. passes on G.T.R. trains, and vice versa, on different sections of the lines, has been adopted where it has been found that it will be an advantage and facilitate business.

Freight Traffic.—For some years the G.T.R. has handled its freight between Quebec City and Pt. Levi by a ferry boat. Consequent upon this boat being withdrawn for repairs, the G.T.R. has commenced running its manifest trains into Quebec City over the Quebec bridge.

It is intended that the G.T.R. shall handle the C.N.R. way freight business between Montreal and St. Rosalie, which is in the interest of economy.

The routing of freight by the G.T.R. instead of the C.N.R. between Toronto and Napanee has permitted of a substantial reduction in train miles. The routing of freight by the C.N.R. between Napanee and Ottawa and by the G.T.R. between Napanee and Montreal has had a similar result.

All freight from Toronto for the Canadian Northwest is delivered to the C.N. R. at Toronto and handled by that line via Sudbury. All freight originating in districts west of Toronto is delivered to the C.N.R. at Allandale, Ont., and handled by that line to the Northwest via Washago and Sudbury. This has resulted in a reduction in train miles.

Traffic Department.—Many consolidations have been effected, the freight and passenger traffic and ticket office staffs have been brought together, and are working harmoniously for the joint interests. This refers not only to local points but also to outside agencies, additional representation having been secured at a number of important cities in Canada and the United States.

It was decided that at such stations as come under the scheme of consolidation, which are considered important, the signs on both passenger and freight stations should be changed to "Canadian National-Grand Trunk."

Express. — The following comprises some of the more important things which have been done in connection with consolidation of the express companies:—

The Canadian Ex. Co. has taken over the express operations on the Halifax & Southwestern Ry.

With the intention of increasing the express traffic between Montreal and Toronto, to meet competition, and to relieve passenger trains from carrying express which resulted on many occasions in delay to these trains, arrangements were made to put on special express trains 20 and 21, which are operated six days a week via G.T.R.

The Canadian and the Canadian National express services have been consolidated at a number of points, but there are still some important terminals at which consolidation cannot be effected until more adequate facilities can be provided, principally Toronto, Montreal and Quebec.

The Dolly Varden Mines Ry., operating from the Dolly Varden Mines to Alice Arm, B.C., has ceased operations, owing to the closing down of the mines for an indefinite period.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Statistics, Internal Trade Division.

Week ended Jan. 14, 1921:	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William						
C.P.R.	1,450,259	646,719	219,007	.....	72,418	2,388,403
Consolidated Elevator Co.	1,105,371	29,921	9,144	25,560	.....	1,169,996
Ogilvie Flour Mills Co.	689,822	59,655	35,412	.....	1,158	786,047
Western Terminal Elevator Co.	928,889	153,575	19,788	55,947	5,736	1,163,935
G. T. Pacific	2,803,437	1,412,642	174,341	190,698	71,066	4,652,184
Grain Growers' Grain Co.	1,497,114	503,080	86,711	.....	14,945	1,101,850
Fort William Elevator Co.	195,201	125,540	49,293	127,947	29,978	527,959
Northwestern Elevator Co.	608,981	18,068	11,509	43	*29	638,572
Port Arthur—						
Port Arthur Elevator Co.	2,902,066	1,195,910	480,464	775	42,796	4,622,011
Sask. Co-op. Elevator Co.	3,299,685	385,938	63,268	83,222	12,368	3,845,481
Canadian Government Elevator	617,824	793,090	172,198	493,476	42,129	2,118,817
Davidson and Smith	48,240	36,976	12,539	.....	1,539	99,194
*Total Public Terminal Elevators	16,146,989	5,361,114	1,333,674	977,668	295,004	24,114,449
Total Private Terminal Elevators	2,144,392	1,117,233	289,708	180,707	13,007	3,745,047
Saskatoon: Can. Gov't Elevator	136,314	302,718	181	1,654	.....	440,868
Moose Jaw: Can. Gov't Elevator	372,650	194,321	2,065	3,732	130	572,898
Calgary: Can. Gov't Eleveator	174,562	869,568	40,363	605	95	1,085,193
Vancouver, B.C.: Can. Gov't Elevator	261,295	110,344	12,514	.....	.....	384,253
*Total Interior Terminal Elevators	944,821	1,477,052	55,123	5,991	225	2,483,212
Midland—						
Aberdeen Elevator Co.	201,884	155,645	.....	.....	.....	357,529
Midland Elevator Co.	438,734	407,622	.....	.....	.....	846,356
Tiffin, G.T.P.	620,487	688,404	10,000	37,831	.....	1,356,722
Port McNicoll	762,996	776,582	64.470	19,210	.....	1,623,258
Goderich—						
Elevator and Transit Co.	506,749	177,371	34,605	.....	.....	712,725
West Can. Flour Mills Co., Ltd.	271,001	.....	.....	.....	.....	275,101
Toronto: Campbell Flour Mills Co.	32,320	55,115	.....	.....	.....	87,435
Kingston—						
Commercial Elevator Co.	.....	23,725	2,903	.....	.....	26,628
Port Colborne—						
Dom. Gov't Elevator	112,666	.....	.....	.....	.....	112,666
†Maple Leaf Milling Co., Ltd.	617,728	.....	.....	.....	.....	617,728
Montreal—						
Harbor Commissioners No. 1 and 2	236,991	606,183	38,933	.....	.....	882,107
Montreal Warehousing Co.	12,064	.....	.....	.....	.....	12,064
Ogilvie Flour Mills Co.	243,939	.....	.....	.....	.....	243,939
Quebec Harbor Commissioners	.....	223,796	.....	.....	.....	223,796
Wesst St. John, N.B., C.P.R.	596,063	109,854	267,128	.....	.....	973,045
St. John, N.B., Can. Nat. Rys.	133,029	.....	.....	.....	.....	133,029
†Total Public Elevators	4,790,751	3,219,297	418,039	57,041	.....	8,485,128
†Total Country Elevators	19,947,753	10,449,175	1,791,559	1,535,367	.....	33,623,854
U.S. Atlantic Seaboard Ports—						
Baltimore, Md.	1,275,318	.....	.....	.....	62,276	1,337,594
Total U.S. Atlantic Seaboard Ports	1,275,318	.....	.....	.....	62,276	1,337,594
Total Quantity in Store	45,250,024	21,623871	3,888,103	2,650,774	370,512	73,789,284

*Week ended Nov. 26th.

†Empire Elevator Co., Eastern Terminal Elevator Co., Thunder Bay Elevator Co. and Eastern Richardson Elevator Co., now operating under Private Terminal Elevator License.

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ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, FEBRUARY, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 76
Birthdays of Transportation Men 84
Board of Railway Commissioners,—
Orders by, Summaries of 87
Traffic Orders 81
Canadian National Rys,—
Construction 72
Employes and Politics 70
Canadian Pacific Ry,—
Coaling Stations 67
Connaught Tunnel, Concrete Lining of..... 57
Construction, Etc. 69
Track Section Prize Competition 61
Electric Railway Department .....90 to 96
British Columbia Electric Ry. Subsidiary Company's Application to Parliament..... 94
Finance, Meetings, Etc. 92
Ontario Hydro Electric Railways,—
Essex Division Operations 94
Ottawa Electric Ry.,—
Proposed Purchase Defeated 93
Projects, Construction, Etc. 92
Rate Increases, Freight and Passenger 90
Toronto Civic Ry. Losses 93
Toronto Ry., Sale of Subsidiary Companies 91
Winnipeg Electric Ry. Stock Issue 96
Exchange on Freight Charges, Canada and United States 85
Express Companies, Among the 96
Grand Trunk Ry., Co-ordination with Canadian National Rys. 77
Mainly About Railway People 73
Marine Department .....97 to 112
Canadian Government Merchant Marine, Shipbuilding Operations, Etc. 100, 102
Canadian Pacific Ocean Services Ltd., Launching of s.s. Montrose 97
Dominion Canals Statistics 112
Dominion Marine Association, Annual Meeting 103
Grand Trunk Pacific Coast Steamship Co., Salvaging s.s. Prince Rupert 105
Shipbuilding, General, Throughout Canada 104
Piston Ring Work in a Railway Shop..... 62
Railway Development 82
Railway Passenger Department, The Importance of 69
Railway Rails, Creeping of 79
Railway Rolling Stock Orders and Deliveries 66
Railway Statistics 83
Roadmaster, Every Day Duties of a 64
Station Limits, Railway Companies' Special Instructions Cancelled 59
Telegraph, Telephone and Cable Matters..... 89

The Creeping of Railway Rails.

In Oct. 1919, J. A. L. Waddell, D.E., LL.D., consulting engineer, New York, N.Y., was commissioned by some clients to investigate and report on the phenomenon of the creeping of railway rails, in order to determine the cause thereof, and, if possible, evolve a remedy. The first step taken was to send a letter, enclosing a questionnaire, to the Federal manager or the president of each of 70 of the principal railway systems of the United States, Canada, and Mexico, asking for replies to the following questions:—

1. What troubles, in your experience, are engendered by the creeping of rails?
2. Is rail creeping proportional to the amount of traffic passing over a track?
3. With the traffic in one direction only, is the creeping greater on down grade or up grade, and to what extent?
4. On a single track line, is the creeping greater in the direction of the heavy traffic; and, if so, to what extent?
5. On what portions of your line do you find the greatest creeping of rails—on tangents or on curves?
6. Does the degree of curvature affect the amount of creeping?
7. Does one rail in a track ever creep more than the other? Under what conditions?
8. For the same train loads, is the creeping greater on light rails or on heavy ones; and, if so, to what exttent?
9. Does the amount of creeping vary with the nature of the roadber, and with the kind and depth of the ballast; and, if so, to what extent?
10. Does the amount of creeping vary with the temperature and weather conditions.
11. Does the amount of creeping vary with the character and efficiency of the rail splicing; and, if so, to what extent?
12. Does the amount of creeping depend on the use or the non-use of railchairs or of tie-plates; and, if so, to what extent?
13. Have you found any satisfactory method of checking or of lessening creep-what?

Mr. Waddell has submitted the data secured in a paper read before the American Society of Civil Engineers, from which the following are extracts:—The request for information was honored by officials of 49 roads, or 70% of those addressed. In several cases opinions were given by a number of the officials of the system—in one case there were 34 reports from roadmasters; consequently, the paper is really a compendium of knowledge on the subject, furnished by more than 100 of the best posted men in North America. Those who answered the questionnaire represented, all told, 190 railways or railway systems, covering about 220,000 miles of line, because each Federal manager generally had several systems under his control. This total length of line is 50% of the entire mileage of North America. Among the roads replying were the following Canadian ones and others having lines in Canada:—Canadian National Rys., including Canadian Government Rys., Canadian Northern, Eastern and Western Lines; Grand Trunk Ry., Michigan Central Rd., and New York Central Rd.

In one particular the opinions of all railway men on the creeping of rails are ing; and, if so, what is it?

14. Have you evolved any theory as to the cause or causes of rail creeping; and, if so, what is it?
15. Have you had any computations made as to the resultant force causing creeping under specific conditions?
16. Is there any information on the subject that you can furnish, not covered by the preceding questions; and, if so, unanimous, viz., that it is a phenomenon of serious import, very difficult to contend with, and involving both great danger to the travelling public and large expense to the railway companies; consequently, the subject is one well worth investigating. The writer feels that the best he can do with the matter is to present a compendium of the replies given to the various set questions, offer a few suggestions of his own, and ask for a thorough discussion of the subject by railway men in general, and all patentees of anti-creeping devices in particular. Some of those who answered the questionnaire may feel like elaborat their replies; and other railway men who were not consulted, may have additional valuable information to offer. Quantitative records of rail creeping are still needed; and if any one possesses any, it is hoped that he will submit them in the discussion. The writer hopes that the discussion will be so full and complete as to cause inventors to try their hands at evolving some better anti-creeper than any which has yet been used and which will solve in a truly satisfactory manner the problem of the absolute prevention of the creeping of railway rails.

From the information obtained, Mr. Waddell has drawn the following general conclusions:—

Rail creeping is a matter of serious import not only to railway men but also to the whole world; for it increases both directly and indirectly the cost of operation and maintenance of every steam railway system, causes great destruction of railway property and transported goods, and seriously endangers on a large scale the lives of the travelling public.

The principal troubles caused by rail creeping are slewing of joint ties and bunching of all ties; distortion of gauge; loosening of joints; pounding down of rail ends; grinding of rail heads and wheel flanges; splitting of joint ties; churning and sliding of ties; splitting and breaking of angle bars; shearing of bolts; cutting of ties and consequent starting of decay therein; loosening, pulling and shearing of spikes; bunching and squeezing out of ballast; kinking and waving of rails; breakage of track; kicking or buckling of track with consequent derailment; interference with operation of frogs, switch points, head blocks, signals, interlocking, crossings, turn outs, derails, and other track devices; injury to rolling stock due to rough riding track; and, in short, the augmenting of all the difficulties known to trackmen.

Undoubtedly, the primary cause of the fundamental trouble is traffic; because, when a stretch of track is absolutely idle, there is no creeping on it whatsoever. It is true that other influences, such as temperature changes and weather conditions, aggrevate the difficulty; but, alone, they are powerless to cause it. Wave action of rails and ties in front of the passing wheels pushes the rails ahead; and, if there are firmly spiked to the ties, the latter move forward, carrying the ballast with them. Again, the traction of the locomotive drivers, and the friction of all braked wheels tend to impart a longitudinal motion to the rails.

Long cars and widely spaced axles and trucks augment materially the amount of creeping, as does also unbalanced traffic; but these are unfavorable conditions that may very properly be termed unavoidable. The principal avoidable ones, however, are yielding roadbed, lack of thorough drainage, soft or decaying ties, unequal spacing of ties, badly adjusted super elevation of outer rails on curves, rails too light for the traffic, inefficient or badly maintained rail joints, either scant or excessive provision for rail expansion, inadequate or defectively maintained gauge, poor or insufficient ballast, and improper use of train brakes. If the avoidable evils thus listed were effectively corrected, a large proportion of the trouble experienced from creeping track would no longer exist.

Rail creeping increases with the amount of traffic, although not necessarily in direct ratio; is greater on down grade than on up grade; on a single track line is larger in the direction of the preponderance of traffic; in general, is of like amount on tangent and on curve; is often quite different on the opposite rails of a track; is of more serious import on light rails than on heavy ones; is less with firm roadbed than with soft; decreases with improvement in quality of ballast and with augmentation of its depth; varies with changes of temperature, season of year, and weather conditions; is reduced by improving the character of rail splicing; is not materially affected by the use or non-use of tie plates; enlarges with the spacing of wheels and trucks; and augments with the speed of trains and with the weights of locomotives and loaded cars.

The longitudinal forces in track developed by creeping, and the horizontal pull between rail anchors and rails is a question to be settled by experiments and not by mathematics. With all due deference to mathematicians in general and to professors of engineering in particular, it can be stated that the question of rail creeping is not one which will properly lend itself to the manipulation of equations based on hypothetical assumptions, because the governing conditions in respect to wave action of rails and track under traffic are far too varied, complicated, and uncertain to warrant any attempt to investigate the subject mathematically. A few valuable experiments have been made to determine the longitudinal thrust of track from creeping, but the results thereof require confirmation by an elaborate series of tests before being accepted as standard or final by railway men. The inauguration and carrying out of such a series of experiments is naturally the function of the American Railway Engineering Association, which has already done so much to improve the science and art of railway construction in America; and the writer hopes that that organization will soon undertake such a series of tests as will settle this question with sufficient accuracy for all practical purposes.

Rail anchors, or anti-creepers, may be divided into two general classes, viz., those which attach to the ties and those which are buried in the ballast. The former type is often effective when the track conditions are first class, but usually fail when they are not, and in that case the second type should be used. To be really effective, however, the latter should extend into the ballast well below the elevation of the bottoms of the ties, because otherwise they would move along with the ballast between the ties, which ballast, of necessity, travels with the track. The writer recognizes that, in some cases, the use of such ballast anchors might involve questions of electrolysis of serious import, but believes that these can be satisfactorily solved by proper design, supplemented by experiment. The writer is of the opinion that, it cases of excessive creeping on soft roadbed and ineffectively ballasted track, the best solution of the problem would be the placing of deadmen, of either reinforced concrete or creosoted timbers, in the embankment wel below formation level, and connecting both rails thereto by strong, adjustable rods running upward between ties at an angle of about 45° to the vertical. If the creeping tendency is always in one direction, one such rod per anchored rail would suffice; but if it is in both directions, two of them would be necessary. How far apart the deadmen should be would depend altogether on the tendency of the track to creep. Two or three on each stretch of moving track might first be tried; and if they should prove to be inadequate, more could be added at any time. It is submitted that this method of preventing creeping ought to be much less expensive than making the track truly first class. The details of the suggested anchorage cannot well be evolved before the maximum rail thrust from creeping is determined.

Instead of the suggested deadman, there could be substituted a pair of fairly long 12 x 12 in. creosoted piles, driven just outside the rails, with their tops at the elevation of the base of the rail, and two 8 x 12 or 10 x 12 in. ties laid flat, spiked or bolted tight against them, with several pairs of short blocks or spacers between adjacent ties directly under the rails on each side of the pair of piles. Then, if a type of anti-creeper were evolved, which would grip the rail so effectively that it could not slip through, and if several of these anti-creepers were used for each rail and were attached to the ties, a combination would be effected that would absolutely prevent all creeping, unless the thrust were great enough either to snap off the piles or to tip them out of plumb by compressing the earth and moving the ballast near their tops. It is, of course, possible that the thrust would be great enough to effect one of these results; but, if so, the remedy evidently would be to put in more pairs of piles with their adjacent short spacer blocks.

In respect to the prevention of rail creeping on important bridges, the writer's practice is to fasten the rails firmly to the deck at the middle of each span and let them slide on tie plates out to the ends thereof, where a break in the track over each pier is provided.

Finally, the writer desires to state in relation to rail creeping what he said 40 years ago in a paper entitled "Railroad Drainage," viz., that the effective drainage of both roadbed and right of way is the main essential in good railway engineering practice.

Canadian Railway Club.—Capt. A. H. Kendall, M.C., who was officer commanding the 58th Broad Gauge Operating Co., C.E.F., during the great war, read a paper, "Operating broad gauge railways in France under war conditions," before the club on Jan. 10, which contained practically the same information as his paper on the same subject published in Canadian Railway and Marine World in June 1920. The club's annual dinner was held at the Windsor Hotel, Montreal, Jan. 29.

The Association of Railway Executives states that American railways spent $349,500,000 for new equipment in 1920.

Freight and Passenger Traffic Notes.

The Mainland Transfer Co., Vancouver, B.C., is reported to have taken over the Great Northern Transfer Co., which has handled the Great Northern Ry.'s transfer business and freight cartage in Vancouver.

Traffic on the Greater Winnipeg Water District Ry., which runs from St. Boniface, Man., to the Shoal Lake section of the Lake of the Woods, is reported to be normal, and the present bi-weekly train schedule will be continued.

Prince Edward Island Ry. trains 15 and 16 between Charlottetown and Souris, and trains 17 and 18, between Mount Stewart and Georgetown, heretofore operate daily, were put on a Monday, Wednesday and Friday schedule on Jan. 9.

F. M. Rutter, Superintendent, Bruce Division, Ontario District, C.P.R., Toronto, speaking at the Owen Sound, Ont., Board of Trade's annual dinner, Jan. 18, is reported to have stated that a cafe parlor car service will be operated between Toronto and Owen Sound on Feb. 1.

The Canadian National Rys. put a mixed train service in operation between Kindersley and Eaton, Sask., 77.6 miles, on Dec. 20, 1920, a train leaving Kindersley, Mondays, Wednesdays and Fridays, and returning Tuesdays, Thursdays and Saturdays; and on the same day extended the tri-weekly service on the Oliver-St. Paul de Metis line from Spaddon, mile 105.5, to St. Paul de Metis, mile 127.5 from Edmonton.

Traffic on the Newfoundland Ry. between St. John's and Port aux Basques was reported recently as being blocked. The first train from St. John's for five days got through to Port aux Basques Jan. 16, and the train leaving Port aux Basques Jan. 9 only reached St. John's Jan. 14. The line is reported to have filled up again, and large gangs of men were put at work, particularly in the Topsails district, to open it up.

The Reid Newfoundland Co. has put in operation a tri-weekly train service, leaving St. John's at 1 p.m., Sundays, Tuesdays and Thursdays, reaching Port aux Basques 6 p.m. on Mondays, Wednesdays and Fridays, where connection is made with the s.s. Kyle for North Sydney, N.S., which is reached at 6 a.m. on the mornings following. The Kyle, returning to Port aux Basques, connects with a train at 8 p.m. on Wednesdays, Fridays and Sundays, which is timed to reach St. John's at 12.55 p.m. Thursdays, Saturdays and Mondays.

Windsor Essex Rolling Stock Ltd. has been incorporated under the Ontario Companies Act, with $40,000 authorized capital and office at Toronto, to build, own and deal in locomotives, motor cars, rolling stock of every rescription, rails, ties, railway construction materials, ships, shops, warehouses, and witih numerous other powers. The provisional directors are:—P. B. Fallis, G. A. Persall, and E. B. Schroeder, Toronto.

Grand Trunk Ry. Arbitration. — The board of arbitration to fix the value of the stock of the Grand Trunk Ry. Co., to be taken over by the Dominion Government, will open its sittings at Ottawa, Feb. 1, and it is hoped that it will be able to reach a decision by April 9, the date fixed for the completion of the purchase, which however, may be extended by the Government, if found necessary.

Traffic Orders by Board of Railway Commissioners.

Exchange on Freight Charges on Traffic Between Canada and United States.

General order 326, Jan. 14.—The judgment on which this order was based, and a summary of the order, are given on another page of this issue, under "Exchange on freight charges on traffic between Canada and United States."

Cumberland Railway & Coal Co.'s Passenger Tariff.

30,438. Dec. 14, 1920.—Re application of Cumberland Railway & Coal Co. under sec. 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff, C.R.C. 6, to become effective Jan. 1, 1921. Whereas the applicant company has filed the said tariff to become effective Jan. 1, 1921, on the reduced basis prescribed by the Board's judgment dated Sept. 6, 1920, and general order 308, dated Sept. 9, 1920, the Board orders that the said tariff be approved; the said tariff, together with a reference to this order, to be published in at least two consecutive weekly issues of the Canada Gazette.

Shipment of Compressed and Liquefied Gases.

30,457. Dec. 17, 1920.—Re application of Canadian Carbonate Co. for an order extending the time within which it may test cylinders used for the shipment of compressed gases and equip cylinders containing liquefied gases with a safety device, as prescribed by paragraphs 1861 (i) and 1862 (a) of the Regulations for the Transportation of Explosives and Other Dangerous Articles by Freight, approved by general order 203, Aug. 11, 1917, as amended by general orders 206, 107, 260, and 287, Sept. 7 and Oct. 26, 1917, Mar.17, 1919, and Mar. 22, 1920. Upon reading what is filed in support of the application on behalf of the Bureau of Explosives; and its being represented to the Board by the applicant company that the extension of time within which cylinders used for the shipment of compressed gases may be tested, as provided by paragraph 1861 (i), applied for, is not now necessary, the Board orders that the time within which the applicant company may equip cylinders containing liquefied gases with a safety device as provided in paragraph 1862 (a) of the Regulations for the Transportation of Explosives and Other Dangerous Articles by Freight, be extended until Dec. 31, 1921.

Freight Rate on Shoddy Blankets.

30,494. Dec. 26, 1920.—Re application of Freight Adjusting Bureau, Vancouver, B.C., for a ruling of the Board that shoddy blankets are entitled to the rate provided for specified articles of dry goods, in Item 250 of the Canadian Freight Association's Commodity Tariff, 1-A, C.R.C. 14; and the Board's order 29,435, Mar. 2, 1920, made therein. Upon its being represented to the Board that claims for overcharges on shipments prior to July 31, 1918, the date named in order 29,435, were refused by the carriers, on the ground that they were not covered by the said order, and the Chairman of the Canadian Freight Association having advised the Board, by letter dated Dec. 18, 1920, that the carriers which he represents have no objections to offer to the issuing of this order, the Board declares that blankets of any description of shoddy shipped since Sept. 20, 1916, inclusive, to and including July 31, 1918, were and are entitled by the language of the tariff to the rates pertaining to item 320 in Canadian Freight Association's Westbound Commodity Tariff 1, C.R.C. no. E-3174 (C.P.R.); and since July 31, 1918, to the rates pertaining to item 230 in Canadian Freight Association's Westbound Commodity Tariff 1-A, C.R.C. 14, effective Aug. 1, 1918, until amended by Supplement 14 thereto, effective Feb. 20, 1920. And the Board orders that order 29,435, dated Mar. 2, 1920, be rescinded.

Edmonton, Dunvegan & British Columbia Ry. and Central Canada Ry. Tariffs.

30,496. Jan. 3.—Re application of Edmonton, Dunvegan & British Columbia Ry. and Central Canada Ry., under sec. 331 of the Railway Act, 1919, for approval of reduced Standard Mileage Freight Tariffs of Maximum Mileage Tolls, effective Jan. 1, 1921. Whereas the said standard freight mileage tariffs have been filed on the reduced basis prescribed by the Board's judgment, dated Sept. 6, 1920, and general order 308, dated Sept. 9, 1920, the Board orders that the said tariffs be approved; the said tariffs, together with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Freight Rates on Shell Bars or Blanks.

30,501. Jan. 4.—Re application of F. L. Getzler, "Commissioner, Canadian Freight Bureau," Montreal, claiming to represent Dominion Foundries & Steel, Ltd., of Hamilton, Ont., for a reduction in the rate charged on shell bars or blanks, in carloads, to the same rate as charged on commercial steel bars, from Hamilton to Montreal, from Sept. 1, 1915, to Jan. 1, 1917. Upon hearing the application at Ottawa, Dec. 21, 1920, in presence of counsel for the Caanadian Pacific and the Grand Trunk Railways, F. L. Getzler appearing in person, and what was alleged, the Board orders that the application be refused.

Commercial Travellers' Transportation Privilege Certificates.

30,513. Jan. 4.—Re application of the Canadian Passenger Association, under sec. 348 of the Railway Act, 1919, for approval of certain reduced fare transportation privilege certificates, on file with the board. Upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the following reduced fare transportation privilege certificates, viz., Commercial Travellers' Association of Canada, Dominion Commercial Travellers' Association, Maritime Commercial Travellers' Association, Northwest Commercial Travellers' Association, Ontario Commercial Travellers' Association, be approved.

Express Rates on Fish.

30,550. Jan. 12.—Re complaint of Canadian Fisheries Association against charges by Canadian Express Co. on net weight of fish (carloads), excluding allowance of 2½% for slime and ice adhering to the fish when weighed, which is by custom allowed to the fishermen. Upon hearing the complain at Prince Rupert, Oct. 6, 1920, the complainants and the express companies being represented, and what was alleged, the Board orders that the complaint be dismissed.

Not Dressed For It.

English Train Guard: "Come on now, mum, you'll have to pay for the boy; he's not under three."

Child's Mother: "No, but if 'e 'adn't 'ad his best suit on, 'e'd a bin under the seat."—Boston Transcript.

Canadian National Railways Earnings.

	1920.	1919.
January . .	7,727,562	6,787,577
February . .	6,516,059	6,265,562
March . .	7,761,326	7,160,036
April . .	8,207,478	6,936,635
May . .	8,305,860	7,884,287
June . .	7,776,538	6,433,035
July . .	9,003,674	7,896,685
August . .	9,582,989	8,415,864
September . .	9,685,682	8,853,007
October . .	12,351,167	9,541,628
November . .	12,446,824	8,950,283
December . .	12,434,075	8,747,530
	$111,319,234	$93,872,069

Approximate earnings for three weeks ended Jan. 14, $3,983,026, against $3,506,428, same period 1920.

Canadian Northern Railway System.

	1920	1919
January . .	$4,200,700	$4,026,000
February . .	3,862,300	3,363,800
March . .	4,587,700	3,554,350
April . .	4,732,623	3,878,149
May . .	4,863,500	4,337,750
June . .	4,364,600	3,131,000
July . .	5,168,500	4,347,300
August . .	5,900,700	4,901,150
September . .	6,140,500	5,260,500
October . .	7,620,000	5,799,400
	$51,441,123	$42,599,399

Canadian Pacific Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net	Increases or decreases
Jan.	$13,914,569	$13,328,628	$ 585,941	*967,571
Feb.	13,557,104	12,843,231	713,873	*267,242
Mar.	15,715,937	13,758,171	1,957,766	418,721
Apr.	15,929,416	13,587,570	2,341,846	253,222
May	16,459,986	13,262,044	3,197,942	164,182
June	16,480,574	13,849,757	2,630,817	*359,604
July	17,375,761	15,756,275	1,619,486	*1,377,218
Aug.	17,994,769	15,793,956	2,200,813	*1,577,355
Sept.	20,009,287	16,100,632	3,908,655	*183,265
Oct.	24,800,632	17,099,810	7,700,822	2,353,040
Nov.	23,799,146	19,726,136	4,073,010	1,223,201
	$196,037,181	$165,106,209	$30,930,972	*$319,888
Incr.	36,133,705	36,453,593	.....	.....
Decr.	.....	.....	$319,888	.....

Approximate earnings for Dec. 1920, $20,418,000, and for two weeks ended Jan. 14, 1921, $6,579,000, against $16,880,000 for Dec. 1919, and $6,502,000 for two weeks ended Jan. 14, 1920.

Grand Trunk Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net
January	$5,054,034	$5,867,445	$*813,441
February	4,660,831	5,159,742	*498,911
March	5,756,372	5,491,293	265,079
April	5,477,816	5,187,340	290,476
May	5,878,934	5,547,513	331,421
June	6,645,433	6,146,600	490,833
July	7,592,000	6,568,053	1,023,947
August	7,764,280	6,273,621	1,490,659
September	8,123,927	7,546,533	478,394
October	9,743,453	7,677,653	965,800
November	7,831,440	7,140,374	69,066
	$73,528,520	$68,705,167	$4,823,353
Incr.	10,972,873	13,770,693	.....
Decr.	.....	.....	$2,797,820

Approximate earnings for Dec. 1920, $9,035,345, and for two weeks ended Jan. 14, 1921, $4,047,132, against $6,552,182 for Dec. 1919, and $3,251,614 for two weeks ended Jan. 14, 1920.

Seaplanes for Northern Alberta.—The Dominion Government is reported to have given orders for three seaplanes to be sent to Northern Alberta in the spring for the conveyance of geologists and supplies to the Mackenzie River oil areas. The planes will, it is said, be capable of carrying 14 passengers each, in addition to supplies.

Lorne McCutcheon, Foreign Freight Agent, Canadian National Rys., Vancouver, B.C., writes: "I have, for many years, been an interested reader of your valuable publication, Canadian Railway and Marine World."

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry.—We officially advised that the contract between the Alberta Government, the Alberta & Great Waterways Ry. Co. and the Northern Construction Co., calls for the building, operation and maintenance of the second division of the railway, viz., from Lac la Biche, northerly, and the reconditioning of the line from Carbondale to Lac la Biche. On Dec. 29, 1920, we were advised that about 14 miles of ballasting had been done north of Lac la Biche, a permanent water supply installed at mile 137; two stalls added to the locomotive house at Lac la Biche, with an addition to the full width of the house for a machine shop; new tracks laid in Lac la Biche yard; new bunkhouses for section and two standard section houses built. In addition a considerable amount of ditching and draining of right of way had been done. Contracts are being let, and it is hoped to obtain 300,000 new ties during the winter, to be delivered at points contiguous to the line, and these will be used for replacements, both north and south of Lac la Biche, during this year.

The programme of work for this year contemplates the grading of about 8 miles to obtain a more favorable location into Fort McMurray, the original line down the Clearwater River valley having been found impossible to maintain, owing to the sliding nature of the material. Ballasting will be resumed in the spring, and it is hoped to have the entire line placed in a satisfactory condition for operation by autumn.

A construction train service is being maintained from Lac la Biche to the end of track, approximately mile 272, by the Northern Construction Co., a train being run north three times a week. H. A. Warner is Chief Engineer and Superintendent for the Alberta Government. (Jan., pg. 16.)

The Alma & Jonquieres Ry. Co. is asking the Quebec Legislature to extend the time within which it may build the line authorized by the statutes of 1913, chap 85, as amended by the statutes of 1915, chap. 119. The latter statute authorized the company to build a railway to be operated by steam or electricity or both at the same time, from Lebarre, or St. Gedeon, on the Quebec & Lake St. John Ry., to Little Discharge, and the Island of Alma, so as to reach Lake St. John at some point on that island, and the Great Discharge at some other point on the same island, and from there to Jonquieres, on the Q. & L. St. J. Ry., about 30 miles, with branches. In 1918 the company was given an extension of time for construction. (Feb. 1918, pg. 57.)

The Bagotville & St. Lawrence Ry. Co. is asking the Quebec Legislature to extend for three years the time within which it may build the railway authorized by the statutes of 1912, chap. 89. The company had power to build a railway to be operated by steam, electricity or gasoline or other power, from Bagotville, Chicoutimi County, by the most practicable route, through Chicoutimi, Charlevoix, Montmorency and Quebec Counties, to Quebec. (Mar. 1912, pg. 120.)

Canadian Niagara Bridge Co.—A U.S. press dispatch states that the American Niagara Railroad Corporation has been incorporated in New York State, with a capital of $1,000,000, to build a railway from the junction of the Lehigh Valley and New York Central Railroads. at Tonawanda, N.Y., to the Canadian Niagara Bridge Co.'s railway and bridge. The incorporators include A. H. Smith, President, New York Central Lines; A. H. Harris, I. A. Place, Vice Presidents, New York Central Lines; and J. N. Beckley, President, Toronto, Hamilton & Buffalo Ry. The whole project, on both sides of the Niagara River, includes about 22 miles of track and two bridges, which, it is believed, will solve the problem of traffic congestion at the international border near Buffalo. The project includes the construction of 11 miles of track by the New York Central from Tonawanda, N.Y., to Grand Island, the construction of 10 miles of track by the Canadian Pacific and Toronto, Hamilton & Buffalo Ry. from Grand Island to Welland on the Canadian side and the joint construction of two bridges which will cross Grand Island, one of them across the Tonawanda and one across the Chippewa channel. This work will allow both roads to divert much freight and passenger traffic around instead of through Buffalo. The Canadian Pacific and the T.H. & B.R. hos arganized the Canadian Niagara Bridge Co., of which E. W. Beatty, President, Canadian Pacific, is President. (Nov. 1920, pg. 606.)

The Canadian Transit Co. is the title under which the projectors of a railway and general traffic bridge across the Detroit River, between Windsor, Ont., and Detroit, Mich., are seeking an act of incorporation from the Dominion Parliament. Power is being asked to build a traffic bridge and railway across the Detroit River from near Windsor, Ont., to the opposite side in Michigan, and other works incidental thereto; such bridge, railway and works to be declared to be for the general advantage of Canada. Ingersoll, Kingston and Seymour, St. Catharines, Ont., are solicitors for applicants. A press reports states that Canadian capital to the amount of $5,000,000 has been voted towards the erection of the projected bridge.

Edmonton, Dunvegan & British Columbia Ry.—The Premier of Alberta is reported to have stated recently that the C.P.R. had expended over $750,000 on improving the E., D. & B.C. Ry., since it took it over for operation in July 1920. This money was lent to the C.P.R. out of $1,000,000 voted by the Alberta Legislature for putting the road in good shape. The principal improvements have been made on the northern portions of the line. It is said that the $250,000 remaining of the vote referred to will be expended on the line during this year.

A Victoria, B.C., press report states that negotiations have taken place between the Alberta and the British Columbia Government respecting the extension of the E., D. & B.C.R. to the B.C. boundary, to which point it is proposed to extend the Pacific Great Eastern Ry. from Prince George. (Jan., pg. 16.)

English River Pulpwood & Timber Limit Ry.—The Ontario Government has accepted the offer of E. W. Backus, of Fort Frances, Ont., and International Falls, Minn., for the timber rights on the English River pulpwood limits. The already been published in Canadian Railterms on which the limit was offered have way and Marine World. The product of the limit is to be manufactured at Kenora, Ont., and it will be necessary to build a railway southerly from some point on the National Transcontinental Ry. to or ncar Kenora. (Dec. 1920, pg. 645.)

Esquimalt & Nanaimo Ry.—We are officially advised that construction is being proceeded with on the branch line from near Alberni to Great Central Lake, Vancouver Island, 11 miles. The Foundation Co. of B.C., Vancouver, has the contract for the grading and bridge work. (Jan., pg. 16.)

Flinflon Mining District. — The route under survey for a railway into the Flinflon Mining District in Manitoba starts off from the Hudson Bay Ry., about 7 miles northerly from Pas, passing east of Reeder Lake, and west of Clearwater Lake, east of Goose Lake, there entering the mineral belt, west of Cranberry Lake; then turns westerly, crossing Pine Root River, and on to the Flinflon property, near the Manitoba-Saskatchewan boundary. This route varies considerably from that on which there was some survey work done in 1919. The route then proposed started from the Hudson Bay Ry. near Cheman, about 7 miles from Pas, to a crossing of Goose Lake at the southwest end of Goose Lake, and then northerly near the Manitoba-Saskatchewan boundry to the Mandy Mine, and then on to the Flinflon property.

We are officially advised that the present preliminary surways are being made by the Manitoba Government through the Canadian National Rys. engineering staff. A. J. Sill is in charge of the survey party, which started Dec. 13 from mile 0 at Reeder Lake, mile 7 from Pas on the H.B. Ry., and is working northerly to Cranberry Portage, approximately mile 50, at which point the sceond party under J. E. Silcox started Dec. 18 to run a line to the Flinflon property, approximately mile 77. The survey work, which is under general charge of E. M. N. Hill, Reconnaissance Engineer, is expected to be completed in March.

The next stage will be the obtaining of a definite statement from the Flinflon Syndicate with reference to the purchase of the property and a guarantee to the Manitoba Government. It is expected that the question of the construction of the line, with plans and estimate of cost, etc., will be laid before the Legislature in February or March. (Jan., pg. 16.)

Grand Trunk Ry.—We are officially advised that while consideration has been given to a proposal for the erection of car shops at Palmerston, Ont., they will not be built during this year at least.

The Secretary of the London City Council's crossing committee is reported to have said recently that there was every indication that the city and the G.T.R. officials would go to the Board of Railway Commissioners in full agreement as to the proposed start towards eliminating level crossings in London. The section of the work under discussion is the construction of a subway at Rectory St., and it is said that a definite announcement will be made shortly as to the date of starting construcion. (Jan., pg. 11.)

Hudson Bay Ry.—Replying to a deputation from Pas, Man., and the territory to be served by the H.B. Ry., which waited on him in Winnipeg, Dec. 30, the Dominion Premier, we are officially advised, stated that the Government intends to complete the railway to Hudson Bay, but that he could not give any definite assurance as to how rapidly progress will be made, as much will depend

on financial conditions. (Nov., 1920, pg. 606.)

Hudson's Bay Co.—In connection with the increasing attention being given to the development of the Peace River and Mackenzie River districts, a recent press report credited the H.B. Co. with having decided to start construction in the spring upon a railway about 24 miles long, to connect the Mackenzie River with the Peace River. This report is, we understand, somewhat misleading, as the H. B. Co. has not decided to undertake the project referred to. Several times during the past eight or 10 years suggestions have been made that a narrow gauge railway might be built on the portage of 16 miles between Fort Smith and Smith Landing, on the Athabasca River, but nothing has been done to carry it out. See also Slave River Ry. Co.

Lacombe & Blindman Valley Ry. — No further construction is contemplated on this line by the Alberta Government, which is reported to be negotiating with the C.P.R. to take the line over.

Pacific Great Eastern Ry.—We are officially advised that upon completion of the Deep Creek Viaduct, track laying was continued for 34.50 miles, to Australian Creek, B.C. Work is proceeding on the 98 miles of grading, upon which a good deal of work was done some years ago by the original company, between Australian Creek and Prince George. The work is being done by the Northern Construction Co., Vancouver, for the British Columbia Government, under the direction of A. F. Proctor, Chief Engineer, B.C. Railway Department. (Jan., pg. 16.)

Quebec & Chibougamau Ry.—A press report states that a contract has been let for clearing the right of way from Chicoutimi to St. Felicien, Que., at an estimated cost of $100,000. (Jan., pg. 16.)

Slave River Ry. Co.—The Dominion Parliament will be asked at its ensuing session to incorporate a company with this title to build a railway from Fort Smith on Slave Lake, along the west bank of the Slave River southeasterly to Smith Landing or Fort Fitzgerald. The applicants desire power to build telegraph and telephone lines; to develop and distribute electric power; to build a pipe line for the conveyance of oil; to provide oil storage warehouses and to operate ships. Smellie & Lewis, Ottawa, are solicitors for applicants. See also Hudson's Bay Co.

The Quebec & Orleans Island Ry. Co. is asking the Quebec Legislature to extend the time within which it may build the railway authorized by the statutes of 1907, chap. 88, from Quebec north of the Turnpike Trust Road in Beauport parish, to Montmorency River, thence to a point of crossing to the Isle of Orleans, not further east than Chateau Richer Church, then crossing to the Isle of Orleans, and passing either around the same or otherwise as may be expedient as far as St. Francois Parish. The company was given power to operate its line by electricity, steam or any other motive power, and was granted extensions of time for construction in 1912 and 1914.

A press report of Jan. 6 states that the Quebec Government is being asked to build a bridge from Quebec City to the Isle of Orleans. (Dec., 1913, pg. 593.)

Sydney & Louisburg Ry.—The Dominion Minister of Public Works is being asked to approve of the site of, and plans for, a railway bridge over the Mira River, N.S., and for repairs to the rest pier and ice protection works of the swing span of the bridge, and to authorize the Sydney & Louisburg Ry. Co. to construct the same. (Oct. 1920, pg. 551.)

Timiskaming & Northern Ontario Ry. It is reported that work is to be started at once at Cochrane, Ont., on clearing of about 25 miles of right of way for an extension of the line from that point towards James Bay. The fact that some work in this direction is contemplated was announced by Premier Drury Dec. 15. Subsequently the President of the Timiskaming & Northern Ontario Associated Boards of Trade wrote asking the Premier to have this work deferred, but on Jan. 12 the Cochrane Board of Trade protested against this, and asked that the work be put in hand as soon as possible. In this connection Dr. Stevenson, M.L.A., is reported to have said in London, Ont., that the extension of the line projected will traverse 300 miles of territory rich in oil and mineral resources. This observation refers to the whole extension from Cochrane to James Bay, power to connect which has been granted by the Legislature.

Petitions are being circulated in Northern Ontario asking the Government to build a standard gauge railway from Swastika, on the T. & N.O.R. to Westree on the Canadian National Rys., about 80 miles.

The Liskeard Board of Trade has asked the Ontario Government to build a locomotive house and machine shop there, and to make it a divisional point, instead of the present divisional point at Englehart. The Chairman of the T. & N.O.R. Commission, G. W. Lee, is reported to have intimated that this will not be done. (Jan., pg. 16.)

Toronto, Hamilton & Buffalo Ry.—A press report states that the company's bridge over King St. West, Hamilton, Ont., which had been closed for some months, has been reopened for traffic, Jan. 1. (Jan., pg. 16.)

Steam Railway Statistics for Year Ended June 30, 1919.

The annual report on Railway Statistics for the year ended June 30, 1919, the first to be compiled and published by the Trade and Commerce Department's Dominion Bureau of Statistics, shows that the railways carried 8.5% less freight than in 1918, or 116,699,572 tons, against 127,543,687, and 2.7 fewer passengers, or 43,754,194, against 44,948,638, but due to the increased freight and passenger rates which were raised in March and again in August 1918, there was an increase in operating earnings of $52,756,751, or $382,976,901, against $330,220,150. This increase was more than offset by an increase in operating expenses of $67,911,073, or $341,866,509, against $273,955,436, making the net operating revenue $41,110,392, against $56,264,714, a decrease of $15,154,322. This net operating revenue was increased by miscellaneous earnings to $61,582,832. Taxes amounted to $5,316,614, and rents, lease of road, interest on funded debt, etc., amounted to $57,530,798, leaving a net corporate loss of $1,264,680, against a net income of $18,328,229 in 1918.

The operating ratio increased from 82.96% in 1918 to 89.27% in 1919. Maintenance of way and structures was $69,034,242, against $51,614,857, and maintenance of equipment was $78,397,270, against $57,304,234. Transportation expenses were $170,382,034, against $145,107,396.

Wages included in the above were, for maintenance of road and equipment and construction, $93,308,553, against $64,432,548; trainmen, yard, $11,353,454, against $8,665,250; and trainmen, road, $37,556,658, against $31,052,421. Total wages in all departments were $208,939,995, against $152,274,953. There was a decrease in fuel consumption of 9,451,018 tons, costing $52,214,897, against 10,173,344 tons costing $52,630,430 in 1918. The ties used for maintenance were 11,856,373, costing $9,369,519, against 7,785,831, costing $4,701,312.

Passengers carried one mile were 3,074,664,369, against 3,190,025,682. Tons handled one mile were 27,724,397,202, against 31,029,072,279. Average receipts per passenger per mile were 2.557c., against 2.122c., and the average receipts per ton mile were $0.962, against $0.736.

The average load increased from 23.09 tons a car in 1918 to 23.46, but the average haul decreased from 243 miles to 238.

The capital was $2,009,209,510, being made up of stocks $878,101,113, debenture stock (C.P.R. $216,284,882, and funded debt $914,823,515, an increase of $500,500 in stocks and $8,828,516 in funded debt.

The miles of single track were practically the same, 38,896, against 38,879, and the total miles of all track was 50,616, against 50,640. Freight car miles were, loaded 1,181,758,126, empty 497,882,365; passenger train car miles 297,275,014. Train miles were, freight 55,034,882, passenger 41,048,124, mixed 7,652,411, special 97,418, non revenue 4,159,658. Total locomotive miles 136,926,164. The number of locomotives increased from 5,756 to 5,879, passenger cars from 6,376 to 6,510, and freight cars from 209,026 to 217,258.

From operation the results were as follows:—Canadian Pacific, gross earnings of $162,846,470; expenses, $130,416,994; net earnings, $32,429,475.

Grand Trunk, gross earnings, $66,429,147; expenses, $57,005,328; net earnings, $9,423,819.

Canadian Northern, gross earnings, $48,238,461; expenses, $49,716,044; deficit, $1,477,582.

Intercolonial, gross earnings $26,977,807; expenses, $31,489,685; deficit, $4,511,878.

All other Government operated lines, gross earnings, $11,706,790; expenses, $13,809,870; deficit, $2,103,080.

Grand Trunk Pacific and branch lines, gross earnings, $9,625,769; expenses, $14,999,288; deficit, $5,373,518.

The total deductions from gross corporate income other than taxes for these roads were:—

Canadian Pacific, interest on funded debt, $597,125; total, $3,087,364; net corporate income, $36,977,263.

Grand Trunk, interest on funded debt, $7,621,300; total deductions, $11,986,476; corporate loss, $1,020,986.

Canadian Northern, interest on funded debt, $11,445,813; total deductions, $19,466,307; corporate loss, $20,193,986..

Intercolonial, no interest, total deductions, $67,810; corporate loss, $2,292,102.

All other Government operated lines, no interest; total deductions, $842,238; corporate loss, $4,610,118.

Grand Trunk Pacific and branch lines, interest on funded debt, $6,368,084; total deductions, $10,629,427; corporate loss, $11,079,612.

For all roads there was a total net corporate income of $45,019,298 and a total corporate loss of $43,809,574.

Birthdays of Transportation Men in February.

Many happy returns of the day to:—

T. Britt, General Fuel Agent, C.P.R., Montreal, born there, Feb. 3, 1871.

J. S. Byrom, General Superintendent, Sleeping, Dining and Parlor Cars, and News Service, Eastern Lines, C.P.R., Montreal, born at Jersey City, N.J., Feb. 10, 1872.

H. R. Charlton, General Advertising Agent, G.T.R., Montreal, born at St. Johns, Que., Feb. 9, 1866.

R. Chisholm, Inspector of Agencies, Canadian National Rys. and Grand Trunk Pacific Ry., Winnipeg, born at Georgeville, N.S., Feb. 25, 1871.

R. Colclough, Superintendent, St. Maurice Division, Quebec District, Canadian National Rys., Quebec, Que., born at Bic, Que., Feb. 24, 1871.

R. Crawford, Northwest Agent, Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.

V. A. G. Dey, Division Engineer, Bruce Division, Ontario District, C.P.R., Toronto, born at Aberdeen, Scotland, Feb. 4, 1883.

E. A. Evans, consulting engineer, ex-General Manager and Chief Engineer, Quebec Ry., Light & Power Co., Quebec, born at Kensington, Eng., Feb. 26, 1855.

Goodwin Ford, General Superintendent Western Lines, Dominion Express Co., Winnipeg, born at Bordentown, N.J., Feb. 23, 1859.

U. E. Gillen, General Manager, Toronto Terminal Ry. Co., Toronto, born at Brooklyn, Mo., Feb. 27, 1867.

T. Ginnelly, Assistant Freight Claims Agent, Canadian National Rys., Western Lines, Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., born in Ireland, Feb. 11, 1880.

L. L. Grabill, General Baggage Agent, G.T.R., Toronto, born at Walkerton, Ont., Feb. 6, 1878.

S. M. Greene, City Ticket Agent, Canadian National Rys. and Grand Trunk Pacific Ry., Regina, Sask., born at Derby, Eng., Feb. 15, 1887.

A. J. Hills, Assistant to President, Canadian National Rys., Toronto, born there, Feb. 15, 1879.

T. C. Hudson, General Master Mechanic, Eastern Lines, Canadian National Rys., Montreal, born at Brockville, Ont., Feb. 20, 1873.

H. Hulatt, Manager of Telegraphs, G. T.R., Montreal, born at London, Eng., Feb. 15, 1883.

C. Gardner Johnson, Lloyd's Agent for British Columbia, Vancouver, B.C., born at Dunblane, Scotland, Feb. 8, 1857.

A. H. Jones, Assistant Engineer, Canadian National Rys., Moncton, N.B., born at Liverpool, Eng., Feb. 16, 1884.

John McCraw, ex-General Agent, Central Vermont Ry., New London, Conn., born at Craigvale, Ont., Feb. 6, 1868.

J. K. McNeillie, Superintendent, Susquehanna Division, Delaware & Hudson Rd., Oneonta, N.Y., born at Toronto, Feb. 23, 1874.

J. D. McNutt, Assistant Superintendent, Halifax Division, Maritime District, Eastern Lines, Canadian National Rys., Truro, N.S., born at Stewiacke, N.S., Feb. 8, 1873.

D. C. Macdonald, Assistant General Claims Agent, C.P.R., Winnipeg, born at Elmsdale, N.S., Feb. 9, 1874.

C. S. Maharg, Superintendent, Vancouver Division, British Columbia District, C.P.R., Vancouver, born in Dufferin County, Ont., Feb. 4, 1867.

V. J. Melsted, ex-Engineer of Water Service, C.P.R., now of Milton Hersey Co., Winnipeg, born at Gardar, N.D., Feb. 20, 1887.

G. A. Montgomery, Vice President and General Manager, Algoma Central & Hudson Bay Ry., and President, Algoma Eastern Ry., Sault Ste. Marie, Ont., born at Bradford, Ont., Feb. 11, 1871.

A. Z. Mullins, General Agent, Freight Department, Canadian National-Grand Trunk Rys., Grand Rapids, Mich., born at Appin, Ont., Feb. 14, 1862.

J. E. Proctor, District Passenger Agent, C.P.R., Calgary, Alta., born at Sarnia, Ont., Feb. 17, 1878.

C. T. Ridalls, Car Foreman, C.P.R., London, Ont., born at St. Heliers, Jersey, Channel Islands, Feb. 8, 1864.

W. J. Robider, ex-General Master Car Builder, C.P.R., Montreal, born at Savannah, Ga., Feb. 15, 1869.

A. E. Rosevear, General Freight Agent, Canadian National Rys., Western Lines, and Grand Trunk Pacific Ry., Winnipeg, born at Montreal, Feb. 20, 1863.

J. G. Scott, ex-General Manager, Quebec & Lake St. John Ry., and Great Northern Ry. of Canada, Quebec, born there, Feb. 13, 1847.

J. J. Scully, General Superintendent, Algoma District, C.P.R., North Bay, Ont., born at Montreal, Feb. 3, 1872.

J. M. Sparling, Assistant to Vice President, Traffic, G.T.R., Montreal, born at Toronto, Feb. 16, 1882.

G. Spencer, Chief Operating Officer, Board of Railway Commissioners, Ottawa, born in London, Eng., Feb. 21, 1865.

A. P. Villain, City Ticket Agent, C.P. R., San Francisco, Cal., born there, Feb. 6, 1891.

F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, born at Buenos Ayres, Feb. 25, 1860.

J. R. Watson, Assistant Superintendent, Sleeping, Dining and Parlor Cars, and News Service, Eastern Lines, C.P.R., Montreal, born at Morpeth, Eng., Feb. 8, 1873.

A. Williams, Superintendent, Farnham Division, Quebec District, C.P.R., Farnham, born at Mono Road, Ont., Feb. 22, 1872.

Bridges over Burlington Canal, Lake Ontario.

The highway along Burlington Beach, which separates Lake Ontario from Burlington Bay, on the shores of the latter of which Hamilton is situated, is carried over Burlington Canal, or Channel, by a swing bridge, which is also used by the Hamilton Radial Ry., running between Hamilton and Oakville. Owing to the increase of traffic, the Public Works Department decided, a little while ago, to replace the present bridge by a heavier one, of the trunnion bascule type, and a design was prepared by Strauss Bascule Bridge Co., Chicago, Ill., which company was appointed consulting engineer, for a 2-span bridge, one span over the existing channel, and the other to be over a 300 ft. channel to be provided in the future. The first work being done includes the removal of the old bridge and the construction of the substructure for the new one. The contract for this work was given Canadian Engineering & Contracting Co., Hamilton, and tenders for the erection of the superstructure were received to Jan. 11.

The truss bridge which is to be replaced was built in 1896, and was equipped in 1897 with automatic gates to regulate traffic. Its first cost was $41,690, and maintenance expenses have been high. It was a swing bridge, operated by electric power, and counterbalanced on both sides of the pivotal point to compensate for unequal length and weight. It was very close to the G.T.R. bridge across the channel, and on the Burlington Bay side of it. The new bridge will occupy almost the same site as the one to be replaced, the difference being that the center line of the new bridge will be 10 ft. east (nearer Lake Ontario) than the center of the preceding one.

For the present, construction will be confined to a trunnion bascule type bridge to span the present channel, which is 130 ft. 7 in. wide. Provision is also made in the design for a second leaf, to span a proposed new 300 ft. channel alongside the present one. In the event of the additional channel being provided and the second portion of the bridge being built to span it, a new central rest pier, in addition to the main and counterbalance piers of the second portion, would be necessary.

From the center of the main trunnion pier, of the bridge now to be built, to the center of the rest pier, which will support the free end, is 160½ ft., and from the center of the main trunnion pier to the center of the counterweight trunnion pier is 40 ft. The old bridge had a clearance of but 4 ft. above the channel, but the new bridge will have a clearance of 10 ft., which will obviate the necessity of opening it so frequently for the passage of small craft. The approaches will be on a gradient of 3%, and the floor level will be 8 ft. higher than that previously existing.

The new bridge will, like the one to be replaced, carry the single track line of the Hamilton Radial Ry., running from Hamilton to Oakville. In addition, there will be a roadway for vehicular traffic, laid with wood blocks, creosoted. On each side of the bridge, outside the trusses, which are 25½ ft. center to center, will be a 6 ft. sidewalk, of 2 x 4 in. planking, not creosoted, protected by outside railing of pipe construction.

Work was begun on the new bridge early in Dec. 1920, the use of the old bridge being discontinued on Dec. 6. The old bridge has been taken down, and the piers have been removed to the extent necessary to permit construction of the new ones, excavation for which is in progress. This work, as stated above, is being done by the Canadian Engineering & Contracting Co., of Hamilton, which also removed the old bridge, and is to be finished by the first week of July. The superstructure contract has not yet been awarded. The Hamilton Radial Railway cars now run to the bridge from both directions, the passengers walking across the adjoining G.T.R. bridge, on a sidewalk specially built for that purpose.

The Public Works Department is represented in this work by J. M. Wilson, District Engineer, and W. C. Brough, Senior Assistant, Toronto.

Hon. T. A. Crerar, M.P., leader of the farmers' party, in speaking at Edmonton, Alta., Jan. 19, is reported to have expressed himself in favor of the revaluation of railways owned by the Dominion Government to put them on a proper basis and the use of government power, as far as legitimate, to provide business for the nationally owned system. He suggested that the Government should settle incoming immigrants as far as possible along these lines, and he reiterated his advocacy of public ownership of railways.

Exchange on Freight Charges on Traffic Between Canada and the United States.

The Chief Railway Commissioner, Hon. F. B. Carvell, gave the following judgment Jan. 13:—About a year ago, complaints were made to this Board Board, practically altogether by exporters to the United States, complaining of the fact that they had been prevented by Canadian railway companies from prepaying the freight through to the point of destination in the U.S. in Canadian money. A hearing was held at Ottawa on Mar. 16, 1920, at which practically all exporters were represented, and there it was stated, and with two exceptions admitted, that, before the rate of exchange between the two countries became abnormal, practically all the commodities exported had gone forward collect. The Board held in its judgment of Mar. 27, 1920, that, under the Railway Act, a Canadian railway company could not be compelled to accept prepayment of freight.

Shortly thereafter, U.S. railways commenced demanding the prepayment of international freight to Canada, the result being that, with very few exceptions, the freight on all international traffic between the two countries was paid in the U.S. in U.S. funds, and thereupon Canadian importers commenced pressing for relief, the same as the exporter had previously done. At first the exporters demanded the right to prepay the whole rate in Canadian funds, which of course would give them an advantage in that they would be able to pay the U.S. end of the haul in Canadian funds, which were then, as now, worth less than the U.S. dollar. Shortly thereafter, however, the demand from all classes of business men was that the Canadian end of the haul should be paid in Canadian funds, and, to the ordinary business man, this seems absolutely fair and reasonable. However, when considered as a railway proposition, it was vigorously opposed by the Railway Association of Canada, and all the railway companies, on the ground that shippers both ways would naturally forward their goods by the route the longest possible portion of which would be in Canada. In other words, the U.S. roads would be short-hauled in practically every international transaction in Canada, excepting possibly exports from the greater portion of the Maritime Provinces, and, while this would be good business from the standpoint of the Canadian railways, yet it was argued, and I am convinced correctly argued, that, in a very short time, it would result in complete disruption of the whole international rate structure which has been laboriously built up during the past 35 or 40 years. On Dec. 21, 1920, the railway companies were told that a solution of some kind must be found for the difficulty, and one which would in the end practically amount to paying the Canadian end of the haul in Canadian funds. On Jan. 6, 1921, at a conference with representative of Canadian railway companies, a proposal was made, which was accepted in principle, but further time was taken in which to perfect the details, and, finally, on Jan. 11, a written statement was furnished this Board by the Railway Association of Canada, which was the result of extended negotiations between that body and this Board, reading as follows:—

"Exchange surcharge on international shipments, other than coal and coke, to be added to the total through charges, including advanced charges payable to United States carriers, when payable and collected in Canada.

"1. A surcharge of 60% of the rate of exchange arrived at in accordance with the provisions of this tariff will be added to the total through charges, including advance charges payable to U.S. carriers, on all shipments between Canada and the U.S., in both directions, when such charges are payable and collected in Canada. When all charges are paid at U.S. points in U.S. funds this surcharge will not be added.

"2. On shipments from Canada the surcharge must be collected at the rate governing on the date of the bill of lading; and on shipments to Canada at the rate governing on the date of advice note of arrival at the Canadian destination. Such surcharge will accrue entirely to the Canadian carrier.

"3. Telegraphic advice will be sent to railway agents in Canada on the last day of each month, specifying the surcharge to be collected from the 1st to the 14th (inclusive) of the following month; and on the 14th day of each month specifying the surcharge to be collected from the 15th to the last day (inclusive) of such month. Agents must file such telegraphic advice with this tariff. The surcharge must be shown as a separate item on all bills of lading and waybills for outbound shipments and on all freight expense bills.

"Exception.—This tariff does not apply to export and import traffic from or to points of origin or destination in the U.S. via Canadian ports, on which all charges must be collected in United States currency or its equivalent.

"Note.—In arriving at the surcharge, the rate of exchange quoted from New York funds by the Bank of Montreal at noon in Montreal on the last day of each month will govern from the 1st to the 14th (inclusive) of the following month; similarly, such quotation at noon on the 14th will govern from the 15th to the last day (inclusive) of such month. Should the governing date fall on a Sunday, or Canadian or U.S. legal holiday, the noon quotation of the preceding day will govern.

"In determining the surcharge, fractions less than one-half will be disregarded, and fractions of one-half or over will be counted as 1%.

"This tariff is effective Jan. 22, 1921. The rate of exchange quoted for New York funds by the Bank of Montreal at noon in Montreal on Jan. 21 will govern from Jan. 22 to 31, inclusive."

This proposal was supported and agreed to by representatives of the following railways:—Canadian National, Grand Trunk, Canadian Pacific, Michigan Central, New York Central, Rutland, Toronto, Hamilton & Buffalo, Essex Terminal, Pere Marquette, Delaware & Hudson, and the Railway Association of Canada. It was also accepted by the Quebec, Montreal & Southern representative, who, however, protested that the arrangement would be extremely unfair to that road. We also held conferences with representatives of the important boards of trade and trade organizations generally, all of whom considered the scheme the best that had been offered, although claiming that certain communities would be more favorably affected than others. After considerable discussion, the proposal was agreed to by the Board. The principal discussion between the Board and the railway companies was as to what would be a fair surcharge to be added to the rate which would place Canadian railways in a position to receive payment of the whole charge in Canadian funds and pay the U.S. share of their U.S. connections in U.S. funds. This arrangement will also apply to the U.S. roads, which, while not compelled to send their freight forward collect, we are assured will do so, because they will hold Canadian railways responsible to repay them their share in U.S. funds, and arrangements are being made by Canadian roads to have these good sforwarded collect, thus giving both the Canadian importer and exporter the right to pay the whole freight rate on international business in Canadian funds.

It is quite evident that the Canadian road which has a short Canadian haul and a long U.S. one is at a disadvantage, whereas the road which possesses a long Canadian haul as compared with a short U.S. one has a distinct advantage in this arrangement, but it was frankly admitted, both by the railway companies and the Board, that whatever was done must be on the broad principle of averages, and, therefore, some roads, as well as communities, must be benefited to a greater extent than others.

Without going into details, which I think are unnecessary, we found, after a very careful consideration of the total international traffic carried by Canadian railways, based upon their respective divisions with U.S. connections, that the traffic on the Canadian Pacific would be more nearly divided equally between Canadian and U.S. hauls respectively than any other of the large systems, and its figures showed the U.S. end to be somewhat larger than the Canadian. The Canadian National figures showed a slightly increased Canadian haul on an average over the Canadian Pacific, but the Grand Trunk showed quite a large percentage of the U.S. haul greater than the Canadian Pacific. Putting together the business of the Canadian National and Trunk systems, they average practically the same as the Canadian Pacific business. When we come, however, to roads such as the Quebec, Mnotreal & Southern, and the Toronto, Hamilton & Buffalo, we find that from two thirds to three quarters of their international business is on the U.S. end, the Toronto, Hamilton & Buffalo showing about 72%, and, of course, as they will only receive a surcharge of 60%, they will lose to quite an extent on all international traffic. However, as before stated, I have concluded that the principle of average is the only feasible method, under present conditions, by which this difficult problem can be solved at present, and, therefore, think that a surcharge of 60% of the total rate of exchange is the figure which will on an average place the Canadian roads in a position to pay the U.S. connections in U.S. funds and yet leave them Canadian funds for their own portion of the haul.

This arrangement does not apply to the rate on coke and coal, the reason being that these commodities move practically altogether on local rates, breaking at the border, and, as the Canadian importers have since May 1920 been allowed to pay the Canadian end of this business in Canadian funds, no change is necessary. Neither does it apply to export and import traffic from or to points of origin or destination in the U.S. via Canadian ports, which still must be paid in U.S. currency, because, were this allowed to

be paid in Canadian funds, it would practically mean that goods originating in the U.S., exported through Canadian ports, would pay a less freight rate than if exported from American ports. This would be discriminatory as against U.S. railways and would break up parity of export rates between Canadian and U.S. ports now in existence. This, in my judgmenet, would be a positive disadvantage to the business of the country as a whole.

It was contended by some interests at our conferences, that the rate of exchange should be fixed weekly rather than fortnightly, but there again it is a question of average. The railways may have a slight advantage under one set of circumstances, and the reverse may be the case under others; but, if it is found in working out the scheme that injustice results on account of the fortnightly arrangements, the Board reserves the right to change it any time it may think proper. While these arrangements are not perfect, yet, in my opinion, it is the best solution of the probleem so far advanced by any person, and I feel sure it will grant a great measure of relief to Canadian business interests. The companies will be required to make monthly returns to this Board, showing the amount of surcharge collected, and, if it is found that any change is necessary, either as to dates of arranging the same, or the percentage upon which the whole scheme is based, the Board will make whatever corrections may to it seem necessary. An order should, therefore, issue in the terms of the above proposal, the railway companies to have the privilege of filing the same as a tariff, effective on Jan. 22 instant.

This judgment was concurred in by Assistant Chief Commissioner McLean, Deputy Chief Commissioner Nantel and Commissioners Boyce and Rutherford.

On Jan. 14 the Board passed general order 326 ordering railway companies to file tariffs effective Jan. 22, to put the foregoing judgment in effect and to make monthly returns showing the amount of surcharges collected.

The Canadian Freight Association, on Jan. 15, issued a tariff, no. 16, special local and joint freight tariff of regulations governing exchange surcharge on international shipments of freight traffic, other than coal and coke, effective Jan. 22.

Minimum Requirements for Establishment of Agency Stations.

The Railway Association of Canada made the following application to the Board of Railway Commissioners:—

The Railway Association of Canada, acting on behalf of the several railway companies subject to the Board's jurisdiction, and operating in Western Canada, hereby applies to the Board, under sec. 51 of the Railway Act, 1919, for an order amending general order 54, dated Jan. 6, 1910, issued on the complaint of the Winnipeg Jobbers & Shippers Association, in the matter of facilities at flag stations, by striking out the figures $15,000 and $2,000 where they appear in paragraph 4 of the said order, and substituting therefor, respectively, the figures $25,000 and $4,000.

In support of such application, the applicant respectfully states: That during the period since the issue of said order, the cost of maintaining an agency station has more than doubled, whereas the basis of rates has been subject to various increases of which the Board is aware. That by reason of these facts, not only do the minima fixed in the said order furnish inadequate revenue to justify the establishment of an agency, in view of the present increased cost, but they represent a smaller volume of traffic than at the date of issue of the above mentioned order, and, therefore, necessitate the appointment of agents in many cases in which under the original conditions such action would not be called for. That in view of the altered conditions above indicated and accepting the principles upon which the original order was based, the minimum amount which should be fixed for the appointment of a permanent agent should be increased to at least $25,000, of which $4,000 should represent inward traffic.

Pilots Must be Used on N.Y.C.R. Locomotives in Canada.

Assistant Chief Commissioner S. J. McLean, of the Board of Railway Commissioners, gave the following judgment Dec. 20, 1920, which was concurred in by Deputy Chief Commissioner Nantel and Commissioners Boyce and Rutherford:—Application is made by the New York Central Rd. for a modification in the Board's regulations, as set out in general order 102, said modification being asked for so as to permit its freight locomotives running in Canada to use a step construction instead of having a pilot. In effect, it is asked that a type of construction, which is used in switching service in terminals, may be allowed to be used in road service. It is alleged that the step has every advantage that a pilot has, and it is further alleged that the use of steps in lieu of pilots on freight locomotives is allowed by the Interstate Commerce Commission's rules. This is apparently developed by inference from the silence of said regulations, as specific words of authorization were not referred to at the hearing. It is set out by the applicant that the "step" equipment is not objected to by any of the public utilities commissions of the states through which the railway operates. It is represented that there would be difficulties in operation if a pilot is required as to the portion of the journey in Canada. It is contended, in this connection, that in respect of the short mileage of the St. Lawrence & Adirondack Ry., in connection with the operations of the railway into Montreal, it would be impossible to have one portion of the rule in effect in Canada and another portion in the United States. It is stated that there are no facilities on the Canadian portion of the journey which will permit of the pilot being put on, and it is also set out that no such facilities are available at or adjacent to the International Boundary. It is admitted that a different situation exists in regard to the New York & Ottawa Ry., which has shops in Ottawa.

Apparently what is involved herein has not been the subject of any uniform rule in the United States. While the Board is not informed what railways, if any, in the U.S. are in agreement with the position of the applicant, it does appear from the Board's files that various outstanding railway systems in that country do use the pilot in road service. Various U.S. railways operate in Canada under Canadian charters. In the interest of safety, various regulations are provided by the Interstate Commerce Commission, in respect of safety appliances. Where the mileage in Canada is short, and the movement concerned merely incidental to a longer movement in the U. S., the Board has, in a spirit of comity, always been willing to approach the matter, not from the standpoint of mere literalism, but to consider whether the regulations aforesaid are in substantial harmony with the Board's regulations on the same subject, and thereafter to permit operation under the U.S. regulations where the particular facts justify so doing. But, to my mind, the situation involved in the present application is entirely different from that set out in the preceding paragraph. While a question of safety is involved, the Board is asked to allow a departure from its regulations, and to allow the substitution therefor of a practice depending entirely on tolerance. Having in view Canadian conditions, and the careful consideration given before the regulations concerned were adopted, I am of the opinion that the application should be refused.

Dominion Government Urged to Authorize Rolling Stock Orders.

The following telegram was sent by the Chairman and Secretary of the Canadian Manufacturers' Association, Montreal branch, to the Minister of Railways at Ottawa, Dec. 30:—"In view of unemployment situation at present acute, particularly in large industrial centers of Canada, the Montreal Branch of the Canadian Manufacturers' Association would strongly urge your Government to place orders immediately for large quantities of rolling stock, which it is understood are required by the Canadian National Railways. We would point out that such action by your Government would do much to relieve the stress and strain of unemployment, and we believe that your Government will view with favor the suggestion that any work that is possible to contract for immediately instead of awaiting the spring, should be carried out."

John Murphy's Salary.—The Associated Federal Employes at Ottawa recently made a number of charges against the Civil Service Commission's Board of Hearing, one of the cases mentioned being stated as follows:—"John Murphy, brother of Hon. Charles Murphy, M.P., is an electrical engineer in the Railways and Canals Department. His appeal was heard by the Board, and his salary was raised to $5,000. This was approved by the Civil Service Commission, and was about to go to the Privy Council when one member of the Board said that the Council would never pass the item, so his salary was reduced on the strength of this, although the evidence had been heard, and both the Board and the Commission had decided that he was worth $5,000." The Board of Hearing, in reply to this charge, said:—"The Board feels that the insinuation implied in this statement, that the Board was unfavorably influenced, is unworhy of comment."

Fighting Weeds.—The C.P.R., by arrangement with the Manitoba, Saskatchewan and Alberta Government, started on Jan. 26 to run a special train through the southern areas of each province to give instruction to farmers as to combatting weeds and other plagues that have become specially prominent.

The Canadian National Rys. Association's clubhouse at 105 and 109 Cottingham St., Toronto, were formally opened recently with a series of social entertainments.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board fo Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

General order 326. Jan. 14.—Permitting railways to file tariffs effective Jan. 22, showing exchange surcharge on international shipments, other than coal and coke, to be added to total through charges, including advanced charges payable to U.S. carriers, when payable and collected in Canada; indicating manner in which such surcharge will be applied; and directing railways, until otherwise ordered, to make monthly returns to the Board showing amount of surcharges collected. The judgment on which this order is based is given fully elsewhere in this issue.

General order 325, Dec. 20, 1920.—Re dimensions of cattle passes. This order is given in full on pg. 63 of this issue.

30,420. Dec. 9.—Ordering C.P.R. to build by July 31, 1921, siding and loading platform at south end of bridge at Bear Creek, Sask.

30,421. Dec. 9.—Approving location of Interprovincial & James Bay Ry. from mile 48.2, main line, to mile 7.8 Ville Marie Branch Line, Duhalmel Parish, Que.

30,422. Dec. 9.—Approving new location of G.T.R. station at Hammond, Ont.

30,423. Dec. 9.—Authorizing Canadian National Rys. to build spur for Imperial Oil Ltd., Fort Saskatchewan, Alta.

30,424. Dec. 10.—Declaring that for present, crossing of Michigan Central Rd. at 2nd station west of Buxton station, Ont., is protected to Board's satisfaction.

30,425. Dec. 10.—Declaring that for present, crossing of G.T.R. at 1st crossing north of Moore's switch, near Falkenburg, Ont., is protected to Board's satisfaction.

30,426. Dec. 9.—Approving change for siding extension to C.P.R. interlocking plant at Lennoxville, mile 65.97 Megantic Subdivision, Que.

30,427. Dec. 9.—Approving revised location Canadian Northern Western Ry. Ranna-Medicine Hat Branch, mile 116.39 to 127.63.

30,428. Dec. 8.—Approving location of Canadian National Rys. station at Redwater, Alta.

30,429. Dec. 9.—Authorizing G.T.R. to rebuild overhead bridge at Portage Road, near Stamford, Ont.

30,430. Dec. 8.—Authorizing Vancouver Harbor Commissioners to build spur connecting Great Northern Ry. Burrard Inlet spur and Dominion Government wharf, Vancouver, B.C.

30,431. Dec. 3.—Authorizing Canadian National Rys. to cros shighway in s.w. ¼ Sec. 9, Tp. 37, Range 11, west 2nd meridian, at Kelvington, Sask.

30,432. Dec. 10.—Authoribing Canadian Northearn Ry. to open for traffic its Oliver-St. Paul de Metis Branch from Spedden to St. Paul de Metis, Alta., mile 98.5 to 120.85.

30,433, to 30,435. Approving Bell Telephone Co. agreements with O'Connel-Bathburn Telephone Co., Ontario County, Ont.; Wahnapitae Power Co., Sudbury District, Ont., and The Air Board, operating in Simcoe County, Ont.

30,436. Dec. 10.—Authorizing corporation of Ile Perrot, Que., to use sidewalk on C.P.R. bridge between Ile Perrot and Vaudreuil, Que.

30,437. Dec. 15.—Authorizing C.P.R. and G.T.R. to operate over crossing at Lennoxville, Que., mile 65.97 Megantic Subdivision.

30,438. Dec. 14.—Approving Cumberland Coal & Ry. Co.'s standard passenger tariff C.R.C. 6.

30,439. Dec. 14—R.ecommending to Governor in council for sanction agreement between Edmonton, Dunvegan & British Columbia Ry. and Central Canada Ry. re use of tracks between McLennan and Winagami Jct., Alta.

30,440. Dec. 11.—Amending order 27,616 re G.T.R. and C.P.R. crossing of Cote de Liesse Road, Dorval, Que., by re-apportioning cost of protection.

30,441. Dec. 13.—Approving location of Interprovincial & James Bay Ry. (C.P.R.) from Mercier to Guigues, mile 10 to 68, and authorizing it to cross highways.

30,442. Dec. 16.—Authorizing Pere Marquette Rd. to remove west track at crossing of Lake Erie & Detroit River Ry., at Walkerville, Ont., and authorizing Essex Terminal Ry. to build second track across remaining P.M.R. track.

30,443. Dec. 17.—Approving revised location of Canadian Northern Pacific Ry. through Lots 6 and 7, Secs. 21 and 22, Tp. 9, and Lot 5, Sec. 15, Tp. 9 (Registered Plan 455), Osoyoos Division, Yale District, mile 3, Vernon-Kelowna line.

30,444. Dec. 16.—Authorizing Saskatchewan Public Highways Department to carry road allowance across Canadian National Rys. in n.w. ¼ Sec. 13, Tp. 47, Range 18, west 3rd meridian, Sask.

30,445. Ordering Canadian National Rys. to build farm crossing on John Kearney's property, Sleemans, Ont.

30,446. Dec. 17.—Amending express rates on fresh fish, c.l., from Riverton and Gimli, Man., to U.S. points. This order is given fully on another page, under "Traffic Orders by Board of Railway Commissioners."

30,447. Dec. 16.—Extending for two months, time within which City of St. Thomas, Ont., may operate St. Thomas Street Ry. p.a.y.e. one-man cars over Pere Marquette Ry., on Wilson Ave.

30,448. Dec. 16.—Extending to May 31, 1921, time within which G.T.R. may build fruit shed and siding at Grimsby Beach station, Ont.

30,449, to 30,451. Dec. 16.—Extending for two months time within which City of St. Thomas, Ont., may operate p.a.y.e one-man street cars over London & Port Stanley Ry. at Wellington, Talbot and Elm Sts.

30,452. Dec. 17.—Authorizing Canadian Northern Pacific Ry. to cross highway at Lavington, B.C., mile 8.6 Lumby Branch.

30,453. Dec. 15.—Approving location C.P.R. Cutknife-Whitford Lake Branch from Sec. 31, Tp. 43, Range 21, mile 0 to Sec. 23, Tp. 49, Range 28, west 3rd meridian, mile 72.70, and authorizing it to cross highways.

30,454. Dec. 16.—Extending to May 31, 1921, time for completion of G.T.R. extension to siding for Swift Canadian Co., Ottawa, Ont.

30,455. Dec. 18.—Authorizing Hydro Electric Power Commission of Ontario to build high tension transmission line across wires of Great North Western Telegraph Co. and Canadian National Rys. at easterly limits of Port Arthur, Ont.

30,456. Dec. 16.—Approving agreement between Bell Telephone Co. and Purbrook & Fraserburg Telephone Co., Muskoka District, Ont.

30,457. Dec. 17.—Extending to Dec. 31, 1921, time within which Canadian Carbonate Co. may equip cylinders containing liquified gases with safety device as provided in par. 1862 (a) of Regulations for Transportation of Explosives and other Dangerous Articles by Freight.

30,458. Dec. 17.—Declaring that for present, C.P.R. crossing at mile 72.6, Galt Subdivision, Wolverton, Ont., is protected to Board's satisfaction.

30,459. Dec. 20, 1920.—Authorizing C.P.R. to build spur for G. & J. Weir (Canada) Ltd., at mile 0.75 South Bank Branch, Lachine Canal, across St. Patrick St., LaSalle, Que.

30,460. Dec. 21, 1920.—Declaring that for present C.P.R. crossing at Elmhurst Ave., east of Montreal West station, Que., is protected to Board's satisfaction.

30,461. Dec. 20, 1920.—Amending order 29,194, re opening for traffic Canadian National Rys. Oliver Branch from Oliver to mile 98.5, Alta.

30,462. Dec. 20, 1920.—Extending to May 31, 1921, time within which C.P.R. spur for Dominion Brass & Iron Bedstead Co., Outremont, Que., may be built.

30,463. Dec. 20, 1920.—Declaring that for the present the Canadian National Rys. crossing, 25 poles west of milepost 5, Oakland and Delta Subdivisions, Man., is protected to Board's satisfaction.

30,464. Dec. 20, 1920.—Extending for one month time within which C.P.R. may install automatic bell at crossing at mile 32.8, about a mile north of Guelph, Ont.

30,465. Dec. 21, 1920.—Declaring that for the present the C.P.R. crossing east of Cornwall station, Ont., is protected to Board's satisfaction.

30,466. Dec. 20, 1920.—Authorizing British Columbia Public Works Department to build highway crossing over Grand Trunk Pacific Ry. at Woodcock, B.C., mile 145.4 east of Prince Rupert.

30,467. Dec. 21, 1920.—Extending to June 30, 1921, time within which the G.T.R. may complete station at Marysville, Ont.

30,468. Dec. 21, 1920.—Amending order 30,391 re G.T.R. spur for Ontario Malleable Iron Co., Ltd., Oshawa, Ont., by changing name of company to Pedlar People Ltd.

30,469. Dec. 20, 1920.—Authorizing Canadian Northern Quebec Ry. to build spur for United Last Co., St. Jerome, Que.

30,470. Dec. 21, 1920.—Authorizing C.P.R. to build spur for International Milling Co., Moose Jaw, Sask.

30,471. Dec. 20, 1920.—Extending to May 31, 1921, time within which C.P.R. may build spur for Rock Creek Lumber Co., in Lot 4588, Group 1, East Kootenay District, B.C.

30,472. Dec. 21, 1920.—Authorizing G.T.R. to build spur for Langslow Limited, Cobourg, Ont.

30,473. Dec. 22, 1920.—Amending order 30,447, re St. Thomas Municipal Street Ry. operating p.a.y.e. one-man operated cars over Pere Marquette Ry. on Wilson Ave.

30,474. Dec. 21, 1920.—Authorizing Canadian National Rys. to open for traffic portion of its line between St. Brieux and Humboldt, Sask., mile 22 to 54.14.

30,475. Dec. 22, 1920.—Authorizing C.P.R. to build spur for McLaren Lumber Co., mile 94 Crowsnest Subdivision.

30,476. Dec. 21, 1920.—Authorizing Ontario Highways Department to build bridge over G.T.R. on Lot 13, Con. 1, East Flamboro Tp.

30,477. Dec. 23, 1920.—Declaring that for the present the C.P.R. crossing at mile 59, Leduc Subdivision, 1.9 miles north of Wetaskiwin, Alta., is protected to Board's satisfaction.

30,478. Dec. 22, 1920.—Ordering C.P.R. to maintain a speed not exceeding 6 miles an hour for trains over crossing at Paulson St., Camrose, Alta.

30,479. Dec. 23, 1920.—Declaring that for the present the C.P.R. crossing near mile 62, Carberry Subdivision, 6.4 miles west of Portage la Prairie, Man., is protected to Board's satisfaction.

30,480. Dec. 23, 1920.—Declaring that for the present the Canadian National Rys. crossing at milepost 144.2, Gladstone Subdivision, 5 miles north of McCrcary, Man., is protected to Board's satisfaction.

30,481. Dec. 23, 1920.—Dismissing application of Manitoba Government, et al, for suspension of rate increases as granted by general order 308, or, in alternative, varying said order by reducing increases west of Fort William to 15%. The judgment on which this order was based was published in Canadian Railway and Marine World's January issue.

30,482. Dec. 23, 1920.—Extending to Jan. 31, 1921, time within which Kettle Valley Ry. may build 2 pen stock yard at Princeton, B.C.

30,483. Dec. 21, 1920.—Approving agreement between Bell Telephone Co. and D'Israeli Telephone Co., Wolfe County, Que.

30,484. Dec. 23, 1920.—Approving location (Saskatchewan Land Survey) of portion of C.P.R. Rosetown Easterly Branch from mile 18.61 to 19.23.

30,485. Dec. 24, 1920.—Ordering Canadian National Rys. to enlarge waiting room and freight shed at Chipman, Alta., and make other improvements by Sept. 1, 1921.

30,486. Dec. 24, 1920.—Dismissing complaint of Darwell Local United Farmers of Alberta, no. 621, against proposed withdrawal of Canadian National Rys. station agent at Darwell, and ordering C.N.R. to appoint a caretaker there.

30,487. Dec. 26, 1920.—Authorizing C.P.R. to open for traffic portion of its Russell Northerly Branch, from mile 0 to 6.5, Man.

30,488. Dec. 28, 1920.—Approving connection of Canadian National Rys. St. Maurice and Montreal Divisions, at Allenby Jct., mile 5.6 St. Lawrence Division, Que.

30,489. Dec. 28, 1920.—Authorizing G.T.R. to build spur for Hanover Portland Cement Co., Bentinck Tp., Ont.

30,490. Dec. 29, 1920.—Authorizing G.T.R. to build spur for Banwell-Hoxie Wire Fence Co., Hamilton, Ont.

30,491. Dec. 28, 1920.—Authorizing Canadian Northern Saskatchewan Ry. to divert and cross highway in s.w. ¼ Sec. 25 and n.w. ¼ Sec. 23, Tp. 51, Range 18, west 3rd meridian.

30,492. Dec. 27, 1920.—Approving revised location of C.P.R. Langdon North Branch, from mile 76.24 to mile 77.13, and from mile 78.59 to mile 86.84, also authorizing it to cross a number of highways.

30,493. Dec. 29, 1920.—Authorizing C.P.R. to build spur for Pembroke Shook Mills, Pembroke, Ont.

30,494. Dec. 28, 1920.—Re freight rates on shoddy blankets. This order is given in full under "Traffic Orders by Board of Railway Commissioners," on another page of this issue.

30,495. Dec. 30, 1920.—Amending order 29,774, re Lynn Road crossing, by G.T.R. in Elizabethtown Tp., Ont., by providing that 25% of the cost of subway and road diversions be paid out of the railway grade crossing fund, and the remainder as follows:—15/80th by Leeds and Grenville Counties, 15/80ths by township, and 50/80ths by G.T.R.

30,496. Jan. 3.—Approving Edmonton, Dunvegan & British Columbia Ry. Standard Mileage Freight Tariff C.R.C. 130, and Central Canada Ry. Standard Mileage Freight Tarifl C.R.C. 57.

30,497. Jan. 3.—Ordering Grand Trunk Pacific Ry. to fence right of way on west side through n.e. ¼ Sec. 25, Tp. 52, Rangé 19, west 5th meridian, Alta., by June 1, 1921.

30,498. Jan. 3.—Authorizing C.P.R. to build spur for Sachs Bros., Ottawa, Ont.

30,499. Jan. 3.—Ordering G.T.R. to remove trees obstructing view at crossing just north of Allenburg station, Ont.

30,500. Jan. 3.—Ordering G.T.R. to install gates to be operated by day and night watchmen at crossing of Woodbine Ave., Toronto.

30,501. Jan. 4.—Dismissing application of Canadian Freight Bureau, Montreal, on behalf of Dominion Foundries & Steel Ltd., Hamilton, Ont., for reduction in rate on shell bars or blanks, car loads, to same rate as charged on commercial steel bars, from Hamilton to Montreal, from Sept. 1 to Jan. 1, 1917. This order is given in full, under "Traffic Orders by Board of Railway Commissions" on another page of this issue.

30,502. Jan. 3.—Declaring that Canadian National Rys. crossing near Herouxville station, Que., is protected to the Board's satisfaction.

30,503. Jan. 3.—Approving location and detail plans of Canadian National Rys. freight and passenger shelter at Arizona, Alta.

30,504. Dec. 30, 1920.—Ordering Canadian National Rys. to pay damages to claimants in connection with location of C.N.R. through North Bay, Ont.

30,505, to 30,511. Jan. 3, 4.—Approving Bell Telephone Co. agreements with Sutton & North Gwillimbury Telephone Co., York County, Ont., and amending order 23,571 in same matter; Riordan Co., Terrebonne County, Que., and rescinding order 25,87 7in same matter; Ashgrove Rural Telephone Co., Halton County ,Ont.; King Telephone Co., York County, Ont.; Champlain Point Telephone Co., Ontario County; Douro Tp., Ont.: and Riordan Co., Labelle County, Que.

30,512. Jan. 3.—Authorizing C.P.R. to build spur across certain streets in Yorkton, Sask.

30,513. Jan. 4.—Approving reduced far transportation privilege certificates for certain commercial traveller sassociations. This order is given in full on another page, under "Traffic Orders by Board of Railway Commissioners."

30,514. Jan. 28.—Authorizing Canadian National Rys. to build transfer track with C.P.R., at Estevan, Sask.

30,515. Jan. 4.—Authorizing C.P.R. and Montreal Tramways Co. to operate over Park Ave. crossing, Montreal, without first stopping, provided that crossing be used by M.T. Co. only for taking empty cars over C.P.R. twice a day, or in case of emergency.

30,516. Jan. 3.—Dismissing application of Carmichael rural municipality 109, Sask., for order requiring C.P.R. to stop train 3, on flag, twice a day.

30,517. Jan. 5.—Extending to Mar. 30, 1932, time within which C.P.R. may operate tracks over portion of road allowance between Cons. 8 and 9, North Dumfries Tp., Ont.

30,518. Jan. 5.—Extending peremtorily to May 31, time within which work required to be done by Garnd Trunk Pacific Ry. at Telkwa, B.C., by order 29,827 and 30,105, be completed.

30,519. aJn. 5.—Declaring that for the present the G.T.R. highway crossing west of Niagara Falls (hydro crossing), Ont., is protected to Board's satisfaction.

30,520, 30,521. Jan. 5.—Authorizing Saskachcwan Highways Department to make 2 highway crossings over C.P.R. on road allowances, cast of Secs. 29 and 30, Tp. 15, Range 14, west 3rd meridian.

30,522. Jan. 5.—Authorizing Great Northern Ry. to make highway crossing at mile 53, Crowsnest line, near Morrissey, B.C.

30,523. Jan. 7.—Extending to Mar. 1, time within which G.T.R. may install wigwag signal at crossing of Edward St., Prescott, Ont.

30,524. Jan. 6.—Approving detail plans showing location of C.P.R. proposed station at Westboro, Ont.

30,525. Jan. 5.—Extending to May 31, time within which G.T.R. may enlarge station waiting room at Hazelton, B.C., etc., as required by order 30,210.

30,526. Dec. 27.—Dismissing application of New York Central Rd. for modification in Railway Safety Appliances Standards regulations to permit the use, on its freight locomotives running into Canada, a step instead of pilot construction. The judgment on which this order is based is given fully elsewhere in this issue.

30,527. Dec. 28, 1920.—Relieving Maine Central and Boston & Maine Rds. from complying with general order 293 requiring that all locomotives be equipped with seat for brakemen.

30,528. Jan. 5.—Dismissing Marconi Wireless Telegraph Co.'s application re increased proportion of trans-Atlantic wireless rates demanded by Western Union and Great North Western Telegraph Cos.

30,529. Jan. 11.—Authorizing Arundel Tp., Que., to make temporary crossing for six months from date over Canadian National Rys. on Lot 12, Range 3.

30,530. Jan. 10.—Authorizing British Columbia Telephone Co. to erect wires under Esquimalt & Nanaimo Ry. bridge on Vancouver Island.

30,531, 30,532. Jan. 6.—Approving Bell Telephone Co.'s agreements with Fifth Line Telephone Co., Grey County, Ont.; and Mutual Telephone Co., Simcoe County, Ont.

30,533. Jan. 7.—Ordering Canadian National Rys. forthwith to appoint station agent at Tilney, Sask.

30,534. Jan. 8.—Authorizing Saskatchewan Highways Department to make highway crossing over C.P.R. on s.e. ¼ Sec. 6, Tp. 13, Range 20, west 3rd meridian.

30,535. Jan. 6.—Approving agreement between Bell Telephone Co. and Silcote Telephone Co., Grey County, Ont.

30,536. Jan. 10.—Rescinding order 18,818, Mar. 3, 1913, authorizing Grand Trunk Pacific Ry. to build spur for Edmonton Gravel Co., in Secs. 16 and 21, Tp. 53, Range 23, North Alberta District, Alta.

30,537. Jan. 12.—Authorizing Grand River Ry. to insert diamonds in crossing of G.T.R. near Dundas Road, North Dumfries Tp., Ont., and authorizing it to operate over crossing pending installation of interlocker.

30,538. Jan. 10.—Amending order 30,421, re location of portion of Interprovincial & James Bay Ry. from mile 48.2, main line, to mile 7.8 Ville Marie Branch.

30,539. Jan. 10.—Declaring that for the present C.P.R. crossing at mileage 81, Kisbey Subdivision, one mile north of Sedley station, Sask., is protected to Board's satisfaction.

30,540. Jan. 12.—Approving agreement between Bell Telephone Co. and Erie Telephone Co., Haldimand County, Ont., and rescinding order 23,475.

30541, 30,542. Jan. 13.—Authorizing G.T.R. to rebuild overhead bridge K.E. 43.57, at Hughson St.; and overhead bridges at John St. and Catharine St., Hamilton, Ont.

30,544. Jan. 12.—Approving agreement between Bell Telephone Co. and Caradoc Ekfrid Telephone Co., Middlesex County, Ont., and rescinding order 22,036.

30,545. Jan. 12.—Authorizing Hydro Electric Power Commission of Ontario to build its power development canal across Michigan Central Rd., and to divert same temporarily in Stamford Tp., Ont.

30,546. Jan. 13.—Declaring that for the present C.P.R. crossing two miles east of Belleville station, Ont., is protected to Board's satisfaction.

30,547. Jan. 13.—Extending to May 31, 1921, time within which C.P.R. may build spur for Standard Lime Co., St. Elizabeth Parish, Que.

30,548. Jan. 7.—Approving location of Canadian National Rys. 4th class station at Birsay, Sask.

30,549. Jan. 10.—Declaring that for the present Napierville Jct. Ry. crossing, near Lacolle station, Que., is protected to Board's satisfaction.

30,550. Jan. 12.—Dismissing application of Canadian Fisheries Association against charges by express companies on net weight of fish (c.l.) excluding allowances of 2½% for slime and ice adhering to fish when weighed.

30,551. Jan. 12.—Extending for 30 days, time within which agreement may be entered into between Great Northern Ry. and Vancouver Harbor Commission for occupation of lands and construction of spur, Vancouver, B.C.

30,552. Jan. 12.—Dismissing application of Notre Dame Investment Co., Winnipeg, for order directing Canadian National Rys. to spot cars only as directed by applicants on spur running between north side of Market St. and south side of James St., by reason of certain parties receiving benefit heretofore from said spur and not paying anything towards cost and maintenance.

30,553. Jan. 14.—Approving agreement between Bell Telephone Co. and Mount Granite Telephone Co., Algoma District, Ont.

30,554. Jan. 17.—Authorizing use of bridge carrying King St., Hamilton, Ont., over Toronto, Hamilton & Buffalo Ry.

30,555. Jan. 18.—Authorizing C.P.R. to cross at grade with its Langdon North Branch at mile 77.32, the Canadian National Rys. Vegreville-Calgary Branch, protecting same by interlocker.

30,556. Jan. 14.—Authorizing C.P.R. to build spur for Alderic Lefebvre, at mile 4.45 Lachute Subrivision, Que.

30,557. Jan. 14.—Rescinding order 30,373, ordering Canadian National Rys. to build farm crossing on property of Byskal, Erickson, Man.

30,558. Jan. 15.—Declaring that for the present, C.P.R. crossing near Kleinburg station, Ont., is protected to Board's satisfaction.

30,559. Jan. 15.—Dismissing C.P.R. application to close and divert road allowance on west boundary of n.w. ¼ Sec. 27, Tp. 13, Range 25, west 1st meridian, Man.

30,560. Jan. 14.—Approving location and details of G.T.R. station at Allanburg, Ont., work to be completed by June 30.

30,561. Jan. 17.—Authorizing Canadian National Rys. to build across highway between Secs. 8 and 9, at mile 73 Kindersley Subdivision, Sask.

30,562. Jan. 14.—Authorizing Canadian National Rys. to build spur (track extension) for Howard Smith Paper Mills, St. Paul de Joliette Parish, Que.

30,563. Jan. 15.—Authorizing C.P.R. to build siding and two crossovers for Canada Starch Co., Fort William, Ont.

30,564. Jan. 13.—Authorizing Canadian National Rys. to build additional track (G.T.P.R. Branch Line) across Pasqua St. and encroaching on McKinley St., North Regina, Sask.

Steel Rails Price Suit.

The Exchequer Court gave judgment at Ottawa, Dec. 15, 1920, in the action of the Dominion Iron & Steel Co. against the Crown, in the steel rails case. It was stated that the claim involved something like $3,000,000, being the difference between a price fixed by the Minister of Railways for steel rails rolled by the company at the Dominion Government's request at a time when the company had a shell steel contract with the Imperial Munitions Board. The case came on for hearing in Sept. 1920, and occupied the court for a considerable time at Ottawa and Sydney, N.S., the argument being finally concluded at Ottawa, Nov. 9. During the hearing the Dominion Steel Corporation joined with the Dominion Iron & Steel Co. as plaintiff.

The judge of the Exchequer Court states in a lengthy judgment that in Mar. 1918 the Dominion Iron & Steel Co. had a contract for the rolling of steel shells for munition purposes. On Mar. 15, 1918, a committee of the Privy Council received a report from the Minister of Railways representing that it was essential that rail renewals be obtained immediately for the various railways in Canada if they were to continue in operation to their full capacity during the next year. The Imperial Munitions Board was willing to release the company from its contract as from April 1, 1918, in order that it might roll 100,000 tons of rails. The company offered to roll 100,000 tons, 5% to be second class rails, at $70 a ton for first class and $68 a ton for second class rails. The Minister of Railways recommended the acceptance of the offer to roll not less than 100,000 tons of rails, the price to be determined on his recommendation, after an investigation of the company's costs by experts. Under the order in council issued subsequently the company rolled 99,000 tons of no. 1 rails, and 17,000 tons of no. 2 rails, and by a later arrangement an additional number of tons of second class rails were to be taken over. Under an order of Feb. 26, 1919, the fixing of the price of the rails was referred to the Exchequer Court, the Minister of Railways having put a price of $65 a ton on them. The Dominion Iron & Steel Co. subsequently made a claim for compensation under the War Measures Act of 1914 on the ground that the contract for munition steel was on the basis of $80 a ton. Upon full consideration of the matter the judge held that the steel company could not avail itself of the provisions of that act. The relationship between the Crown and the company was one of contract and not a compulsory order under the provisions of the War Measures Act. After an examination of the facts as set out in the evidence the judge said:—"After the best consideration I can give to the case, and having regard to all the circumstances existing owing to the war, I think that the price arrived at by the Minister of $65 a ton for no. 1 rails will fully and amply compensate the company. For the second class rails I would allow $63. . . Counsel will have no difficulty in arriving at what amount should be paid at the prices I have quoted, and the fact must not be lost sight of, that since the claim was filed further payments have been made by the Government and received by the company. I have no power to allow interest as against the Crown. This seems to have been conceded by counsel, who only claim interest as part of the compensation, if the company was entitled to compensation under sec. 7 of the War Measures Act. I am of opinion that under all the circumstances, each party bear their own costs."

The Railway Audit and Inspection Co. Incorporated, Ltd., has been incorporated under the Dominion Companies Acts, with authorized capital of $50,000, and office at Montreal, to make physical examinations of railways and other properties; to make examinations of the financial condition of companies owning or operating such properties; to audit their accounts and generally to act as an expert accountant, and to report the result of such examinations and investigations. The provisional directors are: E. C. Hathaway, H. N. Brown, Philadelphia, Pa.; J. A. Mercier, K.C., J. A. Sullivan, Outremont, Que.; C. Turpin, Montreal.

An aerial mail service was started Jan. 4, between Toronto and Camp Borden, Ont., to determine the possibilities of the use of aeroplanes for mail purposes, the intention being to continue for a month.

J. C. O'Donnell, General Superintendent, Maritime District, Canadian National Rys., Moncton, N.B., writes Canadian Railway and Marine World:—"I am enclosing money order covering renewal subscription to your valuable paper for 1921."

Telegraph, Telephone and Cable Matters.

Canadian National Telegraphs has opened an office at St. Maurice, Que., and has closed its offices at Aston, Cape Rosier, Perthuis and St. Casimir, Que., and at Gorrie and Rocky Inlet, Ont. The name of its office at Endat, Ont., has been changed to Elsas.

W. G. Barber, who has been appointed General Commercial Superintendent, Canadian National Telegraphs, Toronto, was presented with a gold watch and chain and a gold penknife, by G. D. Perry, General Manager, on behalf of the staff, early in January, on his promotion from the position of District Commercial Superintendent, Great North Western Telegraph Co., now Canadian National Telegraphs.

The U.S. Commissioner of Internal Revenue issued a ruling recently, defining the originating point of a cablegram as the point where it is paid for. Therefore the U.S. war tax will not be collected in the U.S. on collect messages destined to foreign countries, including Canada, but the tax will be collected on collect messages received in the U.S. from foreign countries, including Canada. The tax is based on the tolls paid, and not on the tariff rate for 10 words.

Capt. James Adams, master of the cable ship Lord Kelvin, was killed when an automobile in which he was travelling was struck by the Maritime Express at a level crossing near Bedford, N.S., Jan. 1. He was born at Saltcoats, Scotland, about 56 years ago, and was brought to Canada at an early age. He commenced his marine service in ships engaged in trade with the far east and in 1890 joined the Western Union Telegraph Co.'s cable ship service, and served on the ship Minia for several years, and from 1916 to 1919 was in command of her, being appointed to the command of the Lord Kelvin at the end of 1919.

The Montreal Telegraph Co.'s annual meeting was held at Montreal Jan. 14. The annual report showed total assets of $2,315,487, of which $163,663 consisted of cash, accounts receivable, bonds and other securities, and the balance, of telegraph lines, cables, offices, equipment and real estate, in Canada and the United States. Dividends were paid during the year amounting to $160,000, and in addition a bonus of $5,000. The property is operated under lease for 97 years from July 1, 1881, by the Great Western Telegraph Co., now owned by the Dominion Government and operated as Canadian National Telegraphs by the Canadian National Rys. The directors for the current year are Wm. McMaster, President; W. R. Miller, Vice President; R. McD. Paterson, H. G. Rawlings and F. W. Molson.

The Pacific Cable Board's statement for the year ended Mar. 31, 1920, which has been published recently, shows net traffic receipts of £642,948, an increase of £88,436 over the previous year. Of this amount, £353,000 was appropriated to reserve and renewal accounts, and after providing for all other charges, there was a surplus of £10,433, which has been applied to reduce the outstanding balance of the original Government advance of £2,000,000. The international traffic handled during the year covered 9,000,000 words, and in addition there were handled about 2,320,000 words between Australia and New Zealand, and between those Dominions and the Pacific Islands. The week end deferred cable service will be resumed as soon as possible, but the report states that it is difficult to forecast the probable date of its resumption. Government traffic exchanged between the United Kingdom and Australia and New Zealand was about 2,200,000 words, about 1,300,000 less than in the preceding year.

The Board of Railway Commissioners passed order 30,528, Jan. 5, as follows:—The application of Marconi Wireless Telegraph Co. of Canada, for an order, under sec. 375 of the Railway Act, 1919, directing the Western Union Telegraph Co. and the Great North Western Telegraph Co. of Canada to continue to handle the applicant company's full rate trans-Atlantic traffic at the rates shown in exhibit D filed; to handle the applicant company's deferred trans-Atlantic traffic at one-half of the proportionate rates charged for full rate trans-Atlantic traffic, as set forth in the said schedule D; and for an order directing the Western Union Telegraph Co. to accept all traffic at its Canadian offices routed for transmission to the United Kingdom "via Marconi." Upon hearing the matter at Ottawa, July 6, 1920, the applicant company, the Western Union Telegraph Co. and the Great North Western Telegraph Co. being represented at the hearing, and what was alleged, and upon reading the further written submissions filed, it is ordered that the application be dismissed.

The Maritime Telegraph & Telephone Co. has offered $500,000 7% refunding mortgage gold bonds, series A, at 97½. This company operates in Nova Scotia, under Nova Scotia Public Utilities Commission's jurisdiction, at rates approved by that body, and considered fair and reasonable. The company's physical assets are valued at $5,000,000, or more than twice the amount of bonds outstanding, including the latest issue. In addition to the Nova Scotia properties, it controls the Prince Edward Island telephone system, and connects with the New Brunswick Telephone Co.'s lines, as well as others. In Nova Scotia it has approximately 4,100 miles of pole line, 45,500 miles of wire and 28,700 telephones. Under the N.S. Public Utilities Commission, the company is allowed to earn, after operating, sufficient to more than meet its fixed charges and dividend requirements. The gross revenue for 12 months ended Nov. 30, 1920, was $1,418,569; operating expenses, maintenance, depreciation, etc., $1,085,861; net earnings $332,703.

Great North Western Telegraph Co. becomes Canadian National Telegraphs.

The letters G.N.W. and the name they indicate—the Great North Western Telegraph Co., long familiar to every Canadian, whatever his position or walk in life—manufacturer or business man, financier or merchant, public man or ordinary citizen—are eventually to disappear. The G.N.W.T. Co. is now a branch of the Canadian National Rys. system, and, as stated previously in Canadian Railway and Marine World, has been known since Jan. 1 as the Canadian National Telegraphs.

The history of the G.N.W.T. Co. covers a period of precisely 40 years, the company having been organized in 1881, when it leased the Montreal and Dominion Telegraph Companies lines and merged them into one system. From that time on, it grew steadily, and in correspondence with the growth of the country, spreading out and extending its lines until they covered practically all Eastern Canada with a veritable network, while it materially increased its foothold in the west.

In 1915, control of the G.N.W.T. Co. was acquired by the Canadian Northern Ry., and the railway's already extensive commercial telegraph system being combined with thta of the G.N.W.T., the latter became for the first time a practically Dominion-wide organization. In 1918 the Canadian Northern Ry., with the G.N.W.T. and its other subsidiary companies, became the Dominion Government's property, followed by the Grand Trunk Pacific Ry., being handed over by its receiver to the Canadian National Rys. for operation, and the two systems, together with the National Transcontinental Ry., were co-ordinated. The National Transcontinental Ry. telegraph lines were placed under G.N.W. control, and arrangements were completed recently for the co-ordination, with the G.N.W.T. and its associated lines, of the Grand Trunk Pacific Ry. telegraph lines.

The first General Manager of the G. N.W.T. Co. was H. P. Dwight, who held the position for 22 years until 1903, when he was succeeded by Isaac McMichael, a Canadian by birth, who had won a name for himself in the United States telegraph world. He died in 1911, and was succeeded by Geo. D. Perry, who, entering the G.N.W.T. service as a young man, had worked his way up to the position of Secretary-Treasurer. He continues with the new national system as General Manager, the other principal officials being A. C. McConnell, Secretary and Auditor; D. E. Henry, Treasurer; E. Davies, General Traffic Superintendent; and W. G. Barber, General Commercial Superintendent.

Vast improvements have been made by the company by installing the most modern telegraph apparatus at its offices, operating the way circuits by selector concentration units, and the trunk circuits by Morse or automatics, which comprise five 3-channel multiplex printer circuits, 14 duplex Morkrum printer circuits, and 23 Morse duplex circuits. Three-channel multiplex printer circuits are operated between Montreal and North Sydney cable station; New York, Toronto and Winnipeg; also Toronto and Winnipeg. With this apparatus it is possible to transmit three messages, automatically printed, in both directions simultaneously, on one wire, thereby greatly increasing the capacity of a wire as compared with the Morse duplex or quadruplex method, which is capable of only two messages in both directions at the most. Selectors are installed on these circuits at all repeater stations, so that the terminal offices can signal repeater attendants to the circuit in a few momens. The new facilities proposed for this year will add four 3-channel multiplex printer circuits and five Morse duplex circuits. In connection with this chain of equipment, there are some 31,000 miles of pole line and 114,000 miles of wire.

The head office remains in Toronto, the executive staff occupying commodious quarters in the World Building, on Richmond St. West. The local office, the operating staff and the commercial news department remain at the company's building on Wellington St. East.

Electric Railway Department

Increases in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry.—We are officially advised that the increase of fares agreed to between the company and the Victoria, B.C., City Council, went into effect Dec. 14, 1920, together with a city ordinance prohibiting jitneys from running in direct competition with the street cars. The agreement authorized the increase of the cash fare from 5c. to 6c., six tickets to be sold for 35c.; school children's tickets 3c.; all to carry transfer privileges. The old cash fare was 5c. without transfer, the new rate is 6c. with transfer. Order 30,409, passed by the Board of Railway Commissioners Dec. 2, 1920, approving this company's supplement 1 to its Standard Tariff of Maximum Fares, C.R.C. 8, as mentioned in Canadian Railway and Marine World for January, approved the increase in the city fare in Voctoria.

Order 30,376, passed by the Board of Railway Commissioners Nov. 29, 1920, approved this company's Standard Freight Mileage Tariff, Supplement 1 to C.R.C. 132, to become effective Dec. 6, 1920, as mentioned in Canadian Railway and Marine World for January. This supplement is simply the application to the line of the increases granted steam railways by the Board, under general order 308.

Fort William Municipal Railway—Port Arthur Civic Railway.—Canadian Railway and Marine World for January gave particulars of the Ontario Railway and Municipal Board's hearing of a ratepayer's complaint, on which judgment was reserved. D. M. McIntyre, K.C., Chairman of the Board, delivered its opinion an Jan. 3 as follows:—C. A. Goodeve, a citizen of Fort William, complained to the Board that fares were being charged upon the municipal railways operated in the cities of Fort William and Port Arthur, respectively, in excess of those permitted by The Ontario Railway Act. Pursuant to appointment, A. B. Ingram, Vice Chairman of the Board, attended at Port Arthur, and heard what was alleged by the complainant and by the respondents, as appears by his report dated Nov. 1920. An order was issued by the Board on Nov. 22, 1920, based on that report, prohibiting the collection of fares in excess of those approved by the Board's order of Jan. 6, 1919. Subsequently, the respondents applied to the Board for a suspension of its order of Nov. 22, 1920, in the premises, pending the disposal of certain questions of law raised by them, and this the Board did and fixed Dec. 16, 1920, for hearing argument.

Upon the argument it was alleged that the effect of certain private acts affecting the cities of Port Arthur and Fort William, and their respective railways, was to take these cities adn their railways out of the purview of The Ontario Railway Act as far as the fares to be charged were concerned, or at least throw doubt upon the Board's jurisdiction to entertain this complaint. The Board has carefully considered the legislation affecting these two railways, as well as the general law applicable in force from time to time, and finds no reason to conclude that the provisions of the Ontario Railway Act, sec. 210, limiting the fares to be charged on street railways, are inapplicable to these two railways. By force of the interpretation clause of the Ontario Railway Act, the term "company" as used in sec. 210, includes a municipal corporation having authority to construct and operate a street railway. From as early a period as the statute revision of 1887 the Municipal Act and the Street Railway Act, read together, clearly establish that the provisions of the latter act were, and have since been, applicable to street railways owned and operated by municipal corporations, except of course as they might be qualified by private legislation. The Street Railway Act of that date contained provisions limiting the fares chargeable on street railways, in the same form, with slight modifications, as in the Ontario Railway Act, sec. 210, and these provisions have been re-enacted and kept in force in every revision of the Street Railway Act down to the present day.

Canadian Electric Railway Association.

Honorary President, Lieut.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co.

Honorary Vice President, Acton Burrows, Proprietor and Editor, Canadian Railway and Marine World.

President, A. Gaboury, Superintendent, Montreal Tramways Co.

Vice President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Honorary Secretary-Treasurer, pro tem, A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.

Executive Committee, The President, Vice President, and F. D. Burpee, Manager, Ottawa Electric Railway Co.; C. C. Curtis, Manager, Cape Breton Electric Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.; Geo. Kidd, General Manager, British Columbia Electric Railway Co.; M. W. Kirkwood, General Manager, Grand River Railway Co. and Lake Erie & Northern Railway Co.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Railway Co.; R. M. Reade, Superintendent, Quebec Railway Light & Power Co.; Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Railway Co.; C. L. Wilson, Assistant Manager, Toronto & York Radial Railway Co.

Official Organ—Canadian Railway and Marine World, Toronto.

No doubt, when the then Town of Port Arthur was by order in council of Dec. 31, 1892, given authority to extend its railway into the then Town of Fort William, the fares to be charged were fixed by paragraph 6 of that order. These fares appear to have continued unaltered down to May 1917, when an application was made to the Board, under 7 Geo. V, chap. 27, sec. 71, and the rates for through service were increased. In 1908 the portion of the railway within the limits of the City of Fort William was acquired by purchase by the City of Fort William. Paragraph 6 of the agreement of purchase, while providing that the then rates of fares should not be exceeded, until Dec. 31, 1918, also provides that on and after Dec. 31, 1913, each city might operate the railway within its own limits, as and how the council thereof might determine. This the Board takes to mean that, after the date mentioned, the respective municipal councils might each operate its railway, but subject to the privisions of the Ontario Railway Act. The legislation of 1917 merely extends to validate an agreement fixing through rates upon the railways, and neither the agreement, nor the provisions of the act, authorize the municipal councils to charge a rate in excess of that permitted by the Ontario Railway Act, sec. 210.

In July 1920 the representatives of the municipalities applied to the Board for approval of a tariff which fixed the fare in each city at 7c. or 4 tickets for 25c., with special reduced rates for children and pupils. The Board, believing that the tariff was in excess of the tariff permitted under the Ontario Railway Act, refused to approve it. Mr. Goodeve now complains that the municipalities are, notwithstanding, charging fares according to the tariff last referred to, and the representatives of the two municipalities, respectively, admit that this is so. This is, in the Board's opinion, unauthorized and illegal, and an order should issue prohibiting the municipalities collecting such fares, or any fares in excess of those authorized by the Ontario Railway Act, sec. 210.

The Board followed this judgment with an order to carry its decision into effect, but the councils of the two cities evidently decided to ignore it, as on Jan. 11 a Port Arthur newspaper telegraphed the Chairman of the Board as follows:—"Despite your order to revert to 5c. fare, 7c. fare is still being collected on the street railways in Fort William and Port Arthur. Fort William City Council tonight passed resolution to appeal your order. Will they be allowed to collect 7c. fare in the interval, pending decision whether appeal will be granted? Citizens much concerned."

The Board's Chairman replied on Jan. 12 as follows:—"Notice of appeal by municipalities served on Board returnable on Jan. 17. Pending hearing of application no action will be taken by Board to enforce its order."

An appeal to a divisional court of the Ontario Supreme Court, at Toronto, was entered on behalf of the two cities, returnable on Jan. 17, but up to the time of writing, Jan. 21, no decision had been announced.

The cities of Fort William and Port Arthur are asking the Ontario Legislature for a special act to authorize their city councils to pass bylaws from time to time varying the fares on the electric railways owned by the two municipalities.

New Brunswick Power Co.—A press report states that new rates of fare on this company's electric railway in St. John, N.B., were put in effect Jan. 10, as follows:—Cash fare, 10c.; three tickets for $1. The previous schedule was based on a 6c. cash fare. L. R. Ross, the company's President, is reported to have said in an interview:—"So far as the street railway is concerned there is only one solution of this difficulty, and that is the one-man car. It has been tried in so many places and with such marked success that it is no longer an experiment. The best estimate obtainable shows that one-man car operating would mean a saving to the company of some-

where in the vicinity of $70,000 a year. The company would be able to reduce the cost of carrying each person by from 1c. to 1¼c."

Ontario Fares.—A meeting of officials of a number of both publically and privately owned electric railways operating in Ontario was held in Toronto, Jan. 15, to consider steps to be taken to secure a change in the Ontario Railway Act, which limits the fare on electric railways under Ontario jurisdiction to 5c. for any distance not exceeding three miles, and to 2c. a mile for over three miles, and in the case of children under 10 not to exceed 3c. for three miles or less and 1c. a mile for over three miles. Subsequently they had an interview with the Attorney General on the matter. Electric railways in Ontario under Dominion jurisdiction are allowed by the Board of Railway Commissioners to charge 2.87c. a mile. The Fort William and Port Arthur city councils passed bylaws recently to advance fares on those lines to over 5c, but the Ontario Railway and Municipal Board has decided that they are illegal. The Waterloo-Wellington Ry., by leave of the municipalities in which it operates, advanced its fares recently, but on the complaint of a single ratepayer the Board has ordered the old rate to be restored.

Port Arthur Civic Ry.—See Fort William Municipal Ry.

Waterloo-Wellington Ry.—The reason for raising of the fare charged on this line was stated in Canadian Railway and Marine World for January. The Ontario Railway and Municipal Board authorized A. B. Ingram, Vice Chairman, to investigate the fares charged. He reported that the company was charging fares in excess of those authorized under the Ontario Railway Act, sec. 210, and the Board made an order on Dec. 21, 1920, directing the company not to charge any fare in excess of those authorized under the section mentioned.

We were officially advised, Jan. 6, that the company had stopped charging the 10c. cash fare or 12 tickets for $1, complained of, and had returned to the 5c. cash fare, and subsequently we were advised that the line would stop operating on Feb. 1, it being impossible to cover expenses on the fares authorized.

Sale of Toronto Railway Company's Subsidiary Companies.

The following questions were submitted to Toronto ratepayers at the municipal elections on Jan. 1:—Are you in favor of the Hydro Electric Power Commission of Ontario acquiring for and on behalf of the city the following:

(1) The distribution system within the city of the Toronto & Niagara Power Co., at the price of $7,226,295. (2) That part of the Metropolitan Division of the Toronto & York Radial Ry. Co. within the city (limited to what lies on the highway), at the price of $585,000. (3) The properties of the Toronto & York Radial Ry. Co., including the Metropolitan Division (except that part on the highway within the city), the Scarboro Division and the Mimico Division, also the properties of the Schomberg & Aurora Ry. Co., at the price of $2,375,000.

(b) The city's transferring to the Hydro Electric Power Commission of Ontario the right of way and physical assets acquired by the city from the Toronto & York Radial Ry. Co. on that part of the Kingston Road within the city to the Woodbine, and on the Lake Shore Road from Sunnyside to the Humber;

(c) Paying for the property in clauses (1) and (2) above by assuming 6% bonds charged on the property in clause (1) to the amount of about $840,000 (of which $30,000 becomes due every three months until 1922, when the balance matures), and issuing city 6% twenty-year bonds to be dated Dec. 1, 1920, for the balance;

(d) The issue by the city of 6% twenty-year bonds for $2,375,000 to be deposited with the Hydro Electric Power Commission of Ontario to secure the bonds of the Commission, guaranteed by the Province of Ontario, for a similar amount to be issued by the Commission in payment for the property in clause (3);

(e) Entering into the necessary agreements with the Hydro Electric Power Commission of Ontario to carry out the foregoing which will provide that the municipalities interested will be given an opportunity to vote under the Hydro Electric Railway Act to acquire the proportionate interest of each in the property referred to in clause (3);

(f) Applying for legislation at the next session of the Legislature, validating and confirming the said agreements with the Hydro Electric Power Commission of Ontario, and authorizing the council of the city to pass a bylaw or bylaws for the issuing of all necessary debentures and otherwise carrying out the foregoing without the further assent of the electors?

The votes recorded were 29,081 in the affirmative and 1,672 in the negative, a majority of 27,409.

Agreements between the Toronto Ry. Co. and the Hydro Electric Power Commission of Ontario are being drawn up in accordance with the terms arrived at as detailed in Canadian Railway and Marine World for January. These agreements will be submitted to the trust companies acting for the bondholders of the several companies concerned, and by the Toronto Ry. Co.'s directors, then to the Hydro Electric Power Commission of Ontario for approval and execution.

Several organizations of residents in the North Toronto area have passed resolutions asking for the inauguration of a 2c. fare on the Toronto & York Radial Ry.'s Metropolitan Division within the city limits when it comes under operation by the city, that being the fare charged on other civic lines.

Regina Municipal Railway's Financial Position.

A report by J. Grassett and L. A. Thornton, city commissioners, to the Mayor of Regina, Sask., on the city finances, etc., for the 10 months ended Oct. 31, 1920, contains the following in reference to Regina Municipal Ry.:—"A moderate increase over 1919 in revenue was estimated. The actual results are for the 10 months $17,000 short of the estimate, and may be accounted for by the general tendency towards economy in expenditures and particularly by the very fine weather conditions which have obtained. Where the bulk of the traffic is short haul the street railway is the first to experience the effect of fine weather.

"The fares were increased in August and resulted in a marked decrease in patronage, so that since its inception there has been little revenue benefit. The three months of increased fares has been too short a period to point to any definite conclusions as to the ultimate effect. When winter sets in in earnest it is hoped, however, that substantial results will be derived from the increase. The deficit shown by the auditor's statement, $50,494.05, will be reduced for the year to approximately $40,000. While this is a good position as compared with that of 1914-15-16-17 and 18, viz., $95,752.00, $109,755.00, $76,145.00, $63,912.00 and $67,407.00 respectively, there is still room for much improvement. Strict accounting methods would require greater contribution to depreciation account than are now provided. Unless the one-man car system is adopted we cannot predict any material reduction in operation costs. The average number of passengers carried daily from January to April inclusive was 18,722; from April to July 25, 15,927, and from Aug. 5 to Oct. 31, 13,211. These figures indicate the effect of weather conditions very clearly. The street railway ride is the cheapest service available to the public. A more consistent use of the service would soon result in the wiping out of the deficit, which now has to be borne by the same public in taxation. In the following table the figures for 1920 are for the 12 months, taking the actual 10 months figures and making proportionate allowance for the whole year:—

	1920.	1919.
Revenue	$354,125.00	$324,020.72
Expenditures	296,200.00	251,784.79
Operations and surplus	57,925.00	72,235.93
Fixed charges	98,125.00	97,911.24
Deficit	40,200.00	25,675.31
Passenger car mileage	944,300	955,376
Total passengers	6,137,200	6,228,254
Receipts per passenger car mile	37.50c.	31.51c.
Cost per passenger car mile	41.76c.	36.60c.
Receipts per passenger	5.39c.	4.832c.
Cost per passenger	6.42c.	5.61c.

Street Railway Extensions as Local Improvements.

The Toronto Transportation Commission's General Manager, H. H. Couzens, in announcing recently that it had been decided to ask the city council to apply for legislation to provide that property the value of which is increased by street railway extensions, should contribute towards the cost of the improvement, is reported to have said:—"The principle that property which has clearly been increased in value by an improvement should contribute to the cost of such improvement is felt to be fundamentally equitable and sound, and has been generally recognized for many years in Canada, the United States and England. The principle has been applied to transportation by the New York State Rapid Transit Law of 1911, which provides that the whole or any portion of the cost of any future rapid transit lines may be assessed against the property specially benefitted.

"The Commission has not decided as to the extent to which these powers, when obtained, will be put in force, but a letter has been forwarded to the Board of Control making the request as outlined above.

"Regarding the statement that the matter has been taken up with York Township Council, this was discussed informally with a deputation from last year's council, which waited on the Commission some time ago, but as the matter has not been dealt with by the City Council, the York Township Council cannot be said to have been officially approached."

Electric Railway Projects, Construction, Betterments, Etc.

The Edmonton Interurban Ry., which extends from the outskirts of Edmonton, Alta., to St. Albert, 9.50 miles, was completed and put in operation, Dec. 21, 1913, a gasoline car service being operated. The line was either partially or wholly electrified in 1914-15, and an arrangement was made in Sept. 1915 with the City of Edmonton for its Edmonton Radial Ry. to operate the E.I. Ry. from Edmonton to Calder, about two miles, which arrangement is still in effect. A press report states that efforts were made during 1920 to arrange for the sale of the E.I. Ry. line, etc., to the city, negotiations being started on the basis of an offer by the company to take $20,000, that this was met by an offer of $12,000 by the city, and that the company reduced its price to $15,000. It was reported Jan. 5 that the company had given notice to terminate the agreement for the operation of the line on Mar. 31. (April, 1916, pg. 156.)

Edmonton Radial Ry.—We are officially advised that work was commenced on the following extensions in 1919, that track was laid during 1920, and that they will be finally completed this year: Loop built in exhibition grounds, 3,000 ft; addition to Interurban Ry. Co.'s tracks in Calder, Alta., 2,000 ft. (April, 1920, pg. 202.)

The Grand River Ry. has, we are officially advised, under construction an additional track from Preston to Hayes, Ont., 1.132 miles; and a revision of its double track line in Galt, 1.524 miles. A. E. Rigley, St. Catharines, Ont., is the contractor.

In connection with the revision of the track in Kitchener, we are officially advised that the total length of line is 1.742 miles, and that it is expected during the year to abandon 0.935 of a mile of the original mileage, which is still being used under agreement with the city, the new track on revision not being in service. (Jan., pg. 36.)

Hydro Electric Ry., Essex Division.—We are officially advised that during 1920 there was laid 4,031 ft. of new track, on London St., Windsor, Ont., from Ouellette Ave. to the Michigan Central Rd. bridge, converting the line for that distance into a double track one. The management has under survey the following extensions or additions, with a view to putting them under construction during this year: Loop on Sandwich, Ferry and Pitt Sts., 1,245 ft.; double track on Ouellette Ave., 7,065 ft.; double track belt line on Wyandotte, Monmouth, Ottawa, Parent and Erie Sts., 19,977 ft. (Nov., 1920, pg. 616.)

Lethbridge Municipal Ry.—We are officially advised that Lethbridge, Alta., City Council has ordered automatic reclosing circuit breaker equipment from the United States for its substation.

Montreal Tramways Co.—Montreal press dispatch, Jan. 20.—The big power plant being constructed on Cote St. for the Montreal Tramways Co. at a cost of approximately $1,000,000, is expected to be completed and in operation early in February. The plant consists of four transformers, which will take current from the Montreal Light, Heat & Power Co. and convert it into power for the tramways. The capacity of the plant is 13,000 h.p., or 10,000 k.w. The plant is being constructed in order to economize on costs of electrical power used by the Tramways Co.

The Montreal Tramways Co., we are officially advised, has under construction the following extensions: Kelly St., 2.30 miles; Park Ave., 1.08 miles. The work is being done by the company's own staff. (Dec., 1920, pg. 672.)

Quebec, Ry., Light & Power Co.—The Quebec Board of Trade's council is reported to have discussed recently the question of extending the company's line to the Quebec Bridge, and to have asked the city council to take the matter up with the company. (Nov., 1920, pg. 616.)

The Saskatoon Municipal Ry., we are officially advised, built 2,500 ft. of new track during Nov. 1920, on the Mayfair-University line, making such sections double track. A considerable part of this line is still single track. The new work was done on the parts of the line where most needed to relieve congestion, and promote effective operation. (Nov. 1920, pg. 616.)

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry.—A press report says that J. D. Mortimer, retiring President, Western Power Co. of Canada, Ltd., stated recently that about 90% of the preferred and common stock certificates of that company had been transferred to interests representing the B.C.E.R. Co., under the terms of its option. The sale price of the stock is reported to have been $30 for preferred and $35.10 for common. Shareholders who did not participate in the option contract, have been given until May 16 to dispose of their shares. Walter Gow, Toronto, is reported to have been elected President, Western Power Co. of Canada, under the new ownership.

Calgary Municipal Ry.—A press report states that the operation of the railway showed a deficit of $3,621.52 for Nov. 1920, making a total deficit for the 11 months ended Nov. 30 of $31,873.38.

Cape Breton Electric Co:—

	Nov. 1920	Nov. 1920	11 mos. to Nov. 30, 1920	11 mos. to Nov. 30, 1919
Gross	$63,035	$51,611	$583,259	$528,716
Expenses	49,430	40,349	501,865	414,607
Net	13,605	11,262	81,394	114,109

The London & Port Stanley Ry. Co.'s annual meeting of shareholders was held in London, Ont., Jan. 17. The receipts for the year were reported to be $25,000, viz., the rent paid to the city for the line by the London Railway Commission, and it was stated that the shareholders had no power or authority to ask for any reports or information as to the operation of the line. This amount, less some small expenses, was paid over to the city. The following are the directors for this year: President, Mayor Little; Vice President, Alderman W. A. Wilson; other directors: Aldermen Watt, Wenige, Ross, Brighton, Drake, Watkinson and Ashton.

London St. Ry.—A press report states that the total earnings for Nov. 1920 were $44,382.30, and operating expenses $37,959.63, leaving a net revenue of $6,422.67. The Ontario Railway and Municipal Board, which is operating the line, has paid out of net revenue $2,187.55, interest on bonds; $119.73, interest on loans; $750, taxes, and $3,000 for retirement of bonds. This leaves a balance of $365.39.

The net income from June 17, 1920, when the Railway and Municipal Board took over the organization, is reported to have been $4,487.27, out of which the Board has paid $4,078.58 as increased wages to the men, leaving a net surplus of $412.59.

Montreal Tramways Co.—A dividend of 2½% for the three months ended Dec. 31, 1920, has been declared payable Feb. 1. It is stated that the company now owes only one payment on account of dividend arrears, and that it will be paid in the near future.

Regina Municipal Ry.—A press report states that operation showed a net revenue of $1,585.87 for Nov. 1920, thus reducing the deficit for the 11 months ended Nov. 30, 1920, to $48,958.18.

Toronto Civic Ry.—The total revenue for 1920 was $543,570.92; passengers carried 32,441,083; against $443,575.09 total revenue, and 26,622,343 passengers carried during 1919. It is anticipated that there would be a deficit of approximately $200,000 on the operations for 1920.

Toronto Railway.—

	1920 Receipts	1920 City percentage	1919 Receipts	1919 City percentage
Jan.	$ 652,350	$110,950	$ 588,923	$ 88,339
Feb.	595,861	119,172	545,771	96,563
Mar.	745,706	149,141	615,526	123,105
Apr.	653,340	130,668	600,231	120,046
May	644,458	132,892	620,068	124,014
June	544,833	108,966	431,082,	86,217
July	641,793	128,539	534,412	128,359
Aug.	631,521	126,304	629,540	125,908
Sept.	690,546	55,243	641,422	51,313
Oct.	671,294	60,940	650,913	57,919
Nov.	677,283	79,684	638,870	72,511
Dec.	706,789	106,021	678,407	78,221
	$7,875,774	$1,308,340	$7,175,165	$1,152,515

Winnipeg Electric Ry. Co. offered recently $3,000,000 of 7% cumulative preferred stock, preferred as to dividends and assets, at 90% with a bonus of 30% in common stock. The proceeds of the issue, the subscription lists for which closed Jan. 22, will be used to retire notes and bank loans. The prospectus states that with these paid off, it is expected that the company will be in a position to recommend payment of dividends on its common stock within a reasonable period.

Winnipeg Electric Ry. and allied companies:—

	Nov. 1920
Gross	$483,098.82
Operating expenses	363,232.27
Net	119,866.55

The surplus after allowing for fixed charges, was $55,447.65, against $37,623.71.

Vancouver and Edinburgh Car Fares.

The following is reproduced from the British Columbia Electric Ry.'s publication, the Buzzer:—You remember we told you how Edinburgh folk walked to spite the tramways when the fares went up, but they found they had to make it up eventually through taxes. Some interesting figures have come to hand which make Vancouver show up pretty well. Here they are:

Passengers per car mile, Edinburgh	12.32
Passengers per car mile, Vancouver	6.3
Revenue per car mile, Edinburgh	50.6c.
Revenue per car mile, Vancouver	36.8c.

Even with traffic twice as dense as in Vancouver, Edinburgh charges 2c. a mile. Commutation rates on the Central Park line, Vancouver, are less than 1c. a mile.

Ontario Car Advertisers Ltd. has been incorporated under the Ontario Companies Act, and office at Toronto, to carry on a general advertising business, and particularly advertising in connection with street cars, tramways, busses, and motor vehicles, and to buy, sell and transact business incidental thereto.

Proposed Purchase of Ottawa Electric Railway Defeated.

Ottawa ratepayers voted on Jan. 3 on the following question:—"Are you in favor of the city applying for legislation enabling it to borrow money, without a further vote of the electors, to acquire the property and assets of the Ottawa Electric Ry. Co. at the expiration of its franchise in 1923, under the agreement between the city and the company, at a price fixed by arbitration, as provided by the agreement?" The votes were 2,326 in the affirmative, and 4,438 in the negative, a majority of 2,112 against the proposal.

The proposed purchase of the line by the city upon the expiration of the franchise has been under consideration for a long time, and the discussions at the committee and council meetings prior to the settlement of the form of the question, as given above, were lengthy and at times rather warm. In the course of the campaign, between the date of the settlement of the question and the voting, the then Mayor, H. Fisher, wrote several letters to the local papers in which he advanced a number of reasons in favor of the taking over of the line by the city, criticized the policy of service at cost which the Ottawa Electric Ry. Co. had offered to put in operation, and urged the people to vote in favor of the bylaw. Major F. D. Burpee, Manager, O.E.R., replied to these letters at length, explaining the principles and merits of service at cost.

The question will doubtless be taken up again at an early meeting of the city council. We are advised that the company's proposal to operate the line on a service at cost basis is still open for consideration by the city.

Mainly About Electric Railway People.

Major F. D. Burpee, Manager, Ottawa Electric Ry., broke a small bone in one of his ankles early in January, and had to lay up for about a fortnight.

F. L. Butler, who entered the Winnipeg Electric Ry. service as General Superintendent, in April 1918, and was appointed Manager in Aug. 1920, has resigned to take charge of the Georgia Ry. & Power Co.'s railway department at Atlanta, Georgia. That company operates all the city and suburban lines in and out of Atlanta, also a line in Gainesville, all of which will come under Mr. Butler's jurisdiction.

C. C. Curtis, Manager, Cape Breton Electric Co., Sydney, N.S., attended the annual meeting of the Nova Scotia Association for the prevention of Accidents in Halifax, Jan. 6.

A. H. Dion, who resigned the position of Manager, Moose Jaw Electric Ry., Moose Jaw, Sask., in December, has been appointed Managing Director of the Welding Accessories Co., New York, N. Y., in which he is financially interested.

W. F. Graves, Chief Engineer, Montreal Tramways Co., has been appointed a member of the American Electric Railway Association's committee on way matters.

A. T. Goward, Local Manager, British Columbia Electric Ry., Vancouver, B.C., is taking two months leave of absence from the end of December, his duties being performed by G. M. Tripp, Electrical Engineer.

H. M. Hopper is reported to have resigned the position of Secretary-Treasurer, New Brunswick Power Co., and of the Eastern Electric Co., a subsidiary company, after over 20 years service. The report states that he will go on leave of absence until Mar. 1, when his resignation will take effect.

F. S. Livingston, Traffic Manager, Toronto & York Radial Ry., has been re-elected President, Metropolitan Hockey League, which comprises teams along the railway's Metropolitan Division, between Toronto and Sutton.

E. A. MacNutt, Secretary-Treasurer, Cornwall Street Ry., Light & Power Co., and Levis County Ry., and Treasurer, Sun Life Assurance Co., Montreal, has been elected a director of Barcelona Traction, Light & Power Co.

I. L. Matthews, for some years a member of the Port Arthur, Ont., Public Utilities Commission, has been re-elected Mayor of Port Arthur, and M. C. Campbell and B. Tourtellot have been re-elected members of the city's Public Utilities Commission.

Hugh C. Nickle, General Superintendent, Kingston, Portsmouth & Cataraqui Electric Ry., has been re-elected by acclamation as Mayor of Kingston, Ont.

Ottawa Electric Railway's Insurance and Benefit Plan.

Canadian Railway and Marine World for Sept. 1920 contained full particulars of the O.E.R.'s insurance and benefit plan, including a copy of the policy. The company's Manager, Major F. D. Burpee, comments on it as follows:—The plan contains a death benefit of $1,000, a retirement allowance of $1,083.12 with other options, $10 a week for any 26 consecutive weeks in case of sickness or accident happening while off duty, and free service of a physician for all purposes except surgical operations. If the employe leaves the service for any cause prior to reaching the age of 65, he may have returned to him all the amounts he has paid in with interest at 3%, so that in this sense it may be regarded as a savings account, or he may purchase the company's interest in the policy and carry it on at the full premium.

As our employes are protected against accidents happening while on duty, by the Ontario Workmen's Compensation Act, whether they are responsible for such accident or not, every contingency is provided for, with the one exception of permanent disability occurring before the retirement age is reached. We are considering the addition of this benefit to our plan, and find that it could be arranged at a small extra cost per member, for the death benefit to be paid immediately a permanent disability is established.

Our insurance plan is open to all employes, with the exception of those over 50 years of age who have not been in the employ of the company for more than five years, as it was not considered fair that a heavy premium should be paid for men who could not be regarded as old employes of the company. We found that we had a number of men of 60 years and over who have been in the service for many years. These men have all been taken in as members, but instead of underwriting these risks we are carrying them ourselves and providing a reserve to look after the payment of their claims.

While all the risks, with the exception of those mentioned above, are underwritten by the Travelers Insurance Co., the employe deals directly with this company. If a death occurs, our welfare man hands the death benefit to the beneficiary, and does whatever he can to assist her with funeral arrangements and in any other way that may appear to him to be helpful. In the payment of sick benefits these amounts are turned over to the employe as he needs them, without reference as to when the claim is settled with the insurance company. The employing company afterwards recovers whatever amounts are due on the claims.

At the time the employe puts in his application for membership he assigns his policy to us so that all claims on the underwriters are made by us. The insured has nothing to do with it.

As shown by the contract, men paid by the month, who do not lose time when off duty through sickness, are not entitled to the sick benefit or free doctor; such employes pay $1.25 a month. All others who are not paid when they are away from duty pay $1.50 a month.

This insurance plan has been in force a little more than a year and has been operating most satisfactorily. During the return of the flu last winter a large number of employes were materially assisted at a time of great need. I think that the only reason this plan has not been unanimously adopted by our employes is because of the mistaken opposition of organized labor to all insurance plans proposed by employing companies. This plan was inaugurated and is being carried on as a definite part of our welfare work for employes. There is no possible chance for any man to lose by becoming a member, as in any case he receives more than he has invested in it when he leaves the service.

Losses in Operating Toronto Civic Railway.

The Toronto Bureau of Municipal Research gives the following as the financial results of operating the Toronto Civic Ry.:—

Year	Expenditures (including debt charges)	Income	Loss Amount	Per cent. of income
1916	$343,975.17	$225,031.38	$118,943.79	52.8%
1917	432,436.83	275,972.78	156,464.05	56.6%
1918	460,082.87	331,724.00	128,358.87	38.7%
1919	583,430.93	443,091.00	140,339.93	31.7%
1920 Es.	733,763.01	445,000.00	288,763.01	64.9%
Total	$2,553,688.81	$1,720,819.16	$832,869.65	47.8%

In commenting on the above, the Bureau says:—"The civic car lines have been handicapped in their financial management by insufficient fares and by the lack of through connections. The recommendation of the Commissioner of Finance and the Commissioner of Works that fares be increased to an economic charge was not adopted by the civic administration."

British Columbia Electric Railway Statistics.

Now that the B.C.E.R. Co. has taken over the Western Power Co. of Canada, its statistics have been revised to include its new acquisition, as follows:—

Stave Lake development	39,000 h.p.
Total capacity, all plants	151,000 h.p.
Possible development	234,000 h.p.
Total railway lines	375 miles
Capital investment, nearly	$65,000,000
Number of employes	2,817
Annual payroll	$4,750,000
Light, power and gas customers	94,961

Ontario Hydro Electric Railways Projects.

The Mimico, Ont., Town Council was informed recently that debentures for $122,000, guaranteeing the bonds for the building of the section of the projected radial railway under the Hydro Electric Power Commission of Ontario's plans, had been handed over to the Commission.

Ratepayers of East Whitby Tp., passed a resolution recently urging the township council to take no further steps toward issuing debentures in connection with hydro radial proposals till after the Ontario Government Commission, investigating the entire radial scheme, brings in its report. The resolution also requested that if the report of the commission is unfavorable to the enterprise the township's debentures, amounting to nearly $300,000 and representing its share of the Toronto Eastern Ry. capital cost, be not issued, and that nothing further be done in the matter until it be again submitted to the ratepayers.

The section of the old Belt Line Ry. which Toronto City Council acquired some years ago on account of non-payment of taxes, is coming to light again. It is reported that the G.T.R. wants to recover a portion of it, and also that the Hydro Elecric Power Commission of Ontario is desirous of getting it for use in connection with its projected system of radial railways.

Electric Railway Notes.

Peterborough, Ont., ratepayers on Jan. 1 approved a bylaw for the operation of cars on Sundays on the Peterborough Radial Ry.

London, Ont., ratepayers on Jan. 1 defeated by 42,596 to 1,681 a proposal to provide $100,000 to buy motor busses and operate them as a civic enterprise.

St. Thomas, Ont., ratepayers on Jan. 3, by a majority of 1,132, voted in favor of the operation of cars on Sundays on the St. Thomas St. Ry., owned by the city.

The Moose Jaw Electric Ry. Co.'s power plant was disabled Jan. 7 by the bursting of an oil pipe on the Diesel engine, and car service was suspended pending repairs. It is also reported that arrangements are being made for the railway to be operated by power from the city electric power plant.

Brantford City Council is applying to the Ontario Legislature, among other things, for power to appoint an engineering board, of which the engineer or construction head of the Brantford Municipal Railway shall be a member, to consider and report to the board of control upon engineering questions which may arise in connection with the affairs of the city and of the various public commissions.

Saskatoon, Sask., ratepayers have passed a bylaw authorizing the operation of one-man cars on the municipal railway, but we are officially advised that it is not the management's intention to make any change at present. It is expected that a trial will be made with one-man cars in April, and that if it is satisfactory the present equipment of single truck cars will be converted for one-man operation.

A. E. Warren, General Manager, Western Lines, Canadian National Rys., is reported to have discussed with the Mayor of Edmonton, Alta., recently the all-night street car service to Calder for the employes of the railway shops. At present the C.N.R. guarantees the city $2.50 a trip, with a rebate on the receipts on the trip. Unless a satisfactory arrangement can be made the C.N.R. will probably put on a steam service.

Regina, Sask., Trades and Labor Council is asking for the operation of extra cars on the municipal railway on Sundays for the convenience of employes at the Canadian National Rys. and Grand Trunk Pacific Ry. shops. Superintendent Houston is reported to have advised the city council that the present average Sunday car earnings are $357, representing about 6,060 fares, and that the expenses are $376; and that the extra service asked for would mean an additional expenditure of $70 a Sunday for labor and power.

The British Columbia Electric Ry., in apologizing to its customers for a recent shut down of from four to 10 minutes on the light and power system, and of 20 minutes on the railway system, including also the Western Power Co. of Canada's lines, throughout the Vancouver area, on Dec. 20, 1920, at 2 p.m., when the Christmas shopping traffic was very heavy, stated that it was caused by the breaking of 10 insulators on high tension poles in North Vancouver by stones thrown by small boys. The short circuiting of high tension lines threw a surge on to the other circuits. The company has offered a reward of $100 for the arrest and conviction of the persons causing the damage.

British Columbia Electric Railway Subsidiary Company's Application to Dominion Parliament.

Notice has been given that The Vancouver, Fraser Valley & Southern Ry. Company will make application to the Parliament of Canada, at the next session, for an act to amend its act of incorporation, chap. 175 of Statutes of Canada, 1906, so as to enable it to purchase, lease or otherwise acquire any railways, street railways, tramways, and light, heat and power systems, within or without the Province of British Columbia, and particularly the railways, street railways, tramways, and light, heat and power systems constructed, controlled, owned, leased or operated by the British Columbia Electric Ry. Co. Ltd., the Vancouver Power Co. Ltd., and the Vancouver Island Power Co. Ltd., and the Western Power Co. of Canada Ltd., and to enable it to carry on such railways, street railways, tramways, light, heat and power systems so purchased or acquired under the powers contained in the charters of such railways, street railways, tramways, or light, heat and power companies, subject to The Railway Act; and to enable the company to extend the lines of railway, street railway and tramway, or light, heat and power systems now owned or to be acquired as aforesaid by it beyond the limits of the Province of British Columbia into the State of Washington; and for a declaration that the railways, street railways, tramways and light, heat and power systems to be acquired shall be declared to be for the general advantage of Canada; and to enable it to increase its capital; and to enable it to change its name; and to enable it to alter its borrowing powers; and to amend sections of its act of incorporation relating to the purchase and disposal of power; and to enable it to pay for the railways, street railways, tramways, and light, heat and power systems to be acquired by it by shares in the company; and to enable it to sell all or any part of its undertaking; and for such other powers as may be necessary or incidental to the above.

The Vancouver, Fraser Valley & Southern Ry. Co., which is a subsidiary of the British Columbia Electric Ry. Co., was incorporated by the Dominion Parliament in 1906, and built a line from New Westminster along the Fraser River Valley to Chilliwack, 76.3 miles, which was completed in 1909, and is operated by the B.C.E.R. Co.

Hydro Electric Railways, Essex Division, Operating Results.

The Hydro Electric Power Commission of Ontario has supply the following particulars of the operating results for seven months to Oct. 31, 1920, of the Hydro Electric Railways, Essex Dixision, formerly the Sandwich, Windsor & Amherstburg Ry.

Maintenance and operation, including insurance, taxes and administration	$185,104.96
Cost of electrical energy (steam generation)	27,600.03
Total	$212,704.99
Revenue	296,373.74
Gross surplus	$83,668.75
Interest on investment	49,986.09
Sinking fund (1.052%)	11,346.72
Net surplus	$22,335.94

Mileage, 652,026.

Comparison of Expenses, Seven Months, April to October.

	1919	1920
Power	$14,062.01	$27,600.03
Insurance and damages	5,500.00	14,500.00
Stationery	2,400.00	3,400.00
Administration	No record	2,800.00

Purchase Cost.

Way and structures	$1,229,829.01
Equipment	206,968.79
Total	$1,436,797.80
Intangible	412,202.20
Total purchase cost	$1,849,000.00
Additions to Oct. 31, 1920	249,918.45
Total, Oct. 31, 1920	$2,098,918.45

Interstate Commerce Commission regulations require provision for renewals on equipment (same at 3% on above is $3,622.00, at 2½%, $3,018.00). Provision for renewals on way and structures is optional (same at 3% on above is $21,522.00, at 2½%, $17,935.00).

The operating statement carries the following items of expense, considered to be abnormal, but for obvious reasons allowed to remain therein.

Cleaning sod from 18 miles of track, Windsor-Amherstburg section	$1,250.00
General overhauling of cars 108 and 102, roofs, cables, etc.	1,000.00
Cost of rebuilding all controllers, 50 at $50 each (conservative)	2,500.00
Cost of painting office	300.00
Power costs at usual rates, $2,895 a month for 7 months. $20,265.00 Actually cost 27,600.03	7,335.03
18 cars crippled when system taken over, loss in revenue through crippled cars	?
Administration salaries for March, re delay in taking over system	750.00
Labor costs re tie and equipment removal and installation and half value of ties installed	8,335.11
	$21,470.14

Items of a capital nature charged to revenue during the seven months, now reflected in plant account:—

Half of ties used ($5,014.21), average life 16 years	$2,507.10
Armature coils, normal life 2-3 years	5,536.39
Field coils	1,980.06
Pinions	320.92
Wheels	1,475.00
Car 56, rehabilitation of trucks in April	250.00
Painting cars 108 and 102 (old paint burned off to wood)	500.00
Charge against Detroit United Rys.	461.30
2—80 armature coils on hand	221.00
	$13,251.77

Service at Cost Advocated for Winnipeg.

From the Winnipeg Electric Railway Public Service News.

Those who framed street railway franchises 30 years ago, when horse cars were the vogue, did not, and could not possibly, anticipate the remarkable progress which the art of transportation was to make. Anyone with an open mind who today reads the provisions of these franchises—and Winnipeg's franchise is similar to others all over the country—will readily agree with that. And it is equally apparent that the first and primary purpose of such franchises was to secure first class adequate public service, because it was recognized then, as it is now, that anything less than adequate street car service would mean a blow to the commercial development of any community and the comfort and convenience of its citizens.

In Winnipeg, as elsewhere, the franchise is based upon service, and the spirit of the franchise requires that the price of the service must meet its cost. There may be certain stipulations in the franchise, made in good faith by those who sought to guard the interests of the public, but when time and development of the transportation art make these stipulations a factor in causing deterioration of the property and impairment of service and threaten inconvenience to the public and economic disturbance, the situation becomes one to be adjusted in the public interest.

Such an adjustment is being made in cities all over the continent by the adoption of a new franchise to meet the new conditions. This new franchise, or rather plan. is known as service-at-cost, and is already in operation in the following and other cities: Montreal, Chicago, Philadelphia, St. Louis, Cincinnati, Cleveland, Des Moines, Dallas, Buffalo, New Orleans, Louisville, Oakland, Youngstown.

When cities of this size and importance adopt service at cost for the operation of their street railways, in preference to any other plan, there must be some merit to the proposition.

The latest city to adopt he plan is Syracuse, following the report of an independent commission appointed by the authorities to endeavor to solve traction problems there and recommend a method to secure the most adequate and efficient railway service at the lowest cost.

Whenever service at cost has been tried, the results have proved highly satisfactory. The U.S. Federal Electric Railways Commission, appointed to find a national solution to street railway problems, reported unanimously in favor of service at cost recently.

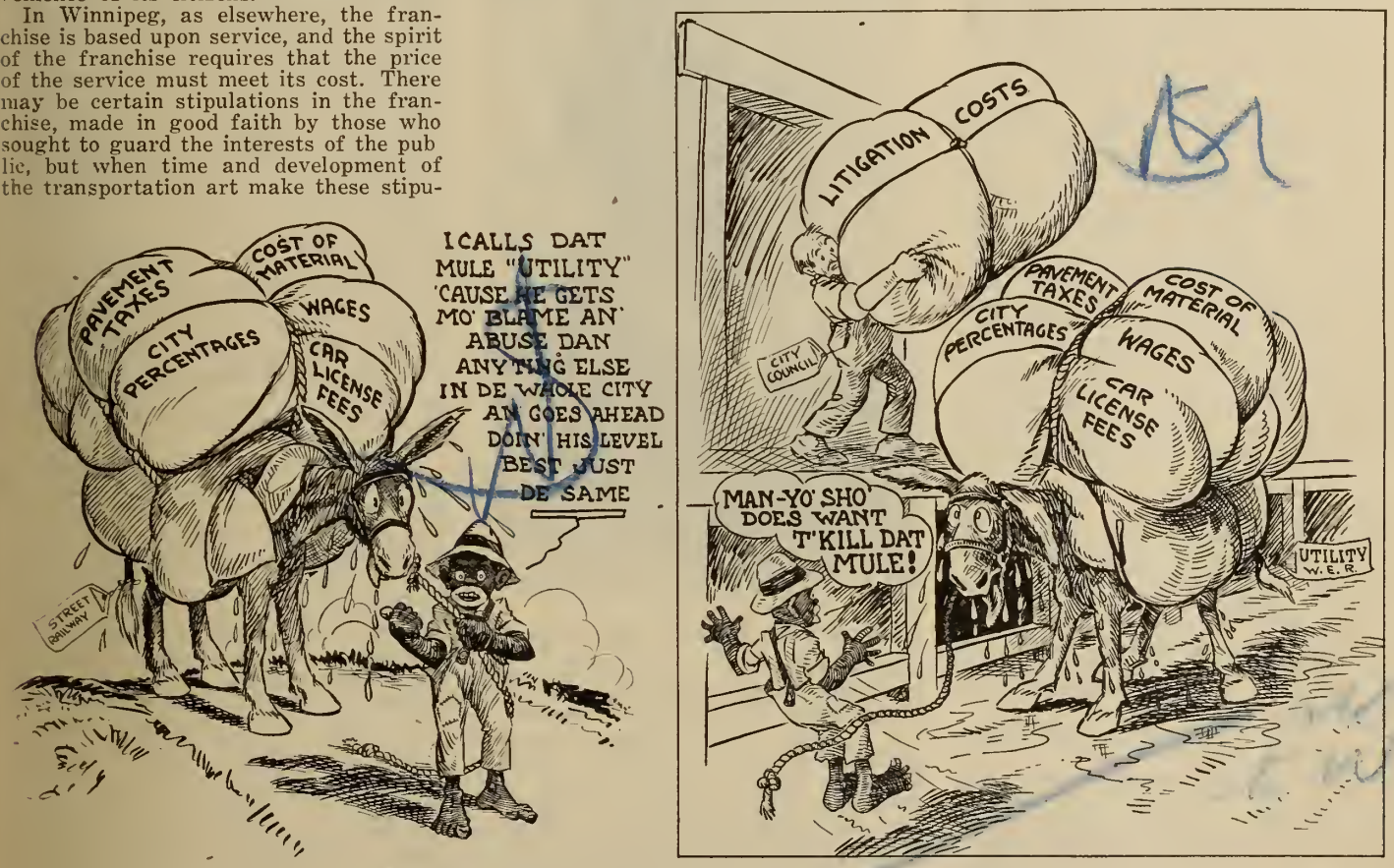
A New English Type of Tram-Car.

Bradford, Eng., has introduced a novel type of tram-car, which an English paper speaks of as follows:—It runs with or without rails, but takes electricity from overhead wires in the ordinary way. The first of its kind to be built possesses the quality of being adaptable to a permanent way, although in the main intended for the trackless route. It is steerable on the off-rail system, but hooks on with the permanent way by an iron shoe when necessary. The advantages of such a car will be at once apparent. The upkeep of permanent way is a disorganizing and expensive factor which tramway undertakings are called upon to face, the relaying of an important length of tram lines now costing something like £20,000 a mile. The working expenses of the new type of car may be slightly more than the ordinary tram-car, but against this fact must be placed the stupendous saving in the cost of laying a permanent track. One advantage of primary importance, and one which will make a cogent appeal to passengers, is the fact that the irritating delay not infrequently experienced by a hold up of a tram service consequent upon the breakdown of one vehicle would be nullified by the adoption of the railless car.

The new car is particularly distinctive by reason of its enclosed top deck, the provision of which is made practicable by a 7 ft. wheel case. A most graceful effect is rendered by the sides of the vehicle tapering towards the roof. The aim here, however, has not been aesthetic, but one of practicability, as such a feature tends to avoid the risk of collision when a sharp curve in the road would cause a wider roof to overhang.

The Guelph Radial Railway Situation.

Guelph, Ont., ratepayers on Jan. 1, by a vote of 1,152 to 472, approved of the new agreement between the city and the Hydro Electric Power Commission of Ontario respecting the Guelph Radial Ry. Under this agreement the city agrees to sell and the Commission agrees to buy all the assets, undertakings and property of every kind and nature belonging to the Guelph Radial Ry., or to which the G.R.R. is entitled in connection with its business, free from liability; that the consideration shall be $150,000, payable in instalments of $11,700 in each year for 20 years in half yearly payments on May 1 and Nov. 1, the first of such half yearly payments of $5,850 to be made on Nov. 1, 1921. The city agrees with the Commission to bear the cost of acquiring, equipping, operating, maintaining, repairing, renewing and insuring the railway and its property and works as established by the Commission, and also to issue debentures for $300,000, maturing in 50 years from the date of issue, bearing interest at 5% per annum, payable half yearly. The debentures shall be deposited with the Commission on the confirmation of the agreement, and to be held or disposed of from time to time by the Commission.


COST OF MATERIAL
PAVEMENT TAXES
WAGES
CITY PERCENTAGES
CAR LICENSE FEES
STREET RAILWAY
I CALLS DAT MULE "UTILITY" 'CAUSE HE GETS MO' BLAME AN' ABUSE DAN ANYTING ELSE IN DE WHOLE CITY AN GOES AHEAD DOIN' HIS LEVEL BEST JUST DE SAME
LITIGATION COSTS
CITY COUNCIL
MAN-YO' SHO' DOES WANT T'KILL DAT MULE!
UTILITY W. E. R.

These cuts are reproduced from the Winnipeg Electric Railway Public Service News.

Winnipeg Electric Railway Preferred Stock Issue.

The Winnipeg Electric Ry. Co. offered for subscription recently $3,000,000 7% cumulative stock, preferred both as to dividends and assets, at 90, yielding 7¾%, and carrying a common stock bonus of 30%. Following are extracts from the prospectus. The Winnipeg Electric Ry. Co. does a power, lighting and gas business, and operates the entire street railway system of the City of Winnipeg, consisting of 120 miles. It has a hydro electric development of 33,000 h.p. capacity, and an auxiliary plant of 13,000 h.p. In addition, this company controls a large undeveloped waterpower capable of 170,000 h.p. development capacity. The company's franchises are very satisfactory.

The company's properties (exclusive of the value of the large undeveloped water power), were valued by the Public Utilities Commission at $24,369,431. This replacement value is equivalent to over $450 a share for the preferred stock, or about $100 a share for the common stock.

Average annual net earnings for the three pre-war years ended Dec. 31, 1914 (which would have been available for dividends on the present issue of preferred stock), were $1,148,193. Average annual net earnings for the three years ended Dec. 31, 1919, under very adverse and war conditions, which would have been available for dividends on present issue of preferred stock, were $496,637. Preferred stock dividend $210,000, equal to almost two and one half times preferred dividend. Estimated net earnings for current fiscal year based on actual figures for first eight months are $630,000, equal to three times preferred dividend.

The Public Utilities Commission authorized the company to increase its street railway fares to 7c. cash or 4 tickets for 25c., and to increase the price of gas to $1.75 per 1,000 ft. as from Sept. 1, 1920, and made the following statement in connection therewith: "To ensure continuance of a satisfactory service the rate must be such as will be attractive to investors. In my judgment 8% is the proper rate to fix."

The company's management was taken over in Oct. 1917 by A. W. McLimont, who possesses a broad experience in the operation of Public Utility Companies. Since his inception as Vice President and General Manager, the company's progress both as regards the goodwill of its patrons and from an operating standpoint, has been very gratifying to all concerned.

The proceeds of this issue will be used to retire notes and bank loans. With these paid off it is expected that the company will be in a position to recommence payment of dividends to holders of its common stock within a reasonable time.

Ontario Hydro Electric Railway Enquiry.—The proceedings up to the end of Dec. 1920 of the commission appointed to enquire into the system of hydro electric radial railways proposed by the Hydro Electric Power Commission of Ontario, were dealt with fully in Canadian Railway and Marine World for January. The commission resumed its sittings in Toronto on Jan. 10 to 13, when W. G. Hewson, one of the H.E.P.C. of O.'s railway engineers was examined, and cross examined, at length, and a further adjournment was then made.

Among the Express Companies.

The Canadian National Ex. Co. has opened offices at Argolis, Mowat and Rosseau Road, Ont.

The Canadian National Express Co. offices at Pembroke, Ont., Ardill, Sask., and Spedden, Alta., have been closed.

The Board of Railway Commissioners passed order 30,550, Jan. 12, dismissing the complaint of the Canadian Fishermen's Association, which was heard at Prince Rupert, B.C., Oct. 6, 1920, against the Canadian Express Co.'s charges on net weight of fish in car loads, excluding

W. C. Muir,
General Manager, Canadian National Express Co.

allowance of 2½% for slime and ice adhering to the fish when weighed, which is by custom allowed to the fishermen.

G. E. Bellerose, whose appointment as Assistant to General Manager, Canadian National Ex. Co., Winnipeg, was announced in our last issue, was born at Penetanguishene, Ont., July 15, 1884, and entered transportation service in Mar. 1902, since when he has been, to May 1903, clerk, Car Service Department, G. T.R., Toronto; June 1903 to May 1904, clerk and messenger, Eastern Lines, Dominion Ex. Co.; May 1904 to Sept. 1909, messenger and agent, Western Lines, Dominion Ex. Co.; Oct. 1909 to Nov. 1911, chief clerk, acting agent, and messenger, British Columbia and Northwestern States, Great Northern Ex. Co.; Nov. 1911 to June 1915, messenger and station agent, Victoria, B.C., Nelson, B. C., and Calgary, Alta., Dominion Ex. Co.; July 1915 to Jan. 1917, messenger, Canadian Northern Ex. Co., Winnipeg; Feb. 1917 to Nov. 1920, Traffic Supervisor, Canadian Northern Ex. Co., and latterly Canadian National Ex. Co., Winnipeg.

James Bryce, formerly Vice President and General Manager, Canadian Ex. Co., died at Montreal, Jan. 5. He was born at Galt, Ont., Mar. 30, 1846, and was, from 1860 to 1868, operator at various points in Ontario, Great North Western Telegraph Co.; 1868 to 1870, agent, American Ex. Co., Dundas, Ont.; 1870 to 1877, chief clerk, same company, Hamilton, Ont.; 1872 to 1877, joint agent, Canadian Ex. Co. and American Ex. Co., Guelph, Ont.; from 1877 to 1882 he was in manufacturing business; 1882, cashier and chief clerk, Canadian Ex. Co. and American Ex. Co., Toronto; 1882 to 1889, Superintendent, Canadian Ex. Co., St. John, N.B.; 1889 to 1896, Superintendent, Canadian Ex. Co., Montreal; 1896 to 1901, Manager, Canadian Ex. Co., Montreal; 1901 to 1911, Vice President and Manager, Canadian Ex. Co., Montreal. He retired on a pension in 1911, and had been in poor health for over a year.

The British Columbia Ex. Co., which, it is reported, has decided to relinquish business, was founded by the late F. J. Barnard, in 1861. It is stated that transport was, at that time, accomplished by the founder, on foot, taking letters from Yake to Soda Creek, and from there to Quesnel by canoe, at $2 each. In 1862 he put on the first pony express, consisting of a small horse, which carried the mail on its back. In 1863, a light wagon, with two horses, was placed in service, a road having been built by the Government, and in 1864, the first four horse stage was run, connecting with the North Fraser River canoe service at Soda Creek. The company subsequently developed considerably, and, until recently, three steamboats were operated on the Upper Fraser River, between Soda Creek and Fort George, but since the building and operation of the Pacific Great Eastern Ry. the traffic has left the boats for the track. The last of the company's steamboats is stated to have been dismantled recently, for transportation to the Mackenzie River, where she will be operated in taking men and materials into the new oil fields.

Dominion Express employes in Montreal offices were accorded the privilege of attending the annual New Year's ball held under C.P.R. auspices in the concourse and general waiting room, Windsor St. station, New Year's eve. The waiting room was decorated with the allies flags and the lights were all shaded with red draperies. A number of the staff took advantage of the occasion and had a most enjoyable evening. They also enjoyed the privilege of being presented to President Beatty, who received and shook hands with the majority of those attending the dance. After the departure of all trains out of the station at 10.30 p.m., moving pictures were shown on a screen erected inside the concourse. Promptly at 12 o'clock, Father Time was ushered in, sitting on the front of a miniature locomotive, a replica of the original Countess of Dufferin, the first locomotive used by the C.P.R. in the west. On the tender of the engine were three men attired in the costumes of cowboy, Indian and farmer respectively, all three singing Auld Lang Syne and other popular songs. After the blowing of whistles and trumpets heralding in the New Year, supper was served in the luncheon room and buffet. The dance opened officially at midnight and closed at 2 a.m. Promptly at two, the function terminated with the singing of O, Canada, and God Save the King.

This evening will surely linger in the minds of all those who were privileged to be present as an occasion when fellow-workers and their friends meet for a few hours of light fantastics to drive away business cares for the time being and create a more sincere feeling of good fellowship among all concerned for the best interests of both employer and employe.

Marine Department

Launching of Canadian Pacific Ocean Services' s.s. Montrose.

The launching of the twin screw, geared turbine s.s. Montrose, for the C.P.O.S. at Govan, Glasgow, Scotland, on Dec. 14 by Fairfield Shipbuilding & Engineering Co. was mentioned in Canadian Railway and Marine World for January, since when additional particulars have been received. The christening was performed by Lady Raeburn, of Auchengower, Helensburgh, wife of Sir Ernest M. Raeburn, K.B.E., who has been appointed C.P.O.S. General Agent for Scotland, the duties of which he assumed on Jan. 1, 1921. The C.P.O.S. was represented by Sir Thomas Fisher, K.B.E., R.N., General Manager; Hugh R. Macdonald, Naval Architect; Wm. Baird, General Passenger Agent; Capt. D. H. Pearson, Publicity Agent; Eng.-Admiral C. W. Roome, Chief Superintendent Engineer; J. R. Crawford, acting Agent, Glasgow; and W. Stewart, General Agent, Glasgow.

Description of Ship.—The Montrose's principal dimensions are:—Length over all 575 ft., between perpendiculars 566 ft.; breadth 70 ft., depth from boat deck 68 ft., from shelter deck 43¼ ft.; gross tonnage 16,250. She is of the shelter deck type, with a bridge deck extending almost the full length. Acommodation is provided on the bridge and shelter deck amidships for 458 cabin passengers in the staterooms arranged for 2 and 4 berths. Permanent accommodation for 450 third class passengers is provided for in 2 and 4 berth rooms, also portable accommodation for an additional 850 third class passengers, if required. The cabin dining saloon is on the upper deck, and has seating accommodation for 312. The remaining public rooms, situated on the promenade deck, consist of smoking room, drawing room, long passage, library, lounge, card room and writing room. A large portion of the promenade deck can be screened off and illuminated with electric clusters. A spacious lounge extending the full breadth of the ship on the bridge deck is provided for third class passengers, also smoking rooms, entrance halls, etc. The ship will also be fully equipped with hospitals, dispensaries, and an operating theater, with surgical appliances. All the cabin accommodation and public rooms are heated by steam radiators, and ventilated by natural inlets, and the public rooms are also ventilated by mechanical extraction. The third class accommodation is heated and ventilated on the thermo tank hot air system, and the public rooms are heated on the thermo tank hot air system, and ventilated by mechanical extraction. The lifeboats have a capacity for all on board, and are operated by Babcock & Wilcox patent Wylie davits, and the Australis davits, all worked by electric boat winches. The emergency lifeboats are hung on ordinary davits, with hand turning gear and electric boat winches. The doors in the watertight bulkheads are operated by hydraulic system, which permits of the doors being worked locally or from the navigating bridge. Wireless telegraphy plant, submarine sound signalling apparatus, and a Sperry gyro compass are part of the ship's equipment.

The propelling machinery will consist of two sets of Brown-Curtis turbines, driving twin screws through double reduction gearing. There will be three turbines in each set, the high pressure and intermediate pressure turbines being coupled together in tandem, driving one first reduction pinion of the gearing, and the low pressure turbine driving the other first reduction pinion. A high pressure astern turbine will be incorporated in the same casing as the intermediate pressure ahead turbine, and a low pressure astern turbine incorporated in the same casing as the low pressure ahead turbine. The boiler installation will consist of 10 single ended cylindrical return tube boilers, designed to burn oil fuel in conjunction with forced draft, and fitted with superheaters capable of superheating the steam at the high pressure turbine inlet to 200 degrees F. Provision has also been made for readily converting the boilers to coal burning if required. Special consideration has been given to the design of the auxiliary machinery to economize the consumption of steam for propelling purposes, and to suit the requirements of the passenger service in which the ship will be engaged.

Dominion Marine Association.

President, A. A. Wright, Vice President and General Manager, Davie Shipbuilding & Repair Co., and Tidewater Shipbuilders Ltd., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Speeches at the Luncheon.

At the luncheon given by the builders after the launching, Robt. Traill, one of the Fairfield Co.'s directors, who presided, in proposing "Success to the Montrose and the C.P.O.S., and good health to Lady Ernest Raeburn," said the Montrose was the tenth ship that the Fairfield Company had built for the great Canadian Pacific Ry. Co. She was known as an intermediate ship, or rather of a type not quite so luxurious as the Empress of Canada, which was fitting out alongside the Montrose. She would be a large passenger carrying steamship, carrying no less than 520 first class, and about 1,650 emigrants. Her tonnage would be 16,250, so they would see she would be no mean vessel; they hoped she would carry out a lot of good work, bring prosperity to the C.P.O.S., and would be the forerunner of more orders to the Fairfield Co. in the future. There was always in these difficult times regret when a ship was launched, as orders were very difficult to obtain, and the berth would not be very easily filled. Shipowners, naturally, were concerned at the very high costs at present, and it was very difficult to perceive where reduction was to come from. So high had costs become that many of the first class companies had cancelled very large orders, and their company, along with other shipbuilding companies, had suffered very greatly in that respect. The building of two very large liners, almost as large as the Montrose, had been cancelled, and there was a prospect that others might be stopped or cancelled also. That was a very serious consideration. A few days before he attended a dinner given by he foremen engineers in Glasgow, over which the Duke of Atholl presided. The Duke made a speech referring chiefly to the economic situation, and particularly as he was addressing the foremen of Clyde shipyards, he referred to the difficulty of the labor situation. He emphasized particularly what is known as the "ca' canny" policy. Probably all present did not know what that meant. It meant that workmen were not exerting themselves to the utmost, with the result that the value of labor had gone down very considerably, and they were not getting from workmen the reward that they ought to get from the high wages they were paying. Recently he had occasion to emphasize the point that the Duke of Atholl brought out in his speech. He had the opportunity of comparing the costs of engines built immediately pre-war with an exactly duplicate set of machinery finished at the beginning of this year. The labor cost should have been two and three-quarter times the pre-war figure. It made a curious comparison; the cost was divided into two sections; first that carried out by men on piece or contract, and the other portion was time workers. The cost of the portion built on piece worked out exactly in accordance with the rise in the wages; that was, two and three-quarter times the pre-war cost. The figures for the men working on time was four and a half times, so they saw there a clear proof of what was known as the "ca' canny" policy, that they were not getting value for the amount of money given in wages to the workmen. Happily he thought there was every indication that the saner element in the trade union movement appreciated the fact, and he thought that in the near future they would agree to contract on piecework. Piecework was not very prevalent on the Clyde, and if it were introduced it would not only keep their costs down, but would give a very much higher reward to labor. They were anxious that working men should earn as much as they physically could, and the better class of workman should be able to get a sufficient reward for his extra exertions and skill. But the trade union

movement in Great Britain was such that all men were supposed to be on one level, and the good and the bad should get the same wages. Another distressing feature at present was that in certain trades, he referred to moulders, they had great difficulty in obtaining castings for their engines. Without castings they could not get on; the moulders were on strike for four months and this strike terminated at the beginning of this year. They had never been able to make up the leeway, and the engines cost more money; but the moulders persistently refused to work on piece, and they would not work any overtime. Where did the brotherly love come in? Thousands of workmen were thrown out of work because castings could not be obtained, yet the moulders absolutely refused to help their fellows to get any castings. He thought that was a very deplorable state of affairs. He was showing Sir Thomas Fisher during lunch a letter which was received by a shipbuilding firm with which he was connected, stating that unless some means were found whereby costs could be reduced, the writers would be compelled to cease their continuous programme of building with that firm. This shipbuilding firm had had continuous orders for a series of years, building one ship after another, but they said that unless they could get some guarantee they were not prepared to place any more orders. He did not know what Sir Thomas Fisher would tell them on that subject, whether the C.P.O.S. intended to order more ships or not, but the fact remained that all the large liner companies would require to build in the future.

He had occasion the previous evening to read a paper which was given at one of the scientific societies, and he was comparing the amount of tonnage afloat now and pre-war, and he saw what rapid strides the United States had made. At present in tramp tonnage, there were 17,500 ships, with a total tonnage of 3,-250,000 tons. Pre-war there was only 15,000 ships with 2,500,000 tons, so that at present there were 750,000 tons of tramp shipping afloat carrying cargo more than in 1914. That increase in tonnage was entirely owned by the U.S. That seemed to him a very serious consideration for shipowners in Great Britain. Turing again to the liners and intermediate ships of higher classes carrying passengers, he found the reverse was the case. In 1914 there were 3,100 ships of the liner type with a total tonnage of 13,350,000 tons. Today there was 2,470 such ships, which was 630 less than they were in the pre-war days, with a tonnage of 1,200,000 tons. It appeared to him that, sooner or later, that tonnage would have to be made up, and, in addition to that, the natural increase which occurred from year to year in the number and size of ships would make a shortage somewhere in the neighborhood of 2,000,000 tons. Now, if labor and material were stabilized and brought into reasonable bounds, he thought that the large liner companies would have to build. It seemed to him that at present the companies seemed so horrified at the huge costs that they declared they were not able to build ships that would be a commercial venture, with freights and expenses such as they were today. On behalf of his co-directors, he desired to thank Lady Raeburn for the great honor she had done them in coming there to launch the Montrose, and he would ask her to accept a small souvenir of that occasion, viz., a diamond pendant.

Sir Thomas Fisher, K.B.E., R.N., General Manager, C.P.O.S., in responding, said in the absence of Sir Ernest Raeburn it fell to him to thank the Fairfield Co. on behalf of Lady Raeburn for the very beautiful souvenir they had presented to her. It was a great pleasure to him personally that the first ship launched for the C.P.O.S. since Sir Ernest Raeburn's appointment as their agent in Scotland should have been launched by Lady Raeburn. His only regret was that Sir Ernest was not there to enjoy the launch and the reception. He had been acquainted with Sir Ernest for three years during the strenuous times of the war, and he knew the excellent work he had done for the country in the U.S. No member of all the British missions sent out there during the war had made more personal friends than Sir Ernest, and he was sure that now that he had come to their company he looked forward to the time when they would be operating between Scotland and Canada on a far greater scale than at present. Mr. Traill had given them a most interesting account of the labor situation as he saw it today. He endorsed all that Mr. Traill said, with one exception. He thought their chairman was too optimistic in his reference to the shortage of passenger steamships. It must not be forgotten that the passenger business was not like the freight business. A passenger, especially a tourist, did not travel if the cost was too high for him, and from what he could hear and learn from his own business and talking to others there had been a real falling off in what might be called tourist traffic, and seeing that the tourist taxation was very high in all countries he thought they must recognize that the tourist traffic was more or less gone. In future the passenger liners would have to look to business men and emigrants; for this reason, there were more and enough of liners built and under construction to cover the requirements of the world during the next few years, and he was afraid that the shipbuilding industry of this country was in for a very bad time. Indeed, when he last had the pleasure of being present at a gathering of that kind in the Fairfield works he referred to the fact that in his opinion it would be necessary for shipping companies to simplify the ships they were constructing for the passenger trade, and the Montrose would carry only two classes of passengers. He felt sure she was the right type of ship. There was only one feature in which she fell short of the ideal of what a modern passenger liner should be; she was, unfortunately, to burn oil. He held that that was a waste, for oil should be consumed in an internal combustion engine, but their engineers had not made sufficient advances to justify them in that direction. The ship was 16,000 tons odd, designed to have a speed of 16½ knots at sea. They estimated she would leave Liverpool on a Friday afternoon, and would without fail discharge her passengers at Quebec on the early morning of the following Friday. She would reach Quebec during the night, and get her passengers on shore at the most comfortable time of the morning.

These ships of the type of the Montrose—which he thought were being constructed pretty largely by other companies—cost in the neighborhood of £1,-500,000. They would only be operated successfully if they could turn them round quickly and fill them reasonably full with passengers and cargo on every voyage. It was quite impossible to make a success of a ship of that type if they fell short of cargo or had to delay the ship on account of cargo. Before the war the most progressive and successful shipping companies were, he was afraid, to be found in Germany, and he believed their great success was due to the quick despatch which they gave their ships in their ports, thereby enabling them to earn more money, especially with the constant flow of third class emigrant traffic which they were able to divert to their ships at Hamburg. They were not in the same position in this country as regarded their emigrants. The British emigrant was a more intelligent and self reliant man than the man on the Continent. Their emigrants went to the new country in the spring of the year; fortunately they mostly went to their own Dominions, and not to the U.S., but this thing, fortunate as it was for the Empire, was bad for the shipping companies. It was almost impossible to see how such ships as the Montrose were going to be made to pay unless they could get third class traffic in the off season as well as in the season when the British emigrants were moving overseas. They felt that it was absolutely essential to the success of the company operating from Liverpool that they should have continental emigrants. They could only get those emigrants in competition with the continental lines if all concerned, railway companies, Government officials, port authorities, and others interested in the transport of the emigrants gave them assistance. They all wished to take away or inherit the trade which Germany had lost by handing over their ships to them, but it would be very much better for British companies that they should take over that trade by ships running from their own ports rather than British ships should be sent to German or other continental ports. In particular he referred to the inadequate facilities provided at the port of Liverpool. Unless improvements were made it was really impossible to hope that they would be able to hold that trade, and they looked with confidence to the Liverpool authorities improving the facilities of their port while there was time. If they did not avail themselves of that opportunity of improvement in the coming spring, it would not occur again, because the Germans would have restarted. So much for the necessity of doing everything possible to encourage the third class emigrant in the off season.

Another important feature of a ship of the Montrose type was that no less than 30% of her earnings during the year was estimated to be taken from freight. In order to get the full earnings from freight they had to delay the ship. They had decided that the ship must run on a monthly turn round, but that meant, under present labor conditions shutting out 2,000 tons of cargo every voyage, which represents a loss of gross revenue of £70,000 a year. On the other hand, if they put her on a five weeks service it would even be more than £75,000. Every week such a ship was held in harbor there was an interest and depreciation charge on capital alone of £3,500. To make such a ship a success something had to be done to obviate the shutting out of cargo now caused by the present labor conditions. If the unions would only see that by working a machine, or a ship, 24 hours out of 24 they were benefiting themselves by reducing the amount which capital took out of the industry, there would be a very much better prospect in the ship-

ping and other trades.

He was very pleased to see the announcement in the press that the engineers had recognized this principle, to work three shifts, and he hoped it would spread to other industries. They felt it necessary to have the shift system in shipping. They made an offer to the Dockers' Union that they would try it experimentally under any safeguards which they might care to suggest. If it did not succeed the dockers were none the worse off, and if it succeeded it could be extended as circumstances dictated. Under the present system of the 8-hour day, mitigated by overtime, he was told that 11,000 dockers in Liverpool received not less than £4 a week, and 5,000 got under £2 10s. a week. Double shifts would tend to equalize matters, the general standard would be raised, and more employment would be found for men, certainly in the case of the regular liners, about which he was speaking. It was not possible to over-estimate the importance of the experiment in shift working at Liverpool now when the docks were not congested, having regard to the time when the docks might become congested. In dock congestion only two remedies were possible—one to work the existing facilities during more hours, which could only be done under the shift system, or to extend the facilities which at present would involve the borrowing at a very high rate of interest. The position at Liverpool would certainly become extremely serious when a revival of trade occurred. It was not too much to say that the very existence of the entrepot trade was bound up with the question of the prompt despatch of steamers and efficient and economical handling of goods in the ports. He would respectfully suggest that the importance of the question was such as to call for the intervention of the Minister of Transport to bring the various parties together, and to find a solution which would enable the industry to go forward in the future as it had done in the past. If no improvement could be made he greatly feared that very few more orders would be placed on the Clyde for a long time for ships of that type. But his confidence in British common sense was such that he was sure they would find a way out of the difficulties.

The Head Line Steamship Co.'s Canadian Business.

The Belfast agent of the Ulster Steamship Co., referring to reports regarding unsettled conditions in Ireland, states that business has been carried on practically unhindered. He says: "We think you are already aware of our Head Line Service, which has been in existence for many years, and pre-war was under subsidy from the Canadian Government for the winter service from St. John, N.B., to Belfast and Dublin. We maintained our trade from Canada throughout the war under serious disadvantages, and our sailings have now been practically resumed, giving at least a fornightly service from Montreal to Belfast, and every three to four weeks to Dublin. The logical centers for distribution in Ireland have been found to be Belfast and Dublin. At Cork we find it impossible to do business, although we have repeatedly endeavored to berth steamers to that port before the war. For instance, Cork merchants would not receive Canadian flour. They insisted on wheat imports, which could be milled on the spot, and other similar prohibitions made a regular service with Cork impossible.

"By our steamship which arrived at Belfast from Montreal on Oct. 23, we had cheese shipments valued at about £12,000. Our agents, McLean Kennedy, Ltd., Montreal, have been most energetic and successful in getting exporters of Canadian products in touch through us with importers on this side and shortly after starting our steamship service we sent out one of our staff, F. C. Thompson, established him at Toronto in order to get in touch with all shippers of all classes of goods to Ireland; and we are glad to say his efforts have also been very successful in promoting Canadian trade with this country. We have had considerable shipments of British Columbia wood via our line from Montreal. Our agents, McLean Kennedy, Ltd., are in constant touch with a view to development of this traffic, bringing the goods from the west by rail."

Dominion Coal Co.'s Additions to Fleet.

The Dominion Coal Co. has bought the steamships Kamouraska, 8,000 d.w. tons; and Rose Castle, 12,000 d.w. tons; from Laurentian Steamship Co. and Lewis Steamship Co., respectively, both of Liverpool, Eng. A controlling interest has also been bought in the Norwegian collier steamship Daghild, 12,500 d.w. tons. All three ships were built specially for the Dominion Coal Co. and the Dominion Iron & Steel Co.'s coal and ore trade.

The s.s. Kamouraska was built at Low Walker, Eng., in 1911, of steel, and has the following dimensions,—length b.p. 375 ft., breadth 52 ft., depth 28.1 ft.; tonnage, 4,903 gross, 2,673 net. She is screw driven by engine of 488 h.p.

The s.s. Rose Castle was built at Sunderland, Eng., in 1915, of steel, and has the following dimensions,—length b.p. 455 ft., breadth 58 ft., depth 31.1 ft.; tonnage, 7,546 gross, 4,351 net. She is screw driven by engine of 606 h.p.

Both ships were for some time under charter to the Dominion Coal Co., and were used in war service, the charters being suspended meanwhile. They were returned to charter service recently on being reconditioned.

Great Lakes Levels.

The United States Lake Survey reports the monthly stages of the Great Lakes in feet above mean sea level for Dec. 1920 as follows:—Superior, 602.25; Michigan and Huron, 580.12; St. Clair, 574.77; Erie, 571.89; Ontario, 245.40.

Lake Superior was 0.23 ft. lower than November 1919, 0.08 ft. lower than Dec. 1919, 0.05 ft. below the average December stage of the last 10 years, 0.88 ft. below the high stage of Dec. 1916, and 1.05 ft. above the low stage of Dec. 1879.

Lakes Michigan and Huron were 0.18 ft. lower than Nov. 1920, 0.04 ft. lower than Dec. 1919, 0.01 ft. above the average December stage of the last 10 years, 2.46 ft. below the high stage of Dec. 1876, and 1.12 ft. above the low stage of Dec. 1895. During the last 10 years the December level has averaged 0.2 ft. lower than the November level, and 0.2 ft. higher than the January level.

Lake Erie was 0.06 ft. lower than Nov. 1920, 0.02 ft. higher than Dec. 1919, 0.15 ft. above the average December stage of the last 10 years, 1.64 ft. below the high stage of Dec. 1885, and 1.03 ft. above the low stage of Dec. 1895. During the last 10 years the December level has averaged 0.1 ft. lower than the November level, and 0.1 ft. higher than the January level.

Lake Ontario was 0.17 ft. higher than Nov. 1920, 0.34 ft. lower than Dec. 1919, 0.06 ft. below the average December stage of the last 10 years, 2.21 ft. below the high stage of Dec. 1861, and 1.97 ft. above the low stage of Dec. 1895. During the last 10 years the December level has averaged 0.2 ft. lower than the November level, and about the same as the January level.

Newfoundland Steamship Services.

The steamship services operated formerly by the Reid Newfoundland Co., are now managed by the Newfoundland Government Railway Commission, and comprise the following:—

S.s. Argyle, 439 tons gross, 199 tons net, two trips a week in Placentia Bay. Connects with railway at Placentia.

S.s. Clyde, 439 tons gross, 199 tons net, weekly trips between Port Union and La Scie, via Lewisporte.

S.s. Earl of Devon, 194 tons gross, 84 tons net, weekly trips between Lewisporte and Cook's Harbor.

S.s. Glencoe, 767 tons gross, 336 tons net, weekly trips, southwest coast service, between Placentia and Port aux Basques.

S.s. Home, 439 tons gross, 200 tons net, weekly trips on north side of Notre Dame Bay.

S.s. Kyle, 1,055 tons gross, 548 tons net, tri-weekly trips between Port aux Basques and North Sydney, N.S.

S.s. Meigle, 836 tons gross, 427 tons net, weekly trips between St. John's and North Sydney, N.S.

S.s. Petrel, 346 tons gross, 199 tons net, two trips a week in Trinity Bay. Connects with railway at Clarenville.

S.s. Sebastapol, 321 tons gross, 150 tons net, Belle Isle Straits, weekly trips from Humbermouth.

S.s. Sagona, 808 tons gross, 420 tons net, Labrador service, from St. John's every three weeks, touching principal points in Trinity, Bonavista and Notre Dame Bays, thence to Battle Harbor and all ports of call north to Hopedale and Nain.

S.s. Senef, 321 tons gross, 150 tons net, south side of Notre Dame Bay, weekly trips from Lewisporte.

S.s. Watchful, 378 tons gross, 139 tons net, Bonavista Bay, weekly trips from Port Blandford.

R. G. Reid, Vice President, Reid Newfoundland Co., visited England last year, wih a view to obtaining some additional steamships, but, up to the present, he has been unsuccessful in getting any suitable for the service.

Re-imposition of Canal Tolls.—Ottawa press dispatch, Jan. 18.—While the resuscitation of canal tolls may be considered, with a view to adding to the revenue, as suggested in an Ottawa newspaper this morning, it does not seem likely at present that any such plan will be put in effect this year. Hon. J. D. Reid, Minister of Railways and Canals, today expressed doubt as to whether Canada would not lose, instead of gain, by the application of tolls to the canal system. If tolls were to be re-applied, much traffic would simply be diverted through United States canals, which are free, to the detriment of Canada.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Keels Laid.—We have been advised of the laying on Jan. 6 of keels for two steel cargo steamships for Canadian Government Merchant Marine, viz., s.s. Canadian Transporter, and Canadian Freighter; Marine Department contracts 62 and 63; builder's yard nos. 20 and 21; each approximately 8,390 d.w. tons, by J. Coughlan & Sons, Vancouver, B.C.

Deliveries of Steamships. — The s.s. Canadian Sapper; Marine Department contract 59; builder's yard no. 8; approximately 2,800 d.w. tons, was, as stated in Canadian Railway and Marine World for January, delivered to the Marine Department by the Nova Scotia Steel & Coal Co., New Glasgow, N.S., Dec. 18, 1920. She was transferred to Canadian Government Merchant Marine at Pictou, N.S., going from there to Halifax, N.S., where she loaded a general cargo for Newfoundland and sailed, Dec. 28, arriving at St. John's Dec. 31. She is continuing to run between Halifax and St. John's.

The s.s. Canadian Commander; Marine Department contract 52; builder's yard no. 79; approximately 8,390 d.w. tons, was delivered provisionally to the Marine Department, by Canadian Vickers Ltd., at Montreal, Dec. 21, 1920, subject to satisfactory trials at the opening of navigation next spring, after which she will be transferred to Canadian Government Merchant Marine for operation.

West Indian Services.—The Canadian Government Merchant Marine has commenced a regular service from Halifax, N.S., to Nassau (Bahamas), Kingston (Jamaica) and Belize (British Honduras), the first sailing being by the s.s. Canadian Fisher on Jan. 15. This will be followed by the s.s. Canadian Forester on Feb. 3, and from then on there will be a sailing every three weeks. Each of the ships mentioned has accommodation for 30 passengers and a large freight carrying capacity.

The passenger fares one way are as follows:—

	First class.	Deck.
Halifax, N.S., and Nassau, Bahamas	$ 90	—
Halifax and Kingston	125	—
Halifax and Belize	200	—
Nassau and Kingston	35	$ 8
Nassau and Belize	110	21
Kingston and Belize	75	13

Canadian war tax five cents on every $5 or fraction thereof on all tickets issued in Canada. Also on all orders issued outside of Canada, calling for transportation from Canada. On return tickets issued in Canada, Canadian war tax is chargeable on southbound portion only, i.e., the single fare. A deposit of 25% of the passage fare for each person is required to engage a berth or stateroom, and full amount of passage must be paid 14 days before sailing. Accommodations are not considered finally engaged unless secured by such deposit or payment in full.

Staterooms are numbered 1-10 inclusive and have two berths in each, one upper and one lower. Passengers desiring exclusive use of staterooms will be charged two fares. Suites are lettered A and B, and consist of bedroom with two berths, parlor with sofa, and private bathroom, and will be sold at four fares.

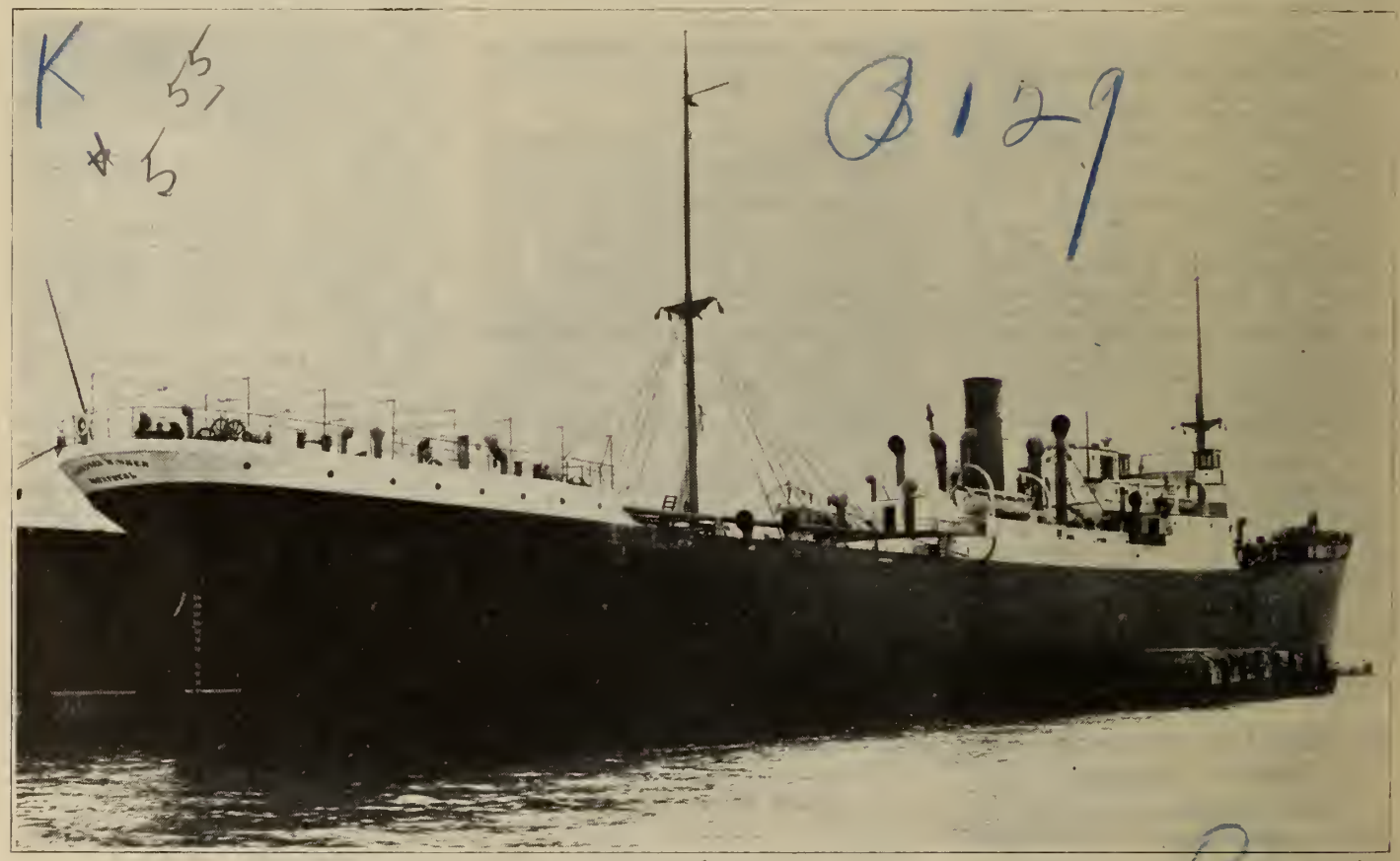
Intermediate Steamship Fares, Etc.—The following are minimum first class fares for three persons in each stateroom. If exclusive use of stateroom is desired, 2½ fares will be collected.

United Kingdom—	
Between Montreal, St. John or Halifax and any port in United Kingdom	$125
South America—	
Between Montreal and Rio de Janeiro	225
Between Montreal and Santos	225
Between Montreal and Montevideo	255
Between Montreal and Buenos Aires	260
Between Halifax or St. John and Rio de Janeiro	195
Between Halifax or St. John and Santos	200
Between Halifax or St. John and Montevideo	230
Between Halifax or St. John and Buenos Aires	235
India via Mediterranean and Suez—	
Between Montreal and Bombay, India	400
Between Halifax or St. John, N.B., and Bombay	375
Australia and New Zealand via Pacific—	
Between Vancouver, B.C., and Auckland, New Zealand via direct steamer	168
Between Vancouver, B.C., and Sydney or Melbourne, Australia, via direct steamer..	200

$5 war tax on each ticket issued in Canada.

Children's Fares.—United Kingdom.—One year and under 10, half fare. Infants $11. South America.—Children 10 years and over, adult fare. Children 4 years and under 10, half fare. Children one year and under 4, quarter fare. One child under 1 year old, free, and each additional child under 2 years of age, quarter fare. India via Mediterranean and Suez.—Twelve years and over, adult fare. Two years and under 12, half fare. One child in each family under 2 years, free, and each additional child under 2, quarter fare. Australia and New Zealand via Pacific.—Two years and under 12, half fare. Each child under 2 years, 10% of minimum fare with no berth provided.

Each of the following steamships have two staterooms, each fitted with two berths and sofa, latter of which can be used as bed if necessary. In addition there is a smoking room, and a dining room. The figures give the d.w. tonnage: Canadian Conqueror, 8,350; Canadian



Steel cargo steamship Canadian Winner, approximately 8,390 d.w. tons, built for Canadian Government Merchant Marine Ltd., by Harbour Marine Co., Victoria, B.C.

Victor, 8,350; Canadian Spinner, 8,350; Canadian Planter, 8,350; Canadian Mariner, 8,100; Canadian Explorer, 8,100; Canadian Prospector, 8,100; Canadian Highlander, 8,390; Canadian Exporter, 8,100; Canadian Traveller, 8,100; Canadian Inventor, 8,100; Canadian Winner, 8,100.

Fire on s.s. Canadian Pioneer. — A London, Eng., copyright cable of Jan. 13 to the Montreal Gazette says that fire breaking out in the bunkers of the s.s. Canadian Pioneer while she was en route to Colombo, Ceylon, recently, caused a total damage of over $30,000.

Ojection to the C.G.M.M. Flag. — Berne, Switzerland, press dispatch, Jan. 20.—The announcement just made here that the Canadian Government has introduced a merchant marine flag showing a white cross encircled by a ring on a red ground has caused consternation. The Swiss flag is a white cross on a red ground, but without any ring around the cross, and the Swiss press and public are asking their Government whether Canada cannot be prevented from having a merchant marine flag so closely resembling the Swiss flag, especially as Switzerland hopes one day to have her own merchant marine, in view of her long cherished project of having a canal connecting Marseilles with Lyones and Geneva, and also utilizing the Rhone. Switzerland likewise wants to establish shipping connections with Antwerp by the Rhine, while Italy is planning to connect Venice and the Upper Adriatic with the great Alpine passes by means of the River Po and Lake Magiore, one end of which is in Switzerland. Before the war German manufacturers once got into the habit of using the Swiss national colors for various toilet articles, but the Swiss Government protested and the custom was abandoned. It is suggested that this new grievence is one which might be carried to the League of Nations, but it is possible that the Swiss Government will merely make friendly representations to Canada.

Editor's Note.—From the remark that the Swiss are asking their Government "whether Canada cannot be prevented from having a merchant marine flag so closely resembling the Swiss flag," it is evident that those complaining have been misinformed as to the G.C.M.M. flag. As mentioned and illustrated in Canadian Railway and Marine World for January, Canadian Government Merchant Marine has adopted as a new house flag, a pennant, showing a red cross bordered with white, on a blue ground, with a white circle in the center of the cross, on which is a maple leaf in natural colors. The Swiss flag is of the ordinary size and type, and shows a Greek cross in white, in the center, on a red ground. There is nothing whatever in the two flags, either in shape, design or chief coloring, by which either could be mistaken for the other.

Canadian Vickers Ltd., Montreal, delivered the steel cargo steamship Canadian Commander, Marine Department contract 52; builder's yard no. 79; approximately 8,390 d.w. tons, to the Marine Department Dec. 21, 1920, provisionally, subject to satisfactory trials on the opening of navigation next spring, after which she will be transferred to Canadian Government Merchant Marine for operation.

J. Coughlan & Sons, Vancouver, B.C., laid the keels on Jan. 6 for two steel cargo steamships for Canadian Government Merchant Marine, viz., s.s. Canadian Transporter and Canadian Freighter; Marine Department contracts 62 and 63; builder's yard nos. 20 and 21; each approximately 8,390 d.w. tons.

Tidewater Shipbuilders Ltd., Three Rivers, Que.—The passenger accommodation with which the steamships Canadian Fisher and Canadian Forester, built by this company, are being equipped by Halifax Shipyards Ltd., include a dining room on the upper deck, 46 x 22 ft., with one table for 10 persons, and 4 tables for 4 persons each, a total seating capacity of 30; saloon on the bridge deck 30½ x 13 ft., smoking room 18 x 9 ft., 2 suite rooms, with living room 10 x 8 ft., bedroom 10 x 8 ft., and bathroom 7 x 7 ft.; 10 staterooms, 4 of which are 8½ x 6½ ft., 6 being 8 x 6½ ft., and 3 bathrooms, each 5½ x 6½ ft., each with w.c., and also one w.c. on the upper deck.

Prince Rupert Dry Dock & Engineering Co., Prince Rupert, B.C.—At a meeting of creditors at Prince Rupert, Jan. 6, W. E. Hodges was appointed receiver, and M. P. McCaffrey, G. W. Nickerson and D. G. Stewart, Prince Rupert; —. McIllivary, Vancouver, and —. Cantwell, the last mentioned representing eastern creditors, were appointed an inspection committee in connection with the liquidation. Mr. Justice Macdonald, sitting as a judge in bankruptcy at Vancouver, Jan. 6, declined to interfere with the selection of a receiver, on the objection of a Prince Rupert creditor, who favored the appointment of the Canadian Credit Men's Trust Association, and confirmed the appointment. The statement of affairs presented showed liabilities of approximately $800,000.

The Marine Department has made arrangements with the Wallace Shipbuilding & Dry Dock Co., North Vancouver, for the completion of the two steel cargo steamships, Marine Department's contracts 42 and 43; builder's yard nos. 1 and 2, Canadian Reaper and Canadian Thrasher, 8,100 d.w. tons each, under construction by the Prince Rupert Dry Dock & Engineering Co., when it failed. The terms under which the ships will be completed are time and material plus 8%. The Canadian Reaper is 90% completed, and the Canadian Thrasher 60%, and the work will be taken up as soon as possible, Henry A. Butt, overseer, Prince Rupert, representing the Marine Department. The boilers are being built by the Atlas Co., Vancouver, and the engines by John Inglis Co., Toronto.

Wallace Shipbuilding & Dry Dock Co., North Vancouver, B.C.—See under Prince Rupert Dry Dock & Engineering Co.

The Inner Harbor Association of Victoria, B.C., held its 14th annual meeting, Jan. 7. Included in the report of the Secretary-Treasurer, T. C. Sorby, were details of the progress made by the port, a resume of which was published in Canadian Railway and Marine World for Nov. 1920. Addresses were delivered by A. F. Mitchell, Resident Engineer, Public Works Department, and H. L. Johnston, acting District Engineer, Canadian National Rys.

Canadian Pacific Ocean Services' s.s. Melita was drydocked at Antwerp, Belgium, at the end of December, for general overhaul and cleaning. She is expected to resume her trans-Atlantic service about Feb. 3.

Sault Ste. Marie Canals Traffic.

Summary for 1920.

Articles			Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B.M.	18,487	174,367	192,854
Flour	"	Barrels	3,464,111	5,013,422	7,477,533
Wheat	"	Bushels	16,961,539	126,494,948	143,456,487
Grain, other than wheat	"	Bushels	13,425,270	38,204,865	51,630,135
Copper	"	Short tons	10,342	41,203	51,545
Iron Ore	"	Short tons	858,183	55,784,496	56,642,679
Pig Iron	"	Short tons	557	.....	557
Stone	"	Short tons	31,762	35,182	66,944
General Merchandise	"	Short tons	10,862	45,494	56,356
Passengers	"	Number	20,980	13,033	34,013
Coal, soft	Westbound	Short tons	192,697	11,904,296	12,096,993
Coal, hard	"	Short tons	16,500	2,042,766	2,059,266
Iron Ore	"	Short tons	.....	137,819	137,819
Manufactured Iron and Steel	"	Short tons	15,714	59,923	75,637
Salt	"	Short tons	10,059	89,149	99,208
Oil	"	Short tons	1	353,488	353,489
Stone	"	Short tons	3,600	492,727	496,327
General Merchandise	"	Short tons	237,214	262,540	499,754
Passengers	"	Number	22,472	11,966	34,438
Summary					
Vessel Passages		Number	4,009	14,838	18,847
Registered Tonnage		Net	5,138,791	53,055,292	58,194,083
Freight—Eastbound		Short tons	2,004,899	61,459,104	63,464,003
Westbound		Short tons	475,785	15,342,708	15,818,493
Total Freight		Short tons	2,480,684	76,801,812	79,282,496

The Canadian canal was opened Apr. 23 and closed Dec. 23, 1920; season, 244 days.
The U.S. canal was opened Apr. 19 and closed Dec. 26, 1920; season, 252 days.

COMPARATIVE STATISTICS FOR 1919 AND 1920.

Items		1919.	1920.
Vessels: Steamers	Number	14,866	16,336
Sailing	Number	1,218	1,354
Unregistered	Number	1,503	1,157
Total	Number	17,587	18,847
Lockages	Number	12,302	13,193
Tonnage: Registered	Net	50,089,090	58,194,083
Freight	Short tons	68,235,542	79,282,496
Passengers	Number	56,992	68,451
Lumber	M. ft. B. M.	244,426	192,854
Flour	Barrels	8,087,554	7,477,533
Wheat	Bushels	113,734,848	143,456,487
Grain	Bushels	52,734,345	51,630,135
Copper	Short tons	58,409	51,545
Iron Ore	Short tons	46,922,792	56,780,498
Manufactured and Pig Iron	Short tons	117,713	76,194
Coal: Soft	Short tons	11,461,962	12,096,993
Hard	Short tons	2,412,989	2,059,266
Salt	Short tons	93,893	99,208
Oil	Short tons	287,023	353,489
Stone	Short tons	371,170	563,271
General Merchandise	Short tons	542,178	556,110

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamsbips wbich the Dominion Marine Department bas been autborized, by order in council, to place orders for, and wbicb orders are to be carried out. The figures given in the column beaded "Long tons d.w" and which are preceded by an asterisk (*) sbow tbe total deadweigbt capacities as determined after the sbips bave been completed. The other figures in that column, not preceded by an asterisk, sbow the approximate total deadweights, subject to modification as they may vary above or below tbe figures given and as may be ascertained after the sbips are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweigbt tons multiplied by the price per ton, tbe extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of tbe vessels to be built: s.d., single deck; 2.d., two deck; 3.d., tbree deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launcbed	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Sbipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6. 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	.....
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	.....
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	.....
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	.....
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	Apr. 26, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	May 3, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,800	2.d., p., b and f'c's'le	"	11	July 24, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d. p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	.....	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 28, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	.....
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	.....
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,825	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	.....	.....
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 18, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	.....	.....
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,825	2.d. p., b. and f'c's'le	"	11	May 14, 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	.....
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,825	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
					379,296.80		$72,818,078.19						

Dominion Marine Association's Annual Meeting.

The Dominion Marine Association's annual meeting was held at Montreal, Jan. 8. In the absence of the President, A. E. Mathews, Mathews Steamship Co., Toronto, owing to illness, H. W. Cowan, the Association's First Vice President and Director of Operation, Canada Steamship Lines, presided.

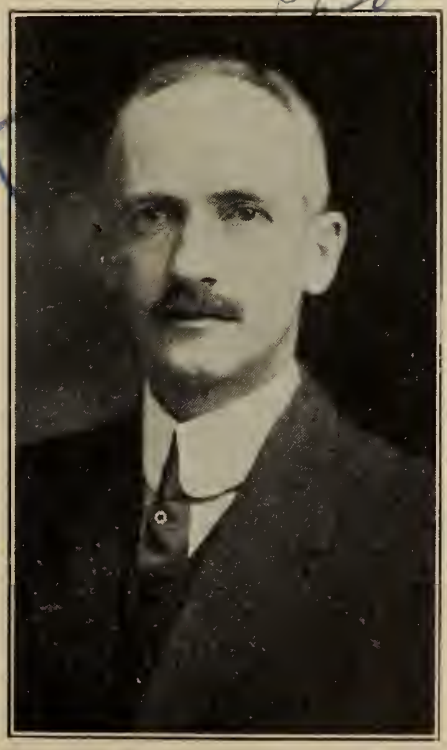
The executive committee's report for 1920, prepared by the Counsel, Francis King, M.A., and approved by the committee, was submitted in printed form, dealing with the following subjects:—Legislation, including bills introduced and those passed at the Dominion Parliament's last session, viz., Shipping Act (Steamboat Inspection); Shipping Act (Sick and Distressed Mariners); Shipping Act (Certificates of Service); Shipping Act (Pilotage); Act Respecting Canadian Wheat Board; Act Respecting

H. W. Cowan,
Director of Operation, Canada Steamship Lines, and First Vice President, Dominion Marine Association.

Shipbuilding Industry, and bill to place ships under Dominion Board of Railway Commissioners, introduced by J. E. Armstrong, M.P. for East Lambton. The following subjects were also dealt with: International Joint Commission; grain bill of lading; shovelling charges, trimming, etc.; cargo outturns; pilotage; loadlines; docking of steamships for inspection; submarine signals; ice-breaking; seizure of Canadian ships on Lake Erie, under Volstead law; wages; shipping registers; Dominion Wreck Commissioners' enquiries; overtime customs payments in United States; Chicago Drainage Canal; Welland Ship Canal; lake levels; amalgamation with Canadian Lake Protective Association; membership of executive committee; dock, harbor, channel, and canal improvements; aids to navigation; obituary; other business, membership and tonnage. Under the heading last mentioned, it was stated that the steam tonnage enrolled in 1920 was 155,340 net registered tons, against 158,313 in 1919, and the barge or sailing tonnage was 33,920 net registered tons, against 19,549 in 1919, a total of 189,260 tons, against 177,862 in 1919.

The executive committee also reported

A. A. Wright,
Vice President and Managing Director, Davie Shipbuilding & Repairing Co., and Tidewater Shipbuilders Ltd., and President, Dominion Marine Association.



Francis King, M.A.,
Counsel, Dominion Marine Association.

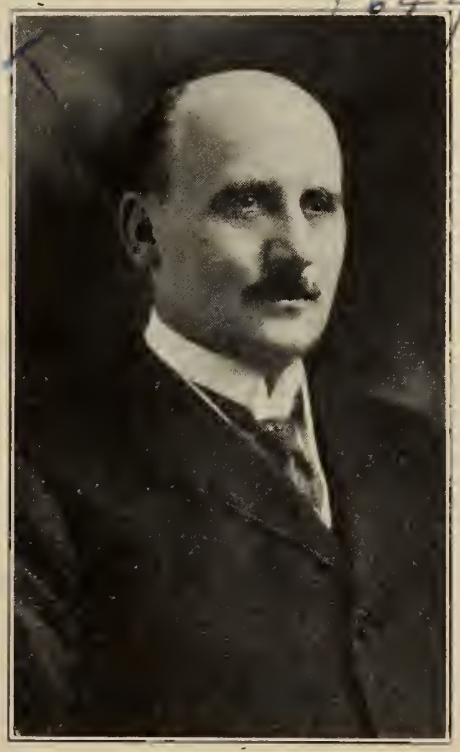
the following recommendations decided on at a meeting immediately preceding the annual meeting:—

That a grant of $200 had been made to the Sailors' Institute at Toronto, payable through the Upper Canada Tract Society, in recognition of the society's work and in particular of the use made of the shipping registered at that port.

That a committee consisting of H. W. Cowan, T. R. Enderby, W. J. McCormack, W. H. Smith and A. A. Wright had been appointed to confer with a delegation from Winnipeg Grain Exchange, Toronto Board of Trade and Montreal Corn Exchange, regarding the proposed new bill of lading.

That a resolution had been adopted urging the appointment of steamship inspectors by the Board of Inspectors at Ottawa, rather than by the Civil Service Commission, and that this question had been referred to the incoming executive committee.

That L. L. Henderson, formerly of the Montreal Transportation Co., had been



Hon. Lorne C. Webster,
President, Webster Steamship Co., etc., and Second Vice President, Dominion Marine Association.

elected an honorary life member of the Association.

That the committee recommended the election of A. A. Wright as President, with a recommendation that his election be continued from year to year, so long as the Association may deem it advisable.

A resolution was adopted expressing the Association's deep regret at the death of J. Wilkie, Marine Superintendent, Imperial Oil Ltd., Toronto, who was a member of the executive committee.

The appointment of a committee on aids to navigation was referred to the executive committee with the recommendation that it consist of a small number of members from the Association, with whom would be associated a number of men of practical experience in navigation.

The following were elected members of the executive committee for one year: W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes McNaughton Line, Montreal; A. E. Mathews, Mathews Steamship Co., Toron-

to; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, Geo. Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; Jno. Waller, Keystone Transportation Co., Montreal; Senator L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal. One additional member is to be elected by the executive committee, after consultation with Imperial Oil Ltd., to fill the vacancy caused by J. Wilkie's death.

At a subsequent meeting of the new executive committee the following officers were elected:—President, A. A. Wright, Toronto; First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines, Montreal; Second Vice President, Senator Lorne C. Webster, President, Webster Steamship Co., Montreal.

The executive committee appointed A. A. Wright, H. W. Cowan, T. R. Enderby, G. J. Madden and J. F. Sowards, as a committee to take up questions raised in correspondence from the Canadian Merchant Service Guild.

A special vote of thanks was passed to Francis King, M.A., the Association's Counsel, for his valuable services, and an honorarium was voted to him in addition to the amount of his salary for 1920.

The Association's annual dinner, held at the Windsor Hotel, Montreal, in the evening, was largely attended, and was most enthusiastic and successful. A. A. Wright, President, occupied the chair, and the other speakers were E. Hawken, acting Deputy Minister of Marine; W. A. Bowden, Chief Engineer, Railways and Canals Department; and Wm. Livingston, President, Lake Carriers Association, Detroit, Mich. During the evening, a demonstration of wireless telephoning was giving by A. H. Morse, Managing Director, Marconi Wireless Telegraph Co. of Canada, and an excellent musical entertainment, which had been arranged by J. F. Pierce, Passenger Traffic Manager, Canada Steamship Lines, was presented.

Panama Canal Operating Results.

The sixth and best year of operation of the Panama Canal, ended June 30, 1920, shows a revenue of $2,387,599 in excess of expenses for operation and maintenance, and thus reduced the deficit of the six-year period to $2,231,091, according to the recently issued annual report of Brig.-General Harding, Governor of the canal. For the year 1919-1920, the revenues were $8,935,871, against expenses of $6,548,272. For dredging the expense was $1,611,359, an excess of about $500,000 over the previous year owing to the slides in the Gaillard cut. The report states that the motion of the slides has been much retarded and that a new period of stability is approaching. The number of ships passed was 2,745, of which 2,478 were in commercial service. Governor Harding predicts that within a reasonable period of normal world conditions the canal will earn an actual profit on its construction cost, which was $366,650,000, this sum being exclusive of the expense for military and naval defence, which come under another department.

General Shipbuilding Matters Throughout Canada.

British Columbia.—The total deadweight tonnage of steel cargo steamships built in B.C. during 1920 is given as 83,300, against 70,200 for 1919. Twelve steamships were launched during 1920, of which 5 were for Canadian Government Merchant Marine Ltd.

B.C. Yacht & Boat Builders Co., Victoria, B.C.—The first of the two motor boats under construction by this company for the Dominion Government's British Columbia coast patrol service was launch Jan. 4, and was to be followed by the second later in the month. These boats are 75 ft. long over all, with beam 17 ft. 8 in., and are equipped with heavy oil engines of the semi-Diesel type of 100 h.p., by Canadian Fairbanks-Morse Co. The members of the building company are returned soldiers, who have qualified in boat construction in the Department of Soldiers Civil Re-establishment vocational training branch.

Manitowoc Shipbuilding Corporation, incorporated in the State of Wisconsin, to build, repair and operate steam and other ships of every description, has been licensed to carry on such business in Ontario, provided that it shall not use any larger capital in the province than $40,000. R. B. Henderson, Toronto, is its attorney.

Midland Shipbuilding Co., Midland, Ont.—The s.s. Glenclova, the launching of which was announced in our last issue, is being built for the Great Lakes Transportation Co., Midland, to the highest classification of the British Corporation and will be fitted for lake and ocean service, with the usual pumps and auxiliaries, electric light, refrigerator and all up to date appliances for trade in the south. She is being built on the arch system, with three holds without any obstructions in either, and with a water bottom extending the full length of the ship, the last section being arranged for carrying fuel oil if required. Her dimensions are,—lengh over all 254 ft., breadth 42 ft., depth 16 ft. The engines with which she is being equipped were formerly in the Great Lakes Transportation Co.'s s.s. Major, were built in Detroit, Mich., and have been rebuilt by the Great Lakes Foundry & Machine Co., Midland. They are of the triple expansion type, with cylinders 18, 30 and 50 in. diar. by 42 in. stroke, and are supplied with steam by two new boilers, each 11 x 13 ft. at 180 lb. working pressure, built by John Inglis Co., Toronto. These boilers are fitted with forced draft, and are equipped with the John Reid & Co. system of oil burning, so that either coal or oil may be used as fuel.

Newfoundland Dockyards Ltd. has been incorporated in Newfoundland, with $1,000,000 authorized capital and office at St. John's, to carry on a general dock, dockyard, shipbuilding and repairing business. This company is a subsidiary of the Reid Newfoundland Co. Ltd., and has been formed to take over and operate the drydock and ship repairing business, heretofore carried on by the Reid Newfoundland Co. The dock is equipped with special facilities for building and repairing wood and steel ships, and has a complete electric and acetylene welding plant. H. D. Reid, President, is reported to have stated that no repairs were done to the dock during the war, and that a number of repairs and improvements are necessary. The incorporators of the company are H. D. Reid, R. G. Reid and C. O'N. Conroy.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—We are officially advised that it is the intention to launch the steel cargo steamship of 3,000 d.w. tons capacity, yard no. 45, under construction for private owners, details of which were given in our last issue, early in the spring.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—The first of the four wooden barquentines to be built at the Cholberg shipyard, Victoria, under special aid granted by the Dominion Government to relieve unemployment, was launched Dec. 28, 1920, and named S. F. Tolmie, the ceremony being performed by Mrs. S. F. Tolmie, wife of the Dominion Minister of Agriculture. It is expected that the second ship, to be named Sir Henry Drayton, will be launched during February. Considerable progress has been made on the third ship, and the keel for the fourth is being laid in the berth formerly occupied by the first one, now launched. The new ship has a lumber loading capacity of 1,700,000 ft. b.m., being about 100,000 ft. more than similarly sized ships. The additional lumber capacity is obtained by the use of forged steel knees in the upper and lower holds, and the addition of a special loading port for extra long boards.

A Victoria press report states that all work on the three remaining ships has been suspended, and all effort concentrated on the completion of the S. F. Tolmie. A number of men are said to have been let go.

Yarrows Ltd., Victoria, B.C., has received a contract for repairing the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, which was wrecked in Swanson Bay, B.C., Sept. 29, 1920. The price is $248,000, exclusive of the renewal of furnishings, which will be done by the G.T.P.C.S. Co. She is to be completed in 115 running days.

Great Britain Leads in Shipbuilding.

Great Britain is building more commercial ships than all the rest of the world combined. On reports received up to and including Dec. 31, 1920, shipping under way in the United Kingdom amounted to 3,709,000 gross tons. In the United States it amounted to 1,310,000 tons and in all the countries of the world 7,179,000 tons. Tonnage under construction in all countries on Dec. 31, 1919, amounted to 7,861,000 tons.

On a percentage basis the report shows Great Britain's share to be 51.6% of the total, compared with 38.1% at the beginning of 1920. In the same period the share of the United States has decreased from 37.7% to 18.2%.

Tank steamships under construction at the beginning of this year amounted to 1,169,000 tons, of which 637,100 tons were in U.S. yards. Indicating an increase in internal combustion engines, ships of this type building at the end of 1920 amounted to 454,000 tons.

The United States Shipping Board's s.s. Delco, which sailed from Gothenburg, Sweden, Dec. 24, for New York, with a cargo of pulpwood, and lost her propeller, Jan. 1, was taken into St. John's, Nfld., Jan. 13, by the Danish s.s. Storberg. The Delco was picked up Jan. 1, and towed about 1,000 miles, during very heavy gales.

Salvaging the s.s. Prince Rupert at Swanson Bay, B.C.

Canadian Railway and Marine World for January contained some interesting information about the preliminary work for salvaging this ship which was supplied by C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., at our request. Mr. Nicholson wrote us subsequently at sea on the s.s. Prince John on Dec. 21, 1920, but the letter did not arrive in time for our January issue. Following are extracts from it:—

"Since my letter to you of Dec. 11, the plans outlined therein have been, to a very large extent carried out. The second pumping operations were commenced on the night of Dec. 17, and owing to the necessary stoppages to re-arrange pumps, and also to keep the water under control, so as not to allow it to flow too freely and cause dangerous lists, was not completed before the night of Dec. 17, the ship being then well floated and practically dry. A couple of days will be occupied in getting steam on the ship, trying her boilers, testing her engines and pumps, as well as telemotor and steering gears, engine telegraphs and other arrangements necessary for taking her to Prince Rupert for her preliminary docking at that point. This will be accomplished on Dec. 22, the cargo discharged on Dec. 23, and the ship docked at Prince Rupert on Dec. 24.

"The carrying out of all the details of the plans for the floating of the ship were not completed until Dec. 14. Low water occurred at 21 o'clock on that date. The pumps were thoroughly tested and got away to a fair start about 20 o'clock and in about three hours the ship had lifted enough to clear the bottom, when she was gradually worked into the place prepared for her, in shallower water, after which the pumps were stopped and she was allowed to fill again. In this position at low water the water level would be about even with the boat deck and the cofferdam was removed down to nearly that point. It was very gratifying to watch her coming up, as she did not vary a degree from the perpendicular, notwithstanding the tremendous top weight added to her by the cofferdam. When it is remembered that there were over 125,000 ft. of timber in this cofferdam, which, with the enormous weight of the canvas, iron fastenings and other attachments necessary to its construction and strength, would approximately add nearly 200 tons additional weight to the ship and all above her shade deck, her action in coming out of the water as she did was most gratifying.

"Owing to the ship's construction and the arrangement of her cabins, the most satisfactory location of pumps was not possible; consequently a re-arrangement of them was necessary after the upper portion of the cofferdam was removed; and at this only a depth of 27 ft. could be handled successfully, as the after pumps had to be located on top of all her superstructures. This would not permit of the water being pumped as low as the main deck. Consequently, when this point was reached, and held by the pumps already installed, additional duplex 6 in. under water pumps were rigged on the main deck, the discharge of which was conducted to the no. 2 hold, where it could be reached by one of the large centrifugal pumps, and thrown overboard.

"While no new principles have been called into play in connection with this salvage operation, still the peculiar circumstances attending it have made the carrying out of the work most difficult and it ranks as one of the notable salvage feats on this coast. The Pacific Salvage Co. of Victoria, B.C., which undertook the work, is excellently equipped for such service and perhaps some brief outline of its plant would be of interest as showing the facilities available on the Pacific coast for salvage purposes. The company's chief salvage unit is the s.s. Algerine, formerly a naval gunboat. She is 192 ft. long and 32 ft. beam; twin screw, triple expansion engines of 1,400 h.p. On acquiring her from the Naval authorities, she was completely overhauled and re-arranged, making her specially adaptable for the purpose intended. She, as well as the company's other ships, are under a permanent annual retainer from Lloyd's, the company undertaking, in consideration of this, to keep the plant under steam and in readiness at all times to move to the scene of a wreck on two hours notice. The Algerine has her own air compressor plant, capable of handling eight submarine divers simultaneously. Her regular equipment of pumps is five 10 in. centrifugal pumps, four steam and one gasoline driven; three 6 in. duplex and a large number of smaller sizes, the total pumping capacity being 4,000 tons an hour.

"A machine shop fitted up on board the Algerine contains a 16 ft. lathe, a drill press, pipe and bolt threader and a very large assortment of air tools. Her lifting or handling outfit consists of two 7-ton derricks and one 30-ton. She is fitted with two powerful steam winches, two steam capstans and steering gear. She carries an unusual supply of ground tackle, her anchors running from 1,000 lb. to seven tons, with a large equipment of chain cable and wire hawsers up to 2 in. in diameter. There is a 2½ k.w. wireless set and an auxiliary transportable wireless set for installing on wrecks during salvage operations; lighted throughout with electricity and in addition she is fitted with a portable electric set for installing temporarily in wrecks, for carrying out night operations. She also has two portable steam boilers, as well as an auxiliary air compressor set to be used on wrecks if necessary, powerful gasoline launch, a diver scow, work boats and dories in sufficient number. The regular crew for an ordinary expedition consists of 60 men; three deck officers, five engineers and artificers, three carpenters, one blacksmith, one pipe fitter, one mechanical superintendent, two submarine divers, a wireless operator and a chief steward, the balance of the crew being made up of seamen, stevedores, firemen and stewards.

"In addition to the Algerine, the company has two auxiliary ships, one British, the Alaskan, and one United States, the Santa Cruz. Each of these carries four 10 in. centrifugal pumps, and two 6 in. duplex, as regular equipment. Besides this, at its base in Victoria, the company has a large number of pumps of all sizes and kinds, which are always ready and can be brought into use as the occasion calls for."

Mr. Nicholson furnished us with some further information on Jan. 11, which is summarized as follows:—The Pacific Salvage Co. used only one of its ships, the Algerine, in the salvage operations, its Mechanical Superintendent, Wm. Allan, being in charge of the work; Capt. Hewison in charge of the ship; Jno. McHardy being master diver, and Capt. W. H. Logan, the London Salvage Association's representative, being in general charge.

The damage to the hull is not as extensive as anticipated. It will require a new stem bar, and about 10 new plates, and others will have to be re-conditioned, and there will be the usual work on frames, stringers, tank margin plates, etc. The decking and interior woodwork were very extensively damaged and will practically require to be renewed, and in addition the furnishings were totally destroyed. Tenders for repairs, other than the interior furnishings, were asked for, to be submitted at Prince Rupert on Jan. 5, and the contract was awarded to Yarrows Limited, Esquimalt, the lowest tenderer, at $248,000, the work to be done in 115 running days. The furnishings will be taken care of by the Grand Trunk Pacific Coast Steamship Co.'s Stores Department, under the supervision of the London Salvage Association's representative.

Press reports state that the other tenders received were as follows:—B.C. Marine Engineers & Shipbuilders Ltd., Vancouver, $379,000; J. Coughlan & Sons Ltd., Vancouver, $264,000; Wallace Shipbuilding & Dry Dock Co., North Vancouver, $298,000.

Another press report states that the s.s. Prince Rupert sailed from Prince Rupert on Jan. 5, and arrived at Esquimalt Jan. 9.

United States Shipping and Shipbuilding Notes.

Shipbuilding in the United States is said to have advanced since 1914 from the 58th industry, to the 15th.

The U.S. Bureau of Navigation reports 86 sailing, steam, gas and unrigged ships of 176,781 gross tons built in the U.S. and officially numbered during Dec. 1920.

The U.S. Commerce Department announces that the output of U.S. shipyards during 1920 comprised 1,783 ships of 2,860,725 gross tons, officially numbered by Bureau of Navigation.

The Panama Canal office announces that the tolls collected during Dec. 1920 were $1,007,875.07. With one exception this is the highest amount collected in a month since the opening of the canal.

U.S. shipyards reports to the Bureau of Navigation show that on Dec. 1, 1920, private U.S. shipyards were building, or were under contract to build, for private ship owners, 293 steel ships of 1,123,946 gross tons, against 334 steel ships of 1,206,486 gross tons on Nov. 1, 1920.

The U.S. Shipping Board's Chairman has issued a statement to all operators of Shipping Board ships, which says in part: "As the representative of the largest ship owning corporation in the world, the Chairman of the Shipping Board feels that it is timely to invite attention of owners and operators to the fact that the largest factors in ship expense under conditions which prevail at this time are repairs and fuel. While the policy of every prudent owner and operator is rightfully toward reduction in ship expense, the Chairman of the Board earnestly cautions all ship owners and operators not to be misled at this time into employment of foreigners merely because it may be possible to obtain them at a lower schedule of pay."

Atlantic and Pacific Ocean.

Canada Steamship Lines' s.s. Korona collided with a car float in New York harbor, Jan. 5, and had a large hole cut in her hull, about 4 ft. above the water line.

The Halifax, N.S., Board of Trade quotes the gross tonnage of shipping entered at the custom house there, during 1920, as 8,953,803, compared with 9,111,942 for 1919.

Canadian Pacific Ocean Services Ltd. will, on the reopening of St. Lawrence navigation, resume the direct freight steamship service to Norwegian ports, in conjunction with the Norwegian-American Line.

The Nippon Yusen Kaisha will, it is reported, shortly include a regular call for its passengers and freight steamships at Vancouver, B.C., instead of, as at present, calling at Victoria, B.C. It is announced that B. W. Greer & Son have been appointed agents for the company at Vancouver.

The Ormes Steamship Co., of which McLean Kennedy Ltd., Montreal, acts as agent, has placed the s.s. Ormes on the Canadian register. She was built at Brooklyn, N.Y., in 1920, and is equipped for wireless telegraphy, and screw driven by engine of 151 h.p. Her dimensions are,—length 227.6 ft., breadth 33.7 ft., depth 13.8 ft.; tonnage, 1,304 gross, 796 net.

Furness Withy & Co. have transferred the steamships Fort Hamilton and Fort Victoria to the Canadian register. The first named ship was built at Sunderland, Eng., in 1904, and is screw driven by engine of 1,004 h.p. Her dimensions are,—length 425 ft., breadth 50 ft., depth 24.9 ft.; tonnage, 5,530 gross, 2,889 net. The latter ship was built at Dalmuir, Scotland, in 1913, and is screw driven by engine of 626 h.p. Her dimensions are,—length 411.7 ft., breadth 56.7 ft., depth 25.1 ft.; tonnage, 7,784 gross, 4,531 net. Both are equipped with wireless telegraphy.

Canadian Pacific Ocean Services Ltd. is reported to have completed arrangements with the Italian General Navigation Co., by which a joint direct passenger and freight steamship service will be established between Montreal or St. John, N.B., and Geneva and Naples, the last mentioned port being the terminus. The Italian company, it is stated, is to place one of its best passenger steamships in the service, and the C.P.O.S. will utilize the s.s. Koenig Friedrich August, a former German steamship, which it bought, and which is to be renamed Montreal. This latter steamship was built at Hamburg in 1906 and is 9,462 net tons. Her dimensions are,—length 475.7 ft., breadth 55.3 ft., depth 30.9 ft.

Robert Reford & Co., Montreal, as agents, Cunard Line, are reported to have stated recently that the Cunard service between Great Britain and Halifax, N.S., would be maintained through the winter and spring, but that nothing definite had been settled as to the summer service on the St. Lawrence. The Anchor-Donaldson Line steamships will also make calls at Halifax, eastbound, for the remainder of the winter, their run being from Portland, Me., to Halifax, thence to Liverpool and on to Glasgow, instead of from Portland to Glasgow direct as hitherto. Westbound the route will be continued as at present, viz., Glasgow, Halifax and Portland.

The Cunard Line's s.s. Samaria, the launching of which, at Birkenhead, Eng., Nov. 27, 1920, was mentioned in our last issue, has a gross tonnage of 21,000, with 27,000 tons displacement. Her dimensions are,—length 625 ft., breadth 74 ft., draft 30 ft. She is said to be the largest ship ever built on the Mersey. She is equipped with double reduction geared turbine of 12,500 i.h.p., and the boilers are equipped for oil fuel. The speed will be approximately 16 knots, and there will be accommodation for 336 first class, 340 second class and 1,924 third class passengers, as well as for 315 officers and crew. Included in the equipment will be wireless telegraphy, gyroscopic compass and submarine signalling apparatus.

The White Star-Dominion Lines' service between New York, Halifax, Hamburg and Dantzig, which it had been announced would be commenced in Dec. 1920, with the sailing of the s.s. Mongolia from New York, was inaugurated Jan. 20, with the s.s. Gothland. She will make sailings every six weeks, and special efforts are being made to handle the European emigrant traffic, which, prior to the war, and owing to Continental restrictions, was held by the Germans. The creation of the Dantzig corridor eliminates the handling of passports by the Germans, of those taking that route. Under the old regulations, persons going overseas were not allowed to travel on German railways to a seaport, unless they had transportation by a German steamship.

Maritime Provinces and Newfoundland.

The reinforced concrete steamship Permanencia, owned by W. N. McDonald, Sydney, N.S., and built at North Sydney recently, is reported to have developed a speed of over 7 knots an hour on her trial trips. Subsequently she left for Bay of Islands, Nfld., where she loaded a cargo of dried fish for Boston, Mass. It is stated that she will be operated during the winter between U.S. ports.

Canada Steamship Lines agents, Canadian General Transatlantic Co., opened its Canada-Newfoundland steamship service Jan. 25 with the sailing of the s.s. Manola from St. John, N.B. The next sailing will be on Feb. 15, and thereafter the service will be fortnightly. It is proposed to put three steamships on the route during the winter, and additional ones should traffic warrant it. The rates are in line with those of other companies operating on the route.

The Boston & Yarmouth Steamship Co.'s returns for 1920 are said to show a decrease of about 1,800 tons in freight, compared with 1919, being chiefly due to a falling off in lobster shipments, occasioned by heavy weather. Outward traffice was about 4,431 tons less than in 1919, the inward traffic from Boston showing an increase of about 2,546 tons. Passenger traffic was heavy, the number of persons handled being 61,531, against 51,991 in 1919.

Province of Quebec.

The water was drained from the portion of the Lachine Canal below Cote St. Paul locks, Jan. 9, so that some repairs might be undertaken. It was anticipated that the water would be returned to the canal by the end of the month. The reach above St. Paul locks is not to be emptied.

Ontario and the Great Lakes.

The Dominion Public Works Department's steam tug Sir John, for which tenders were invited recently, has been sold to H. J. Dixon, Toronto, who is associated with J. E. Russell, contractor, in the Toronto Dry Dock Co. Ltd. The Sir John was built at Sorel, Que., in 1902, and is screw driven by engine of 8 h.p. Her dimensions are,—length 81.2 ft., breadth 17.3 ft., depth 8 ft.; tonnage, 94 gross, 41 net.

The Keystone Transportation Co.'s steamships Keyport and Keywest, which are berthed at the Grand Trunk Dock, Kingston, for the winter, are having new smoke stacks fitted by Collingwood Shipbuilding Co., which is also carrying out, at its Kingston yards, repairs to the s.s. Keynor, consisting of a new rudder shoe, and some plates in the bows. The s.s. Keyvive, which returned to Montreal about the middle of December, and laid up for the winter, was engaged during 1920 in the West Indian trade.

The s.s. City of New York, owned formerly by Lake Shore Sand & Gravel Co., Toronto, is reported to have been sold to Capt. H. F. Randall, Kingston, Ont., for operation in the coal trade between Oswego, N.Y., and Montreal. The price stated to have been paid is about $12,000. She was built at Cleveland, Ohio, in 1863, rebuilt there in 1889, and has a wood hull with the following dimensions, length b.p. 136 ft., breadth 27½ ft., depth 11½ ft.; tonnage, 292 gross, 199 net. She is equipped with a high pressure, non-condensing, engine, with cylinder 26 in. diar. by 36 in. stroke, 600 i.h.p. at 85 r.p.m., and supplied with steam by a firebox boiler 10 ft. diar. by 14 ft. long, at 80 lb. pressure.

British Columbia and Pacific Coast.

The Pacific Salvage Co.'s s.s. Algerine is being converted to an oil burner by Yarrows Ltd., Victoria, B.C. The work is being carried out in such a manner that the ship while in the builders' hands will be ready to put to sea at any time on short notice.

The Kingsley Navigation Co.'s s.s. Queen City, formerly a sailing ship, has had her machinery removed, and has been converted and re-registered as a barge. She was built at Vancouver in 1894, and was screw driven by engine of 25 h.p. Her present dimensions are,—length 116 ft., breadth 27 ft., depth 17.3 ft.; tonnage, 376 gross, 366 net.

The s.s. Etta White, owned formerly by R. J. Armstrong and others, Vancouver, B.C., and which was burnt at Fraser Reach in Oct. 1920, has been removed from the Canadian register. She was built at Freeport, Wash., in 1871, and was screw driven by engine of 120 h.p. Her dimensions were,—length 93 ft., breadth 19.6 ft., depth 9 ft.; tonnage, 111 gross, 76 net.

J. Coughlan & Sons Ltd. is reported to have awarded a contract to P. E. Ritchie, Vancouver, for diamond drilling on the site of the company's dry dock, at Vancouver, which is being built under the Dry Dock Subsidies Act. This work is expected to be completed during February or March, and while it is proceeding, offices and shops will be built at the foot of Woodland Drive.

The Hudson's Bay Co. is considering the making of arrangements in Vancouver

for the building of a stern wheel steamship for operation on the Mackenzie and Peace Rivers. This ship, it is said, will be dispatched to northern points in knock-down shape and rebuilt in the north. The company's s.s. Fort Simpson, which for some years was operated on the Skeena River, is being dismantled and is, it is said, to be shipped to the Mackenzie River for operation there in the spring.

The British Columbia Cement Co. is reported to have bought the motor ship Teco, a wooden ship built in the U.S. in 1918, and which is 125 ft. long, and equipped with Bolinder engines; also the motor schooner Laurel Whalen, built by Cameron-Genoa Mills Shipbuilders, Victoria, B.C., in 1917, for Canada West Coast Navigation Co. The dimensions of the latter ship are, length 240.5 ft., breadth 43.9 ft., depth 19 ft.; tonnage, 1,357 gross, 1,049 net. She is equipped with internal combustion engine of 36 h.p., driving a screw. The first named will be used in transporting cement from the company's plant at Bamberton and Tod Inlet, and the latter as a depot supply ship for Saanich Inlet.

The White Pass & Yukon Ry.'s s.s. Selkirk, which was wreckon on the Yukon River on her last trip down, prior to the close of navigation in 1920, is lying in about 18 in. of water, with a large hole 65 ft. long cut in her hull. It is not considered worth while to salvage the hull, but the boiler and engines will probaby be removed in the spring. The removal of the machinery from the hull will be an interesting problem, it being stated that a donkey engine will be hauled to the scene of the wreck and a cable about 1,500 ft. long attached to the boilers and connected to a capstan on shore, by means of which the machinery will be lifted from the ship and skidded over the ice to the shore, and as it is stated there are only about six horses in the country the work will all have to be done by steam.

Mainly About Marine People.

G. M. Bosworth, Chairman, Canadian Pacific Ocean Services, Ltd., and Mrs. Bosworth, will sail from Vancouver, B. C., on Feb. 10 on the Empress of Asia for Japan and China.

Hon. C. C. Ballantyne, Minister of Naval Service, and of Marine and Fisheries, gave a dinner at the Ottawa Country Club recently for Capt. Adams, C.B.E., Commanding Officer of the Canadian Navy. Among others present were Hon. J. D. Reid, Minister of Railways and Canals; Admiral Sir Charles Kingsmill; Capt. Hose, C.B.E.; Commander R. M. T. Stephens, R.N.; and G. J. Desbarats, C.M.G., Deputy Minister of Naval Service.

Mrs. Chas. Cameron, who died at Collingwood, Ont., Jan. 21, from blood poisoning, was the widow of Chas. Cameron, at one time a director of the Northern Navigation Co. of Ontario.

E. L. Cousins, Chief Engineer and General Manager, Toronto Harbor Commission, left Toronto, Jan. 3, with one of the Commissioners, R. Home Smith, for Mexico, for his holidays, which he takes in the winter. He is expected to return to Toronto early in February.

Harold E. Kane, whose appointment as Port Agent, Canadian Government Merchant Marine Ltd., St. John, N.B., was announced in our last issue, was born there May 20, 1895, and entered transportation service in Mar. 1912, since when he has been, to Sept. 1912, in Resident Engineer's office, C.P.R., Woodstock, N.B.; Sept. 1912 to June 1915, in Bay of Fundy Steamship Service, C.P.R., St. John; June 1915 to Oct. 1918, in Eastern Steamship Lines service, St. John; Oct. 1918 to May 1920, Travelling Freight Tariff Inspector, C.P.R., St. John, and Montreal; May to Oct. 1920, chief clerk, Canadian Government Merchant Marine, St. John, N.B., and Oct. 1 to Dec. 1, 1920, acting Port Agent, Canadian Government Merchant Marine, St. John.

Francis King, M.A., Counsel, Dominion Marine Association, was born at Kingston, Ont., in 1870. He is an M.A. of Queen's University, Kingston, 1890, was called to the bar in 1892, and in 1903 formed a partnership with Geo. H. Smythe, B.A., son of the late E. H. Smythe, K.C., LL.D., the firm name King & Smythe. He assisted in the formation of the Dominion Marine Association in 1903, and has been connected with it since; first as Secretary-Treasurer, and since as Counsel. He has been a member of council of Queen's University since about 1900, and is now Counsel for the university. He is an Anglican, and has been Honorary Lay Secretary of Ontario Diocese for the past 11 years. He is a member of council of Ontario Bar Association, and chairman of its committee on legal ethics, a member of board of commissioners (three in number) appointed four years ago by the Ontario Government to act with commissioners from the other provinces in promoting uniformity of legislation throughout Canada, was President, Kingston Board of Trade, in 1917 and 1918, and President, Frontenac Club, Kingston, 1919-1920

Capt. McGregor Lambert, for 27 years in charge of the Chantry Island lighthouse, Lake Huron, died at Southampton, Ont., Jan. 6. He succeeded his father, who had held the position for 22 years. During the time he was in charge of the lighthouse, he personally saved 20 persons from drowning, and in 1892 saved the entire crew of the schooner Nettie Woodward, bringing them ashore in a 12 ft. boat. He held the Imperial Service Order, the Royal Humane Society's medal, and was presented with a gold watch by the Dominion Government. He retired from active service in 1907.

Wm. Livingston, Detroit, Mich., has been re-elected President, Lake Carriers Association.

John J. Main, who died at Toronto, Jan. 14, aged 70, was, until a few years ago, Vice President and General Manager, Polson Iron Works Ltd., which failed some time ago, and was the inventor of the Heine boiler.

A. E. Mathews, Managing Director, Mathews Steamship Co., Toronto, who was laid up with ptomaine poisoning, early in January, left Toronto Jan. 16, with Mrs. Mathews, for California, expecting to return about the middle of March.

Capt. Jas. McBeath, who is reported to have been appointed assistant port warden, Vancouver, B.C., came to Canada, on behalf of McClay & McIntyre, Glasgow and Liverpool, about the end of the war, to take the s.s. War Company, built by J. Coughlan & Sons, to England. He returned recently as chief officer of the s.s. Margaret Coughlan, built at the same yards for Western Canada Steamships Ltd. During the war he was on ships operated by McClay & McIntyre, and prior to the war was in Anchor Line service, out of Glasgow.

J. O. Kennedy, C.E., who died at Owen Sound, Ont., Jan. 2, from heart failure, was a son of the late William Kennedy, of Owen Sound, and a brother of Sir John Kennedy, C.E., of Montreal. He was associated with The William Kennedy & Sons Ltd., marine engineers, etc., Owen Sound.

Senator Lorne Campbell Webster, who has been elected Second Vice President, Dominion Marine Association, was born at Quebec, Que., Sept. 30, 1871, and educated at Quebec High School, where he obtained the Lieutenant Governor's medal in 1895, and the Governor General's medal in 1896; and at Montmagny College. He has been associated with the coal business at Quebec throughout his commercial life, acting for the Dominion Coal Co. and the Nova Scotia Steel & Coal Co. He is President, Quebec Ry., Light, Heat & Power Co., Quebec, Montmorency & Charlevoix Ry., Lotbiniere & Megantic Ry., Webster Steamship Co., Canadian Import Co., St. Lawrence Stevedoring Co., Canadian Salvage Association, Holt Renfrew & Co., Canadian Fur Auction Sales Co.; Vice President, Goodwins Ltd., Travelers Life Assurance Co., Dominion Flour Mills, International Trading Corporation, Hudsons Bay Knitting Co., and director, Montreal Tramways Co., Nova Scotia Steel & Coal Co., St. Lawrence Sugar Refineries, Dominion Manufacturers Ltd., and Bankers Trust Co. He is a member of the council of the Quebec Board of Trade, and is associated with the Canadian Order of Foresters, Canadian Order of Oddfellows, is President, St. Andrews Society and a former President of the Y.M.C.A. He is a member of Garrison Club, Quebec; Canada and Montreal Clubs, Montreal; Rideau Club, Ottawa, and National Club, Toronto, and was appointed a senator in January 1920.

John Wilkie, Marine Superintendent, Imperial Oil Ltd., Toronto, was killed in an explosion on one of the Standard Oil Co.'s tank steamships, at Barranquilla, Colombia, South America, Dec. 19, 1920, aged 42. The funeral took place from his home at Toronto, Jan. 3. He had been in the company's service for several years, and was a member of the Dominion Marine Association's executive committee.

Connection Between the Great Lakes and the Mississippi.

A navigable connection between the Great Lakes and the Mississippi River, which has been the subject of several projects and considerable controversy during recent years, appears likely to become an accomplished fact within a few years, as the U.S. Government has approved the plans of the State of Iillinois for an 8 ft. waterway and the State has awarded the contract for one lock and is inviting bids on the other work. This state project includes canal construction and river improvement from Lockport, at the end of the Chicago drainage canal, to LaSalle on the Illinois River, beyond which point there is an 8 ft. channel in the river. The distance is about 60 miles, with a difference in water elevation of about 123 ft., this difference being provided for by 5 locks of 41 to 16 ft. lift.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Princess Royal-Marmion-Louisiana Collision.

Held at Vancouver, B.C., Dec. 1, 2 and 3, 1920, by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Commander F. W. Evans, R.N. R., and Capt. A. P. W. Williamson, as nautical assessors, into the collision of the C.P.R. s.s. Princess Royal with the British s.s. Marmion, and the hulk Louisiana, in the Granville channel, Nov. 6, 1920. The court having considered the evidence, which was very conflicting, found that the blame for the collision must be imputed to Capt. Thomas Rippon, master of the Princess Royal, for failing to comply with the regulations as laid down by article 16 of the International Rules of the Road. It cannot be disputed that he should certainly have stopped his engines, immediately he became aware, by hearing a whistle ahead, that another ship was in the vicinity, and there can be little doubt that by failing to stop his engines, the ship was going ahead at such a speed, in the dense fog then prevailing, that on sighting the Marmion, which had the Louisiana in tow, she had no time to perform the proper evolutions to avoid a collision. Though attributing the sole blame to Capt. Rippon, the court was not prepared to say that his actions were such as to justify anything more severe than a warning to be more careful and prudent in future. Apart from his infringement of article 16, and his non-compliance with article 28, when his engines were moving full speed astern, which last omission, in the court's opinion did not contribute to the collision, he appeared to have taken every other seamanlike precaution, after encountering the fog. The court therefore returned his certificate of competency as master (coasting). No possible blame for the collision could be attached to the master of the Marmion, or to the master of the Louisiana. The former appeared to the court to have taken every precaution, and to have handled his ship and tow with considerable skill and care. In view of the fact that the Marmion, a ship of no great power, was towing a 1,300 ton hulk, against a flood tide, estimated to be running at about two knots, it can hardly be argued other than that she was making very little way, more especially after she had slowed down, a short time previous to the collision, and at the actual impact, she was barely stemming the adverse tide.

Charmer-Princess Royal Collision.

Held at Victoria, B.C., Dec. 9 and 10, 1920, by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Commander F. W. Evans, R.N. R., and Commander G. E. Bridge, R.N. R., as nautical assessors, into the collision between the C.P.R. steamships Charmer and Princess Royal, near the entrance to Victoria harbor, Oct. 18, 1920. The court found that the whole blame for the casualty rests with Capt. Charles Campbell, master of the s.s. Charmer, for the most reckless and imprudent manner in which he handled and navigated the ship under his charge. Apart from the fact that articles 23, 24 and 29 were most grossly violated, and might never have existed, for all the attention that was paid to them, it is inconceivable to the court, that the master of any ship, going full speed, could so possibly place his ship in such a position, that, by his own oral and written evidence, he was left with no alternative, than to collide with the s.s. Princess Royal, or run on to the breakwater at the entrance to the harbor. The court therefore suspended his certificate of competency, no. 2,196, for 12 months, to expire Dec. 10, 1921, and also ordered him to pay the costs of the investigation. No possible blame, in the court's opinion, can be attributed to the master of the s.s. Princess Royal, Capt. P. J. Hickey, or to any of the crew of that ship, the master appearing to have handled his ship with considerable skill and nerve, under somewhat trying circumstances, and consequently he was returned his certificate of competency.

Loss of s.s. Romsdalsfjord.

Held at Halifax, N.S., Dec. 14, 1920, by Commander H. St. G. Lindsay, commissioner, assisted by Capts. Neil Hall and J. D. MacKenzie as nautical assessors, into the loss of the Norse Amerika Line's s.s. Romsdalsfjord on Sambro Ledges, off Halifax, Dec. 10, 1920. She sailed from Narvic, Norway, with iron ore, Nov. 17, for Baltimore, Md., with a total crew of 39, and after a stormy passage was obliged to make Halifax for coal. The Egg Island light was sighted Dec. 9, and cross bearings of that and the Jeddore light were taken, giving the ship's position as 9½ miles from Egg Island, and 10 miles from Jeddore. On Dec. 10, cross bearings of Devil's Island and Chebucto Head lights were taken, and the ship was steered direct for the Chebucto light, and the patent log was hauled in, shortly after the signal "stand by" was rung to the engine room, and about half an hour after, the ship struck on Sambro Ledges, about a mile east of Sambro Island, becoming a total loss. The weather just prior to the striking appears to have been fine and clear, with the wind freshening from the east, and all leading lights being visible. It appeared to the court, from the evidence, to be inexplicable that, with all the leading lights plainly visible, and with the positions given by two cross bearings, the ship was deliberately allowed to run at practically full speed on the ledges, without any apparent display of ordinary care or judgment on the part of those on board. The master's statement of his mistaking Sambro light for that on Chebucto Head cannot be justified, the former showing a flash every 5 sec. and the latter one showing four flashes every 30 sec., and these lights were plainly visible for over an hour before the ship struck, but apparently no comparison of the two was made. Taking into consideration the cross bearings of Devil's Island and Chebucto Head, the ship's position as shown on the chart at that time gives the course and distance to Chebucto Head as S 78 W (true), distance 7½ miles, therefore allowing a speed of 10 knots, which the court considered quite possible, owing to the set to westward usually found with easterly winds off the harbor, in 45 minutes the ship would have made the distance, but it was only 25 minutes later that the casualty took place, and no reduction of speed was made. The court was therefore unanimous in its decision that the master, Capt. Harry Pay, was guilty of culpable negligence in not taking the customary and proper precautions when approaching land at night, in so far that he did not attempt to distinguish, by timing, the difference between the two principal lights, and did not steer a safe and proper course, thereby causing the loss of the ship, and it therefore recommended that a copy of the evidence and the finding be forwarded to the Norwegian Government for its information and action. The court also stated that the fact that the Sambro lightship was not on her station, had no particular bearing on the case.

Stranding of s.s. South American.

Held at Halifax, N.S., Jan. 6, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. Neil Hall and C. A. Hunter, as nautical assessors, into the stranding of the South American Steamship Co.'s s.s. South American, near Little Cape, Gulf of St. Lawrence, Nov. 18, 1920. The s.s. South American is a new steel built single screw vessel, owned in Toronto, carrying a crew of 28, including 3 deck officers,—the third officer not having a certificate—and four engineers, two having certificates. She has triple expansion engines, with a speed of 11½ knots. The master, first and second officers were alone available as witnesses, others whose evidence would be material, such as the third officer, who was on watch previous to and at time of stranding, wheelsmen and lookout men, having been discharged. The evidence shows that the master accepted the conditions and did not demur against the employment of a non-certificated third officer, therefore accepting all responsibility which should, in part, be shouldered by the officer in whose watch the casualty occurred. The master retired to a room connected with the chart room, at about 6.35 p.m., after having stopped his ship and given instructions to the chief officer to be called in the eventing of anything being seen, or an important change of wind. A snowstorm had been raging from 4 p.m. on Nov. 17. A bearing had been taken off Chlorydormes and afterwards Fame Point, and the sound of the latter fog signal was heard. Then the ship was hauled more to the eastward, and stopped, it being estimated that she was 8 miles off, and that the usual current would counteract the effect of the leeway and the ship keep her position. It is noted that the instructions given were verbal, no night order book being kept. The master retired, not with the intention of sleeping, but to rest, being fully dressed. He fell asleep and was not wakened till the ship struck, 5½ hours later. The first officer said the wind had hauled to the eastward but two points, and that this change was not sufficiently important to notify the master when he left the bridge at the relief of watches. The second officer had only got on the bridge, and noticing a light on the shore, asked the third officer if he had seen it. The third officer had apparently just left the wheelhouse at the moment of this observation of the light. The second officer rang the telegraph full speed astern, the ship grounding at the same time, her port side abaft amidships first, heading west. The master then came up and ordered boats ready, whilst soundings were being taken.

In the face of the above statements the court was of opinion that the master, Capt. William Fraser, was remiss

in not giving more specific instructions to be told when Chief Officer Sutherland was relieved, since he could not, nor did not place any reliance or trust on the third officer's ability as a navigator. He elected to stop his ship, and leave her to the mercy of winds and waves, a mode of procedure the court did not appreciate. The reason given for the stopping of the ship is not considered a serious excuse, because the fact that a sister ship had lost the blades of her propeller was not a reason for holding this ship on her voyage. Since it was ascertained, more by approximation, that the ship was 8 miles off, had she been kept at slow, her propeller would not have been endangered, and the officer would have been in a position to better watch and calculate her progress. With a cast of the lead, even in 150 fathoms, it would have been demonstrated whether their calculations as to distance from the land were accurate. It is apparent, though direct evidence is lacking, that the wind must have veered during the third officer's watch, and he failed to convey the information to the master. The court therefore found that the master, Capt. William Fraser, certificate no. 3909, failed to give such specific, detailed, peremptory instructions as the occasion demanded, before he went below, as to taking a few casts of the lead, and to being called at the least change. The slightest change at that time, when the barometer was falling rapidly, was of great consequence. The court therefore, taking into consideration his straightforward statement, and good work in taking his ship out of such a dangerous situation, did not deal with his certificate, but reprimanded him severely, and advised him to make it a fast rule for the future to keep a night order book and signify his wishes in writing when his intention is to retire to his room. The first and second officers were exonerated from all blame. In view of the fact that the third officer was not present to give his evidence the court abstained from commenting on his conduct.

Winter Moorings of Canadian Steamships.

Following is a list of Canadian steamships, and the ports at which they are berthed for the winter, of which Canadian Railway and Marine World has been advised, in addition to those published in the January issue:—

Algoma Central Steamship Co., Sault Ste. Marie, Ont.—Agawa, Home Smith, J. Frater Taylor, W. C. Franz, at Collingwood, Ont.

Canada Steamship Lines Ltd., Montreal.—Cape Diamond, Cape Eternity, Cape St. Francis, Cape Trinity, Louis Philippe, Montreal, Quebec, Rapids King, Rapids Prince, Rapids Queen, Saguenay, Tadousac, Three Rivers, Turbinia, at Sorel, Que.; Longueuil, Montreal; America, Ramona, Kingston, Ont.; Cayuga, Chippewa, Corona, Kingston, Macassa, Modjeska, Toronto, at Toronto; White Star, at Hamilton, Ont.

Canadian Towing & Wrecking Co., Port Arthur, Ont.—A. F. Bowman, Gogebic, James Whalen, at Sarnia, Ont., and barges Coteau, Empire and Mary E. McLachlan, at Port Arthur, Ont.

Donnelly Salvage & Wrecking Co., Kingston, Ont.—Cornwall, Frontenac, Harriet D., William Johnston, at Kingston.

Keystone Transportation Co., Montreal.—Keybell, Keyport, Keywest, Grand Trunk Dock at Kingston, Ont.; Keynor, docked for repairs, by Collingwood Shipbuilding Co., Kingston, Ont.; Keyvive, at Montreal.

Esquimalt Drydock.—Canadian Railway and Marine World for January gave a press report stating that the Dominion Public Works Department had accepted the tender of P. Lyall & Sons Construction Co., Montreal, for building a drydock at Skinners Cove, Esquimalt, B.C., a short distance from the present government drydock there. We have since received official confirmation of this and have been advised that the approximate amount of the contract is $4,220,000, which is about $200,000 less than the Department's estimate. H. M. Scott left Montreal early in January to take charge of the work for the contractors.

Ships Registered in Canada During October and November, 1920.

In compiling the following lists of ships registered, steamboats and motor boats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. h.p.	Owners or managing owners
141830	Canadian Carrier*	Montreal	Port Arthur, Ont. 1920	319.6	44.2	22.4	3101	1909	198 Sc.	Minister of Marine, Ottawa.
141831	Canadian Conqueror*	"	Montreal 1920	400.4	52.3	28.5	5448	3336	266½ Sc.	" " "
141861	Canadian Mariner*	"	Halifax, N.S. 1920	399.3	52.3	28.4	5384	3311	266½ Sc.	" " "
141856	Canadian Rover*	"	Collingwood, Ont. 1920	251.0	43.6	23.6	2422	1464	124 Sc.	" " "
141859	Canadian Sapper*	"	Trenton, N.S. 1920	270.0	38.2	17.9	1763	1041	166 Sc.	" " "
141853	Canadian Squatter*	"	Welland, Ont. 1920	319.9	43.9	22.6	3091	1900	188 Sc.	" " "
150255	City of Vancouver*	Vancouver	Vancouver, B.C. 1920	411.5	54.1	27.5	5697	3525	266½ Sc.	Vancouver Steamship Co., Vancouver, B.C.
120477	Fort Hamilton*	Montreal	Sunderland, Eng. 1904	425.0	50.0	24.9	5530	2889	1004 Sc.	Furness Withy & Co., London, Eng.
122744	Fort Victoria*	"	Dalmuir, Scotland 1913	411.7	56.7	25.1	7784	4531	626 Sc.	" " " " "
141858	Ormes*	"	Brooklyn, N.Y. 1920	227.6	33.7	13.8	1304	796	150½ Sc.	Ormes Steamship Co., c/o McLean Kennedy Ltd., Montreal.
141897	South American*	"	Bridgeburg, Ont. 1920	251.0	43.6	20.5	2272	1309	146½ Sc.	South American Steamship Co., Toronto.

*Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or managing owner.
141576	A. H. Comeau	Weymouth, N.S.	Schr.	Comeauville, N.S. 1920	105.5	26.6	10.2	174	144	Comeau Shipping Co., Comeauville, N.S.
141239	Anna Macdonald	Charlottetown, P.E.I.	"	Cardigan, P.E.I. 1920	105.5	25.5	10.1	193	191	J. A. Macdonald, Cardigan, P.E.I.
150258	Burrard No. 2	Vancouver, B.C.	Dredge.	Seattle, Wash. 1912	80.4	40.0	11.0	350	350	Pacific Construction Co., Vancouver, B.C.
150267	C. B. No. 3	"	Scow	81.5	26.0	6.9	123	123	C. Benson, Vancouver, B.C.
150259	Erickson Construction Co. No. 1	"	"	Seattle, Wash. 1912	80.0	30.0	8.2	167	167	Pacific Construction Co., Vancouver, B.C.
150260	Erickson Construction Co. No. 2	"	"	Seattle, Wash. 1912	80.0	30.0	8.2	167	167	" " " "
141665	Haswell	Toronto	Schr.	Bristol, R.I. 1915	52.6	14.1	9.3	27	9	Aemilius Jarvis, Toronto.
138427	Mina Nadeau	Paspebiac, Que.	"	Port Daniel, Que. 1920	120.0	32.0	11.0	335	316	C. H Nadeau, Port Daniel East, Que., and C. C. Tyrer, Halifax, N.S., J.O.
141797	J. C. 30	New Westminster, B.C.	Scow	New Westwinster, B.C. 1920	93.0	30.9	8.7	222	222	J. Crane, New Westminster, B.C.
150291	Jessie Alice	Sydney, N.S.	Schr.	Dingwall, N.S. 1920	91.4	24.3	9.6	127	110	J. O'Brien, Dingwall, N.S.
141749	Lina Gagne	Quebec, Que.	"	Cap Chat, Que. 1920	93.0	26.0	9.0	147	147	J. B. Gagne, Cap Chat, Que.
138594	Margery Austin (1)	St. John, N.B.	"	Harvey Bank, N.B. 1918 1920	86.1	27.8	8.0	128	116	C. W. Robinson, Moncton, N.B.
141465	Marguerite Ryan	Shelburne, NS..	"	Shelburne, N.S. 1920	106.6	26.4	10.8	177	148	D. A. Ryan, St. John's, Nfld.
141748	Marion L. No. 3	Quebec, Que.	"	Sorel, Que. 1920	189.6	36.3	15.0	849	739	Transportation & Shipping Co., Quebec, Que.
103482	Queen City (2)	Vancouver, B.C.	Barge.	Vancouver, B.C. 1894	116.0	27.0	17.3	376	366	Kingsley Navigation Co., Vancouver, B.C.
141238	Neil	Charlottetown, P.E.I.	Schr.	Cardigan, P.E.I. 1920	45.7	13.7	5.4	18	18	N. McLeod, Mitchell River, P.E.I.
141612	Sadie No. 7	Victoria, B.C.	Scow	Victoria, B.C. 1920	90.0	34.0	9.6	236	236	Victoria Tug Co., Victoria, B.C.
141628	T. K. Bentley	Parrsboro, N.S.	Schr.	Advocate Harbor, N.S. 1920	160.0	35.5	13.1	509	466	T. K. Bentley and J. N. Pugsley, Parrsboro, N.S.

(1) Recovered wreck. (2) Formerly a steamer.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

British Columbia, Brown Passage.—A new light and fog alarm will be established about Jan. 1, on the northwesterly rock of the Triple Island group, with a double flashing white light of the third dioptric order, showing a double flash every 8 sec.; the diaphone fog alarm giving one blast of 4 sec. duration every 30 sec.

Arrow Lakes.—Buoys have been established, as follows:—At Cottonwood Point, on east side of lower end of dredged cut in the narrows, between Lower Arrow Lake and Upper Arrow Lake, white wooden spar buoy with red horizontal band; at Point No Point, on west side of upper end of dredged cut in narrows between Lower Arrow Lake and Upper Arrow Lake, white wooden spar buoy with black horizontal band.

Burrard Inlet.—The positions of the buoys in Vancouver harbor entrance are are follows:—Red spar buoy, 2,320 ft. 304 deg.; and black spar buoy, 1,760 ft. 312 deg., from Brockton Point lighthouse.

Chatham Sound.—A new edition of chart 303, Tree Bluff to Kinahan Islands, on the eastern side of Chatham Sound, corrected to May 1920, has been published by the Hydrographic Survey, Naval Service Department. Price 15c.

Quatsino Sound.—An uncharted rock, with a least ascertained depth of about 1¾ fathoms, but it is considered probable that there is less water, is situated about half a mile southwestward from the entrance to Clesklagh River, in the west arm of Quatsino Sound, Vancouver Island.

Vancouver Island.—The wreck of the floating dry dock, mentioned in a previous notice, has been moved, and now lies off the ruined wharf north of Dunns Nook, and 1,350 ft. 185 deg. from the south point of Macarthy Island, Esquimalt harbor.

Vancouver Island.—The light on Lewis Point, on the west side of entrance to Beaver Cove, Broughton Strait, consists of a pole with white circular slatwork daymark attached, surmounted by a lantern at an elevation of 25 ft., and visible over an arc of 114 deg. from 184 deg. through W to 298 deg.

New Brunswick, Kennebecasis River. The lights on the west side of the public wharf at Clifton(and on the wharf at Reid Point, were permanently discontinued at the close of navigation, 1920.

Newfoundland.—A diaphone fog alarm, operated by air compressed by an oil engine, giving 2 blasts every 92 sec., in a white one story building, with flat roof, connected to the lighthouse on the southwest side by a covered way, has been established on the southeast point of Allan Island, Lamalin light station.

Nova Scotia, Bay of Fundy. — The Lurcher Shoal lightship has been replaced on her station, after being under repair.

Bay of Fundy.—The light on the shore of Minas Basin, at Salter Head, was permanently discontinued at the close of navigation, 1920.

Cape Breton Island.—On the opening of navigation, the fixed red light on Fraser Point, on the north side of the channel, at Whycocomagh, Great Bras d'Or Lake, will be replaced by a fixed white light.

Halifax Harbor.—Lightship 15 will be replaced on her station, on Sambro outer bank, at the entrance to the harbor, 6 1/5 miles from Sambro Island lighthouse, without further notice.

Ontario, Lake Erie.—On the reopening of navigation, a red steel cylindrical buoy, showing a fixed white light, and surmounted by a bell rung by the motion of the waves, will be established 300 ft. south of Old Dummy foundation, south of Pelee Point.

A more powerful diaphone fog alarm has been installed on the inner end of the west pier, at Port Maitland, and the characteristic has been changed from blast 4 sec., silent 4 sec., blast 4 sec., silent 48 sec.; to blast 2 sec., silent 3 sec., blast 2 sec., silent 53 sec.

Lake Erie.—The Public Works Department has dredged the entrance channel at Kingsville to a least depth of 13 ft. for a length of 1,100 ft. and a width of 40 ft. The dredged channel is parallel with the alignment of the range lights, the center light being 45 ft. west of the line of range; the berths alongside the eastern pier were dredged to a least depth of 11 ft. and a width of 75 ft.; depths are below the zero of the harbor gauge, which is 571.8 ft. above mean sea level at New York.

Lake Superior.—The Public Works Department has dredged the Canadian National Rys. elevator B. slip, from the outer or easterly end of the old wharf, to a depth of 25 ft., for 800 ft. by 200 ft. The next 375 ft. has a width of 125 ft., with 25 ft. depth for the first 260 ft., and 21 ft. for the remainder. These depths are below the zero of the P.W.D. gauge, which is 601.86 ft. above mean sea level at New York.

Ottawa River.—A black wooden spar buoy has been established on the north edge of shoal at the west entrance to Carillon Canal, about 800 ft. east of existing buoy.

St. Clair River.—The white pryamidal slatted structure, 10 ft. high, showing light at an elevation of 16 ft., on Stag Island, has been rebuilt, and moved upstream to the corner of Marysville dock, 75 yd. from its former position.

St. Lawrence River.—On the reopening of navigation, the occulting white light, on the gas buoy, at Empress shoal, in 16 ft. of water, south of Grenadier Island, will be changed to an occulting red light.

Quebec, River St. Lawrence.—Uncharted shoal in Lake St. Louis, 5,750 ft. 308 deg. 30 min. from the Mound cross, and 500 ft. southeast of the line of the Dixie range lights. It is composed of a small bank of mud and stone, on which a less depth than 11½ ft. may be found on further examination. The depth of water is 11½ ft. at low water datum, Lake St. Louis chart 50, corresponding to 14 ft. on the upper miter sill of the Lachine Canal entrance. The channel northwest of this shoal has been swept to a depth of 19 ft. at low water, for 350 ft. on both sides of the alignment of the Dixie range lights. Mariners are cautioned to adhere closely to the Dixie range alignment at this point in the channel, rather than the Melocheville range lights, which are too distant to give an accurate transit. A further examination of this shoal will be made in the spring. A black wooden spar buoy has been established on the channel side of the shoal.

United States, Lake Ontario. — The fixed white light on the inside angle of the outer breakwater, Oswego harbor, N.Y., has been replaced by a group flashing light every 12 sec.

St. Marys River.—The fixed white light on the south side of Pipe Island has been replaced by a fixed red light.

St. Marys River.—Two red spar buoys have been established in 21 ft. of water, to mark shoals to the eastward of, and near, the Canadian canal lower entrance range, at Sault Ste. Marie.

A Correction from Quebec Pilots.—P. M. Lamontagne, Secretary-Treasurer, Union of Licensed Pilots, Quebec, Que., writes Canadian Railway and Marine World as follows:—"In the January issue of your valuable paper, on page 51, you say that on the outward trip of the s.s. Keyingham, on Dec. 12, 1920, she was accompanied by the C.G.S. Montcalm to the mouth of the St. Lawrence River. The s.s. Lake Gatun, and the s.s. Keyingham, the last ships going down the river in 1920, were not preceded by the Montcalm, but made their way alone from Quebec to the sea, although they met heavy ice on the river until they reached the Traverse. The C.G.S. Montcalm these last two seasons has not given any help to steamships leaving Quebec at the end of the season in charge of pilots."

Vancouver Shipping Statistics. — Figures compiled by the Vancouver, B.C., Harbor Commissioners show that during 1920 shipping of approximately 7,967,186 gross tons moved in and out of the port in the coastwise trade, compared with 6,233,674 gross tons in 1919. The number of ships during 1920 was approximately 9,650. The number of deep sea ships entering and leaving port during 1920 was approximatetly 506, with an approximate gross tonnage of 1,759,308, against a gross tonnage of 1,745,522 for 1919.

Ships Added to and Deducted From the Canadian Register During October and November, 1920.

	Steam.			Sailing.		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross.	Registered.	No.	Gross.	Reg'red
Built in Canada	30	29,850	18,182	14	3,210	2,960
Purchased from foreigners	8	3,284	1,950	6	778	760
Transferred to United Kingdom	2	13,314	7,420	....	.....	.....
Registered anew	5	296	200	2	434	434
Other ships	....	.....	.....	1	128	116
Totals	45	46,744	27,752	23	4,550	4,270
Deducted.						
Wrecked or otherwise lost	40	4,140	2,917	51	4,045	3,729
Broken up or unfit for use	71	3,749	2,110	120	5,704	5,609
Not navigable	....	.....	.....	1	137	137
Sold to foreigners	4	511	291	4	451	415
Transferred to British Possessions	....	.....	.....	2	530	434
Registered anew	4	414	217	3	223	161
Totals	119	8,814	5,535	181	11,090	10,485

Canals, Harbors, Rivers Supplementary Estimates.

The further supplementary estimates for the year ending Mar. 31, 1921, passed at the Dominion Parliament's last session, contained the following items:—

Railways and Canals, chargeable to income; canals.

Lachine, St. Peter River syphon repairs	$75,000
Ontario-St. Lawrence, to refund security deposit to Wm. Birmingham	1,256
Trent, to rebuild wharf at Lindsay, revote	10,000
Improvements, additional amount required (Nassau dam)	50,000
Welland, reconstruction of Port Colborne elevator (including revote $60,000)	440,000

Public Works, chargeable to capital; harbors and rivers.

Quebec harbor, River St. Charles, improvements, to pay Railways and Canals Department towards construction of substructure of Canadian Northern Co.'s bridge	$80,365.48

Public Works, chargeable to income, harbors and rivers.

NOVA SCOTIA.

Advocate, repairs to wharf	$2,600
Avonport, repairs to wharf	1,800
Bailey's brook, extension to pier	6,000
Barrington's Cove, Sydney Mines, repairs to wharf	1,400
Barrington Passage, wharf	5,000
Bass River, wharf	21,000
Battery Point, breakwater extension	11,600
Bear Cove (Digby), breakwater improvements	540
Bear Cove (Halifax), reconstruction of skidway and shed	1,245
Belliveau's Cove, repairs to breakwaters	800
Burlington Centre, repairs to wharf	1,400
Caldwell's Cove, to repair breakwater	800
Chimney Corner, in final settlement of claim of T. D. Morrison in connection with his contract for wharf	867
Devil's Island, repairs to breakwater, further amount required	5,000
East Ferry, repairs to wharf and removal of sand and gravel	1,400
Eastern Passage, beach protection and repairs to breakwater	4,840
Feltzen South, repairs to breakwater	1,375
Freeport, repairs to breakwater, wharf	1,800
Gabarous, breastwork	2,100
Georgeville, repairs to wharf	600
Grosses Coques, renewal of sea wall	1,620
Half Island Cove, repairs to breakwater	2,500
Halifax quarantine station, new wharf at McNab's Island	40,000
Hunt's Point, reconstruction of beach protection	700
Inverness, harbor improvements, further amount required	2,000
Kelly's Cove, to repair and strengthen breakwater	3,200
Ketch Harbor, repairs to breakwater	1,000
Litchfield, groyne	2,200
Livingston's Cove, wharf extension	2,500
Long Point (Craigmore), repairs to breakwater	900
Lower L'Ardoise, repairs to breakwater	1,250
Maitland, extension of ferry wharf	2,000
Margaree, repairs to breakwater, revote	9,400
McKay's point (Judique), repairs to breakwater	960
Ogilvie's, repairs to breakwater	2,300
Parkers Cove, repairs and renewals to breakwater	2,000
Port Greville, repairs to beach protection	1,300
Port Lorne, breakwater repairs and renewals	9,200
Port Maitland, breakwater improvement	8,900
Portuguese Cove, reconstruction of skidway, breakwater repairs and renewals	20,000
Sandy Cove, to repair and strengthen breakwater	2,500
Sanford, repairs to breakwater	2,500
Seaforth, rebuilding part of breakwater	7,100
Seaside, repairs to wharf	4,350
Soldier's Cove, wharf	2,500
Spencer's Island, repairs to breakwater	700
Upper Port Latour, repairs to wharf	1,050
Wallace, repairs to wharf	1,350
West Arichat, wharf repairs and improvements	2,400
West Arichat, repairs to breakwater	4,500
White Head, repairs to wharf	600
Whycocomagh, repairs to wharf	1,200
Wolfville, harbor improvements	5,000

PRINCE EDWARD ISLAND.

Tignish harbor, to repair protection works	1,350
West River (McArthur's landing), repairs to wharf	700

NEW BRUNSWICK.

Back Bay, wharf repairs and improvements	4,500
Edgett's landing, repairs to wharf	1,000
Gautreau Village, repairs to wharf	600
Kouchibouguac harbor, to repair and construct dams and breastworks	13,000
Little Aldouane, to repair and raise wharf	800
Lord's Cove, wharf	15,500
Richibucto Cape, completion of pier and breakwater	5,000

QUEBEC.

Aylmer, repairs to wharf, further amount required	600
Barachois de Malbaie, repairs to wharf	1,800
Chandler, repairs to pier	2,000
Chicoutimi Basin, new pontoon and wharf repairs	4,800
Douglastown, repairs to breakwater	3,750
Fabre, wharf repairs and extension, to complete, revote $950	5,300
tion	2,100
Fort Coulonge, wharf improvements	1,000
Father Point, repairs to wharf	2,200
Gaspe, reconstruction of deep water wharf damaged by fire.	34,000
Grosse Isle quarantine station, retaining wall	1,500
Laprairie to complete protection works	13,500
Lanoraie, repairs to wharf	2,060
Notre Dame des Sept Douleurs (Isle Verte), completion of western wharf	5,700
Point a Elie, to protect breakwater-wharf	10,140
Riviere du Lievre, lock and dam, reconstruction of protection walls	5,700
Riviere aux Vases, wharf reconstruc-	
Roberval, repairs to wharf	1,000
St. Laurent, Island of Orleans, repairs to wharf, further amount required	1,500
St. Marc, reconstruction of wharf	4,000
St. Roch de Richelieu, repairs to wharf	600
Sorel, wharf repairs and reconstruction, further amount required	2,500
Tadousac (Anse a l'Eau), reconstruction of wharf and approach	8,900
Three Rivers, repairs to coal dock, further amount required	11,250

ONTARIO.

Beaverton, repairs to breakwater	1,250
Bronte, repairs and improvements to pier	2,650
Huntsville, repairs to wharf	3,900
Kingston, harbor improvements	1,583
Lake Katrine, wharf	730
McGregor's Creek, renewal of revetment wall	14,100
Meaford, repairs to revetment wall	900
MacLaren's Landing, wharf	6,600
Owen Sound, wharf reconstruction	86,000
Penetanguishene, repairs to wharf	2,100
Pelee Island, repairs to piers, further amount required	5,750
Port Burwell, repairs to pier, further amount required	2,000
Port Dover, repairs to piers	20,000
Port Hope, repairs to checkwater	3,000
Port Stanley, harbor improvements	50,000
Rosseau, repairs to wharf	1,200
Rondeau, harbor protection work	13,000
Sturgeon Falls, revetment wall	1,900

MANITOBA.

Big Island (Hecla), wharf	3,000
Killarney, repairs to dam and cut	1,100
Pas, wharf, revote	14,800

BRITISH COLUMBIA.

Alice Arm (Silver City), landing float, to complete	950
Alice Arm, wharf, conditional on Provincial Government building road	15,000
Campbell River, repairs to wharf, revote	15,800
Carroll's Landing, wharf	7,000
Church House, float, reconstruction	2,400
Clayoquot, repairs to wharf, further amount required	450
Deep Cove, repairs to wharf	1,250
Degnan's Bay, repairs to float	1,100
Denman Island, new float	1,000
Edgewood, repairs to wharf	1,700
Fraser River, dredging North Arm, further amount required	3,550
Gower Point, float	1,800
Graham, wharf	11,500
Halcyon, wharf approach	1,300
Hollyburn, wharf repairs	6,300
Hurst Island, landing float	800
Jackson Bay, approach to float	1,700
Kuskanook, wharf	9,500
Larysmith, wharf	9,500
Lyall Harbor, Saturna Island, wharf	4,900
Manson's Landing, wharf	5,500
Mayne Island, repairs to wharf	4,500
Mill Bay, repairs to wharf	1,500
Moresby Island, wharf renewal	3,400
Nootka Island, repairs to wharf, further amount required	950
Okanagan River, maintaining dam and repairing bank protection works, further amount required	900
Pen harbor, float	1,200
Port Alberni, float, revote	2,090
Port Clements, repairs to wharf	1,100
Prince Rupert quarantine station, protection work	865
Procter, floating wharf	7,000
Sandspit Point, reconstruction of wharf	10,000
South Gabriola Island, wharf, revote	3,500
Stag Bay, float	1,500
Stewart, reconstruction of wharf, further amount required	3,500
Westbank, extension of wharf	3,300

DREDGING.

Dredging, Manitoba, Saskatchewan and Alberta, further amount required	$18,000

Public Works, chargeable to collection of revenue.

St. Andrews Rapids, Man., lock and dam, further amount required	$1,000

Re-grouping of Atlantic Passenger Steamships.

A committee of the North Atlantic Passenger Conference, has completed a re-grouping of the steamships plying on the Atlantic Ocean in the passenger trade. Before the war, steamships were placed in different groups, the grading being decided by a committee, which took into consideration the age, the size, and the accommodation of the ship. During the war, this grouping became obsolete, and owing to the large amount of business since the close of the war, it was not found necessary, up to last year, to take the question up again. There were so many differences, however, in the fares quoted, some of the larger steamships charging less than the smaller and older ships, that it became necessary to re-group the steamships again, to put them on a satisfactory basis. The increases in fares are small, the main object being to re-grade the ships in groups composed of ships corresponding to each other as much as possible. An instance may be mentioned in the case of the White Star-Dominion Line's s.s. Megantic, the first class fare being increased from $199.25 to $205, the second class from $119 to $120, and the third class from $84 to $85.

Conversion of C.P.R. British Columbia Coast Steamships to Coal Burners. — Canadian Railway and Marine World for January contained the announcement made by the C.P.R. that it had been decided to convert its British Columbia coast steamships to use coal for fuel instead of oil, on account of the shortage of fuel oil, and its inability to obtain the requisite supplies. The company has had the changes made on the steamships Charmer, Princess Adelaide and Princess Mary, and the steam tug Nitinat. The company has recently arranged for a supply of oil for this year and will not change over any more of its fleet, so the steamships Princess Alice, Princess Charlotte, Princess Patricia, Princess Maquinna and Island Princess will remain as oil burners.

Marine Public Works Contracts Awarded.—The Dominion Public Works Department has awarded the following contracts:—Royston, B.C., repairs to wharf, Wm. Greenlees, Vancouver, B.C., Nov. 26, 1920, unit prices; Burlington, Ont., removal of old swing bridge and construction of substructure of single leaf trunnion bascule bridge, Canadian Engineering & Contracting Co., Hamilton, Ont., Nov. 30, 1920, unit prices.

Keystone Transports Ltd. has been incorporated under the Dominion Companies Act, with capital stock consisting of 1,000 shares of no nominal or par value, provided that it shall carry on business with a capital stock of $5,000, and office at Montreal, to own and operate ships of every description, and to carry on a general shipping and forwarding business for passengers and freight by land and water.

Dominion Canals Statistics for the 1919 Navigation Season.

A general summary of these statistics for 1919, prepared by the Dominion Bureau of Statistics, Transportation Division, was published in Canadian Railway and Marine World for January. Following are the principal details:—

The total traffic through the canals was 9,995,266 tons, a decrease of 8,888,353 tons from 1918. The volume of traffic through the various canals was as follows:—

	Tons.	Increase.	Decrease.
Sault Ste. Marie	4,138,085	.....	8,775,626
Welland	2,170,779	.....	3,519
St. Lawrence	2,891,619	.....	139,515
Chambly	242,961	.....	126,225
St. Peters	64,879	5,163	.....
Murray	108,250	63,515	.....
Ottawa	218,438	51,268	.....
Rideau	103,539	49,403	.....
Trent	52,953	.....	11,940
St. Andrews	3,763	.....	877
Total	9,995,266	.....	8,888,353

Gross Traffic Since 1906.

	Tons.		Tons.
1906	10,523,185	1913	52,053,913
1907	20,543,639	1914	37,023,237
1908	17,502,820	1915	15,198,803
1909	33,720,748	1916	23,583,491
1910	42,990,608	1917	22,238,935
1911	38,030,353	1918	18,883,619
1912	47,587,245	1919	9,995,266

Following is an analysis of the various commodities passing through the canals:

Canals. 1919	Agricultural products. Tons.	Animal products. Tons.	Manufactures Tons.	Products of forest Tons.	Products of mines Tons.	Total. Tons.
Sault Ste. Marie	1,581,576	1,812	303,617	29,038	2,222,042	4,138,085
Welland	778,449	895	238,807	91,682	1,060,946	2,170,779
St. Lawrence	792,563	5,244	231,903	449,697	1,412,212	2,891,619
Chambly	12,700	282	5,960	123,042	100,977	242,961
St. Peter's	9,993	1,686	7,268	1,556	44,376	64,879
Murray	.....	.....	8,147	.....	100,103	108,250
Ottawa	2,646	2,998	18,555	114,355	79,884	218,438
Rideau	1,247	2,327	12,184	13,234	74,547	103,539
Trent	2,328	188	2,497	47,079	861	52,953
St. Andrews	.....	91	268	3,404	.....	3,763
Total	3,181,502	15,523	829,206	873,087	5,095,948	9,995,266

There were 2,473,700 barrels of Canadian flour passed through the Canadian canal, and 396,780 through the U.S. canal, a total of 2,870,480 barrels, equivalent to 12,917,160 bush. of wheat, at the rate of 4½ bush. of wheat to the barrel of flour. The total bushels of waterborne wheat in 1918 and 1919 would thus be:—

	1918	1919
Through Canadian canal	19,987,255	21,060,989
Through U.S. canal	42,312,016	70,513,847
In form of flour	7,061,913	12,917,160
Total	69,361,184	104,491,996

Water carriers obtained lower rates on wheat during 1919 than during 1918, the rates for the different routes for the past four years being as follows:—

	1916	1917	1918	1919
Fort William and Port Arthur to Montreal—				
Per ton per mile	0.205c.	0.265c.	0.309c.	0.292c.
Per bushel	7.55c.	9.78c.	11.39c.	10.76c.
Per ton	$2.52	$3.26	$3.80	$3.58
Fort William and Port Arthur to Georgian Bay—				
Per ton per mile	0.264c.	0.270c.	0.277c.	0.203c.
Per bushel	4.10c.	4.25c.	4.32c.	3.15c.
Per ton	$1.37	$1.42	$1.44	$1.05
Fort William and Port Arthur to Other Canadian Ports—				
Per ton per mile	0.169c.	0.185c.	0.205c.	0.150c.
Per bushel	3.68c.	4.18c.	4.48c.	3.46c.
Per ton	$1.22	$1.39	$1.49	$1.15
Fort William and Port Arthur to Buffalo—				
Per ton per mile	0.159c.	0.196c.	0.158c.	0.143c.
Per bushel	4.27c.	5.00c.	4.11c.	3.73c.
Per ton	$1.42	$1.67	$1.37	$1.24

The number of ship passages and tons of freight in Canadian and U.S. ships, and the total of Canadian and U.S. freight for 1918 and 1919, were as follows:—

	Canadian ships		U.S. ships	
	No.	Tonnage	No.	Tonnage
1918	18,909	7,800,972	6,791	9,616,200
1919	20,682	8,735,973	4,092	5,259,173

	Canada.	United States.	Total.
1918	3,369,477	15,514,142	18,883,619
1919	4,865,831	5,129,435	9,995,266

The following table shows the bushels of Canadian wheat passing through the Canadian and U.S. canals at Sault Ste. Marie, for the past four years:—

	1916	1917	1918	1919
Canadian canal	82,807,342	60,551,243	19,987,255	21,060,989
U.S. canal	102,196,325	98,023,019	42,312,016	70,513,847
Total	195,003,667	158,574,262	62,299,271	91,574,836

In addition to the wheat passing through the Sault Ste. Marie Canals, other grains moved during 1918 and 1919 as follows, the figures representing bushels:—

	1918	1919
Oats	10,120,625	16,300,853
Barley	3,470,358	12,873,877
Rye	.....	760,005
Flax	1,588,052	838,042
	15,179,035	30,772,777

The distribution of Canadian wheat, moved through the Canadian and U.S. canals at Sault Ste. Marie, from Port Arthur and Fort William, was as follows in bushels:—

	1918	1919
To Montreal	728,500	563,003
To Georgian Bay ports	38,774,391	53,793,981
To other Canadian ports	20,638,204	33,090,288
To Buffalo, N.Y.	2,158,176	4,127,614
Totals	62,299,271	91,574,836

It may be assumed that nearly all the wheat shown in the foregoing table as being moved from the head of the lakes to other Canadian ports, means to Port Colborne, Ont., for transfer to Montreal.

Details of all traffic passing through the Sault Ste Marie canals are published monthly in Canadian Railway and Marine World, and a summary of the total traffic for 1919, compared with similar figures for the 1920 traffic, is published elsewhere in this issue.

Vancouver Harbor Development Works. In addition to the works to be undertaken by the Vancouver Harbor Commissioners, particulars of which were given in Canadian Railway and Marine World for January, pg. 46, it is intended to erect a coal bunkering plant at an approximate cost of $750,000. When a site has been selected plans will be prepared and held in readiness, pending an appropriation which is expected to be made at the Dominion Parliament's next session.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

Mar. 15 to 17.—American Railway Association, Division 4, Engineering, Chicago, Ill.; E. H. Fritch, 431 South Dearborn St., Chicago, Ill.

May 11.—Railway Accounting Officers' Association, Atlantic City, N.J.; E. R. Woodson, 1,116 Woodward Bldg., Washington, D.C.

May.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

June 15 to 22.—American Railway Association, Division 5, Mechanical, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 20.—American Association of Freight Agents; R. O. Wells, Illinois Central Rd., Chicago, Ill.

June 20.—American Train Dispatchers' Association, Kansas City, Mo.; C. L. Darling, Northern Pacific Ry., Spokane, Wash.

Aug. 24 to 26.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, Kansas City, Mo.

Sept. 20 to 22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill; P. J. McAndrews, Chicago & North Western Ry., Sterling Ill.

Painters' Association, Buffalo, N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Diamond State Fibre Co. of Bridgeport, Pa., has incorporated a Canadian company, the Diamond State Fibre Co. of Canada Ltd., with office, factory and warehouse at Toronto, which will look after the entire Canadian territory. The latter company has issued Bulletin 14, respecting Diamond F. railway installation, describing in detail the uses and application of fibre.

Mason Regulator & Engineering Co., Montreal and Toronto, has issued a catalogue of its principal engineering specialties.

Whiting Foundry Equipment Co., Harvey, Ill., announces that it has changed its name to Whiting Corporation, and increased its authorized capital stock from $700,000 to $3,000,000. The Whiting Corporation remains under the same management, and will continue the manufacture of cranes, foundry equipment and railway specialties as heretofore.

Removal of Restrictions on Coal Bunkering.—The Board of Railway Commissioners has authorized the removal of restrictions placed on the bunkering of ships at Canadian Atlantic ports, ordered in Sept. 1920. In his instruction on the matter to the Shipping Federation of Canada, the Chief Commissioner stated that the effects of the measures taken had been carefully watched and that a reasonable margin of safety in the matter of coal supplies had been achieved.

Canadian Navigators Federation.—At a meeting in Ottawa, on Jan. 11, of members of the Canadian Merchant Service Guild, and other similar organizations, it was practically decided to amalgamate all organizations of shipmasters, and other ships officers, pilots, etc., in Canada, as the Canadian Navigators Federation. Two delegates, although expressing themselves in favor of amalgamation, had to reserve decision until they could consult their local bodies.

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Furniture Merchants' Trade Journal

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Northwestern Druggist
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Oil News
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Railway Electrical Engineer
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Railway Mechanical Engineer
Railway Signal Engineer
Retail Lumberman
Rubber Age and Tire News

Shoe Findings
Shoe and Leather Reporter
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Southern Hardware & Implement Journal
Sporting Goods Dealer
Starchroom Laundry Journal

Tea and Coffee Trade Journal
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Railway Accountant.—Age 35. Twenty years experience. Past five years, General Auditor, 600 mile road. Railway work not essential. Box 4866, Canadian Railway and Marine World, Toronto.

THE OTTAWA NORTHERN & WESTERN RAILWAY COMPANY.

NOTICE—The Ottawa, Northern & Western Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time for commencement and completion of the line of railway which it was authorized to construct by Statute of Canada, 1919, chapter 91, from the present terminus of its so-called Waltham Branch at Waltham, in the Province of Quebec, thence through the Townships of Waltham, Chichester and Sheen, thence across the Ottawa River to a junction with the Canadian Pacific Railway at or near Chalk River, in the Province of Ontario, and to increase its bonding powers in respect of the said line.

Dated at Montreal, this 11th day of January, 1921.

H. C. OSWALD,
Secretary.

Pringle, Thompson, Burgess & Cote,
Ottawa Agents.

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MANITOBA & NORTHWESTERN RAILWAY COMPANY OF CANADA.

NOTICE—The Manitoba & Northwestern Railway Company of Canada will apply to the Parliament of Canada, at its next Session, for an Act authorizing it to construct, maintain and operate the following lines of railway:—

(a) From a point at or near Tuffnell on its line of railway in or about Township 30, Range 10 or 11, west of the 2nd Meridian, thence northwesterly northerly and westerly to a crossing of the North Saskatchewan River in or about Townships 49, 50 or 51, Range 14 or 15, west of the 2nd Meridian, thence in a westerly direction to the City of Prince Albert.

(b) From a point at or near Theodore in or about Township 28, Range 6 or 7, west of the 2nd Meridian, thence in a generally westerly direction to a point between Govan and Lanigan on the Pheasant Hills Branch of the Canadian Pacific Railway.

And for authority to issue securities to an amount not exceeding $40,000 per mile in respect of the said lines of railway.

Dated at Montreal, this 11th day of January, 1921.

H. C. OSWALD,
Secretary.

Pringle, Thompson, Burgess & Cote,
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Parties answering this advertisement must send photograph of vessel and state over all dimensions, keel length, draft, and all particulars as to hull, engine, and boiler, giving age of each and present condition; also, particulars of living accommodations.

Also state where vessel can be inspected. Address Box No. A1310, Canadian Railway and Marine World, Toronto.

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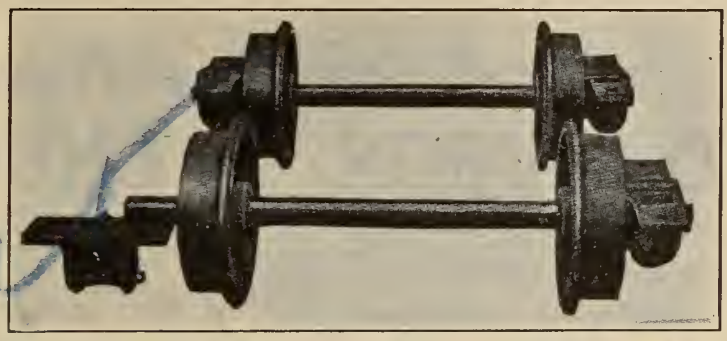
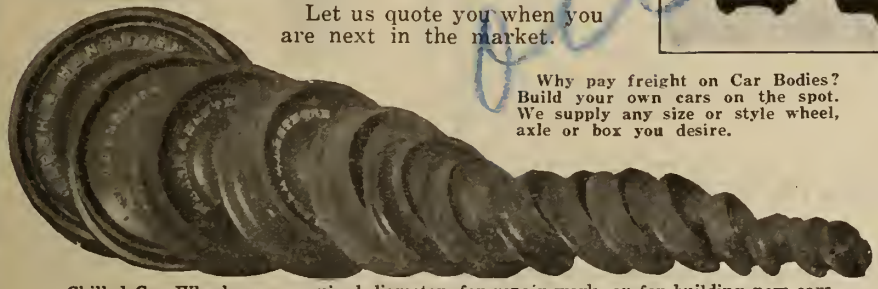
Hundreds and hundreds of cars have been built by the user from car irons supplied by us. It is the cheapest way to get your cars, and they give just as good service.

Let us quote you when you are next in the market.





Why pay freight on Car Bodies? Build your own cars on the spot. We supply any size or style wheel, axle or box you desire.

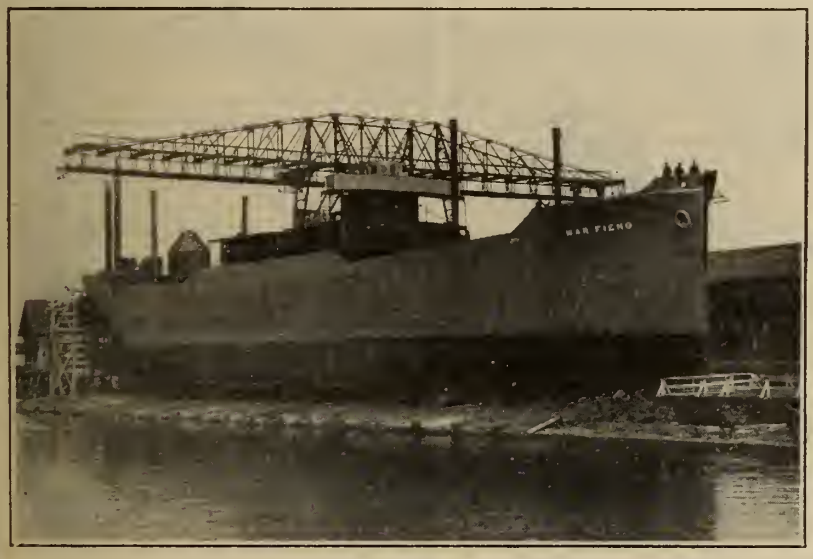
Chilled Car Wheels, any required diameter, for repair work, or for building new cars. Properly chilled and annealed to give long life and satisfactory service.

MARSH ENGINEERING WORKS, LIMITED

Established 1846

Belleville, Ontario

Sales Agents: MUSSENS LIMITED, Montreal, Toronto, Winnipeg & Vancouver



S.S. WAR FIEND.

MIDLAND SHIPBUILDING CO., LIMITED

Builders of STEEL SHIPS, SCOWS and DREDGES

Plant is equipped with the latest appliances. Special attention is given to repairs and alterations.

Marine Fittings
Port Lights
Electric Railway Fittings
Trolley Wheels
Journals, etc.

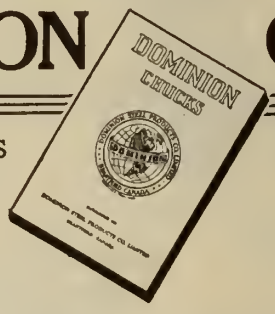
Ontario Specialties Ltd.

Brass Manufacturers

Ottawa - - - Canada

Send for this Book

DOMINION CHUCKS



DOMINION CHUCKS ARE GUARANTEED

Steel or Cast Iron Body — *Built for Heavy Duty*

You Want Dependable Chucks

INCREASED cost of production demands that every tool give satisfactory and continuous service and be free from the annoyance of frequent breakage. **Dominion Chucks** were perfected by us for our own use and to fill a specific need for a chuck that would stand up and give a satisfactory service under the strain of heavy and continuous work.

Chuck troubles in our own plant compelled us to design and manufacture for our own use the **Dominion Chuck.** It has proved satisfactory under the test of heavy duty service and the most exacting work. We are manufacturing this chuck either in all-steel or iron bodies—sizes 10 to 24 inches. *Write for our Chuck Book.*

DOMINION STEEL PRODUCTS CO.
LIMITED
Engineers • Manufacturers
BRANTFORD, CANADA

7

Third Rail Terminal, Showing Method of Attaching to Rail.

STANDARD
Cable Accessories

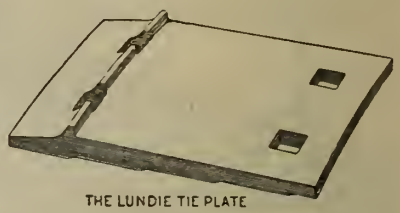
include a complete line of Outdoor (Type D.O.A.) and Indoor (Type D.S.) Cable Terminals, Cable Junction Boxes, "Ozite" Insulating Compounds, etc.

These have been developed during 39 years' experience in the manufacture and installation of Electric Wires and Cables.

Our experience is at your service.

Standard Underground Cable Co. of Canada, Limited
Hamilton, Ont.

Montreal, Toronto, Winnipeg, Seattle.



THE LUNDIE TIE PLATE

One of the most distinguished, successful and honored Engineers of Canada writes as follows of the

LUNDIE TIE PLATE

"It is by far the most scientifically designed and practically efficient tie plate ever evolved."

THE LUNDIE ENGINEERING CORPORATION
920 BROADWAY, NEW YORK
Chicago Office—30 No. La Salle Street

Canadian Representatives
THE HOLDEN COMPANY, LTD.
350 St. James St., Montreal.

Ask the Canadian Pacific about Canada
CANADIAN PACIFIC RAILWAY

Bureau of Canadian Information

THE Canadian Pacific Railway, through its Bureau of Canadian Information, will furnish you with the latest reliable information on every phase of industrial and agricultural development in Canada. In the Reference Libraries maintained at Chicago, New York and Montreal are complete data on natural resources, climate, labor, transportation, business openings, etc., in Canada. Additional data is constantly being added.

No charge or obligation attaches to this service. Business organizations are invited to make use of it.

Canadian Pacific Railway
Department of Colonization and Development

165 E. Ontario St. Chicago
335 Windsor Station Montreal
1270 Broadway New York

IMPERIAL BANK
OF CANADA

Capital Authorized	$10,000,000
Capital Paid up	7,000,000
Reserve Fund	7,500,000

Head Office: Toronto.

Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.

Sterling and New York Exchange bought and sold.

Savings Department: Interest allowed on deposits at best current rates.

Branches throughout the Dominion of Canada.

FORGINGS

SEND PRINTS FOR PRICES

CANADA
FOUNDRIES & FORGINGS, LIMITED
WELLAND, ONT.

Who Pays the Cost of Technical Newspaper Advertising?

By F. A. McLean, Sherbrooke, Que.

Of the various objections to advertising that are heard from time to time, about the only ones that appear to hold water are those that it is a useless waste of money, and that it adds to the selling cost, and thus to the price of the goods.

In order to consider these objections in their true light, let us admit that the last one is true—that the ultimate consumer pays the cost of advertising since it is added to the selling price of the article. Now, having admitted this much, we can use it to show how foolish the other objection is.

The entire cost of marketing any product, of packing, of advertising, and of selling, are always paid by the ultimate consumer. So also, is the cost of raw materials and labor during manufacture, and to this must be added a reasonable profit to the manufacturer who produces the goods.

Bearing these points in mind, it is not hard to see that any method which will reduce the cost of manufacturing, or selling, an article, is of real advantage to the consumer, even if he does have to pay its cost.

A little thought will show that technical newspaper advertising is a real factor in reducing the costs of selling technical products in a number of different ways. For instance, how much time is wasted by a salesman in making calls on a firm whose officials have never heard of his firm or its product?

Even when the salesman does get to see his man, how much of his own and his prospect's time is he likely to waste, in introducing his firm and himself, and who pays the salesman's salary while he is cooling his heels in the front office, or doing missionary work in the back one?

The cost of the time consumed by the salesman of an unadvertised product in trying to secure an interview, and in explaining his proposition, and trying to make his product known to a man who has never heard of it, added to his expense account, amounts to a good round sum in a year's time, and when this is multiplied by the number of men selling the product, the result is appalling, and since the manufacturer must live, this sum must be paid to him, and it is therefore added to the selling price, and the consumer who buys and uses the product pays for this inefficient moth-eaten way of building a business.

On the other hand, consider how quickly the salesman of some of our large national advertisers of technical products would be ushered into the presence of a man who had been reading the advertising pages of his technical newspaper and consequently was familiar with the salesman's firm, its product, or service, and what it would do for him, and also aware through that advertising, of the helpful suggestions or advice that the salesman might be able to give him.

Technical newspaper advertising, whether it produces direct replies for him to follow up, or merely calls the attention of possible buyers to his firm and its line, is the salesman's trusty broad sword, and helps him to call on more people in a given time, and with better effect, so that he can often secure ten orders for his employer in the same time that the salesman for unadvertised products would secure one.

This reduces the sales cost per unit, and often permits a smaller force of salesmen to be employed, since each man is likely to produce a larger volume of sales. The more sales the salesman makes, the faster the business grows, and, with the growth of the business, better equipment is generally installed, and more efficient manufacturing methods adopted, so that the article can be produced in quantities at a lower manufacturing cost per unit.

When new machines, or mechanical devices, which are not long past the experimental stages, are placed on the market, customers, through ignorance, often experience trouble, condemn the machine and wish to get their money back. Technical newspapers offer the manufacturer a splendid chance to educate his customers in the proper operating methods, and enable him to keep down costs, by keeping the product sold, and at the same time benefit the consumer, by showing him how to get the best results from his equipment.

Good technical newspaper advertising not only guards the manufacturer against the "trading-in" evil, or the throwing out of his device in favor of a competitive one, but also enables him to ward off the day of diminishing returns, increase his business, and lower production costs, through suggesting new uses for his product, that greatly increase its sphere of utility and make it of more value to his customers.

Another point in favor of advertising from the customer's point of view, is the fact that it takes a lot of printer's ink to make a good article known, and a lot more to keep it so, and printer's ink costs money, so no manufacturer is going to keep on advertising a failure, or sacrificing a good reputation built up through years of hard work, nor jeopardize his future, if he is just starting, by advertising an inferior article.

When a manufacturer, in his advertising, claims certain points of superiority in his product, and what it will do, it must have these advantages in fact, or he cannot hope to stay in business. Consistent technical newspaper advertising, year, after year, is therefore a pretty sure sign that the product is a reliable one and its makers sincere in their claims and thus worthy of support.

Remember these facts and the next time you hear a manufacturer or a salesman boasting that his firm does not advertise, and can in consequence give better quality or quote lower prices, hit him with a meat axe, or, better still, point out to him that his argument is illogical, and tell him that you know that technical newspaper advertising is the quickest and cheapest method of linking up the buyer and seller, the short cut between the manufacturer and his trade.

Let him know that you believe in Canadian technical newspapers and that you think he should advertise in Canadian Railway and Marine World, or other Canadian technical newspapers that will reach the class of men he wishes to sell.

CANADIAN RAILWAY AND MARINE WORLD

Toronto *Member of* **Canada**

Audit Bureau of Circulations, Associated Business Papers, Canadian National Newspapers and Periodicals Association, Canadian Press Association.

The only paper covering the entire Canadian transportation field, steam and electric railways, marine and shipbuilding.

Dominion Oxygen is available for immediate shipment

CANADIAN industry is now assured of a continuous and easily accessible supply of the highest grade oxygen. The completion of the first four of the Dominion Oxygen Company's distributing stations makes manufacturers throughout Canada independent of long distances and uncertain transportation. A completely stocked Dominion Oxygen center, within easy railroad or motor truck delivery distance of your plant, is ready to start your oxygen shipment on the day your order is received.

The Dominion Oxygen Company, Limited, through its constantly increasing facilities for greater production and faster distribution, is now in a positon to give you twenty-four hour service.

An unfailing supply of pure oxygen within easy reach, cylinders of a new and lighter type which make worthwhile savings in transportation and handling charges, a liberal cylinder loan policy backed by courteous and prompt attention to your order is our conception of service.

***DOMINION OXYGEN COMPANY,** Limited*

Hillcrest Park, Toronto, Ontario

Hamilton *Montreal* *Windsor*

D-12

An Easy Solution for Catenary Problems—*Use O-B Service*

The photograph is of an interworks railway. The extensive yard work introduced interesting construction.

Large quantities of standard O-B Materials were used. A new clevis strain clamp was developed to take care of the long cross-span.

O-B Engineers are familiar with all that is latest and best in overhead practice. They know intimately the lore of the trade. It is not surprising, then, that they find ingenious solutions to catenary puzzles.

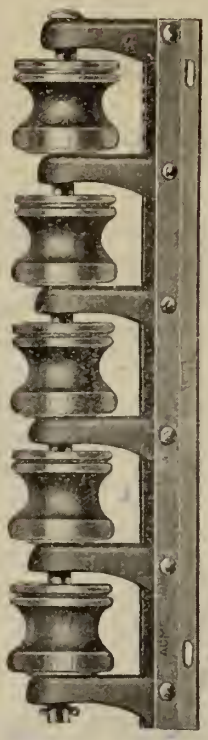
O-B Engineers will take over all the details of your catenary construction as they have on other projects. Or, working from your plans, they will specify practicable designs.

Usually, standard devices are best. Sometimes, special articles are produced. Always, you can rely on this company for the satisfactory solution of your Catenary problems.

The Ohio Brass Company, Mansfield, Ohio

New York Philadelphia Pittsburgh Chicago Los Angeles
San Francisco Paris, France

Manufacturer: Trolley Materials, Rail Bonds, High Tension Porcelain Insulators, Third Rail Insulators, Electric Railway Car Equipment.



Pole Line Hardware

of Every Description

Secondary Racks and Brackets

Anchor Rods

Eyebolts

Cross Arm Braces

Made in Canada under Peirce and Hubbard Patents

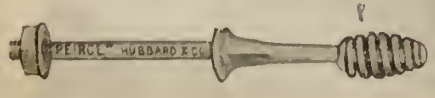
STAMPINGS

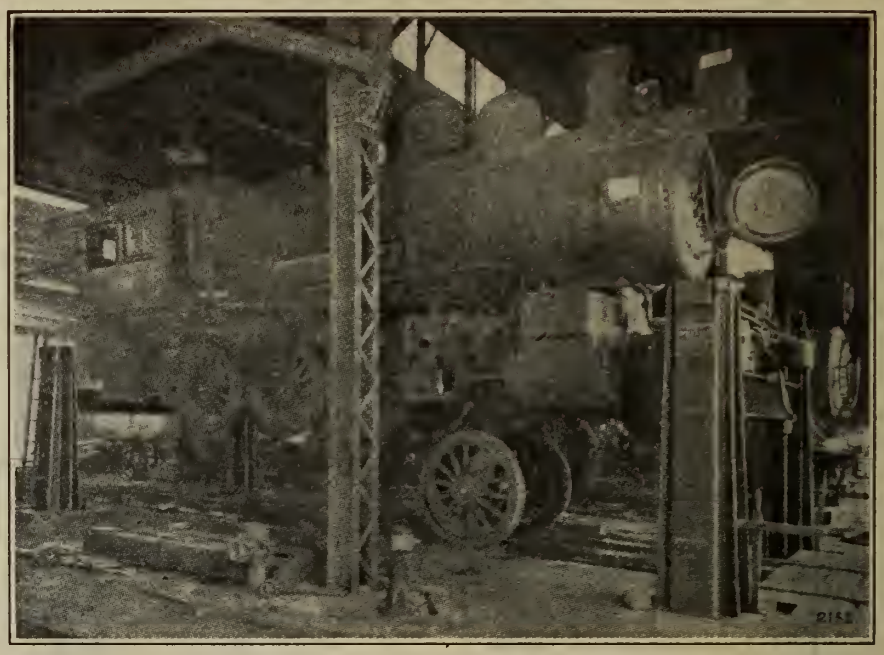
N. Slater Co., Ltd.

Successors to

Slater & Barnard Limited

Hamilton, Ont.





View of Whiting Locomotive Hoist in operation, removing one pair of wheels.

Remove all drivers or only one pair as desired

The Whiting Locomotive Hoist can be used with equal advantage to renew one pair of drivers for minor repairs or all of them for a complete change of wheels.

It handles all types of engines in a fraction of the time required by a drop pit and without the risk. Absolutely safe.

Let us send you our illustrated railroad book containing full description of this time- and labor-saving hoist.

Ask for Catalog No. 145

WHITING CORPORATION

(Formerly Whiting Foundry Equipment Co.)

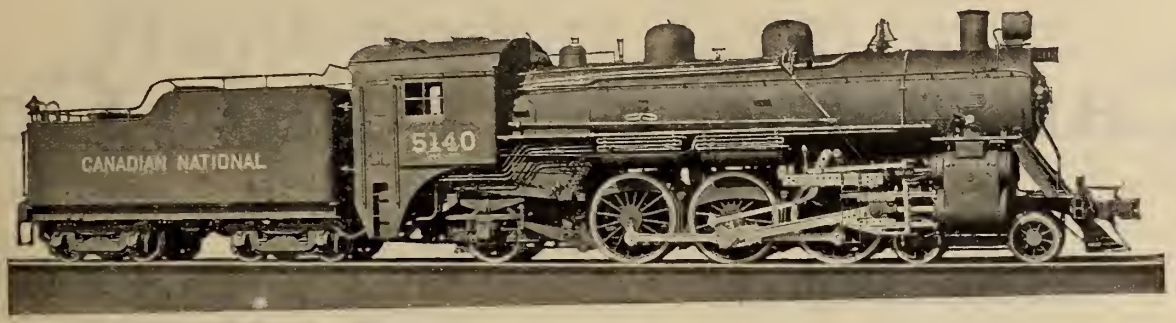
General Office and Works - Harvey, Ill.

Built under U.S. Patents 1085734 and 1314557.
We are sole owners of these patents.

Coach Hoists — Transfer Tables — Turntable Tractors

WHITING

CRANES OF ALL TYPES / FOUNDRIES EQUIPPED COMPLETE



4-6-2 TYPE LOCOMOTIVE

Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

Montreal Locomotive Works, Limited

DOMINION EXPRESS BUILDING, MONTREAL, CANADA

Ottawa Car Manufacturing Co., Ltd.

Designers and Builders of

Electric City and Interurban Passengers Cars

Electric Express Cars and Locomotives

Sprinklers and Work Cars

Car Seats

Car Curtains

and a very large variety of brass and bronze car fittings

ONE-MAN SAFETY CAR

Castings of Every Description in Brass and Bronze

Rough or Machined complete to Specification

Send them your inquiries, as they are at your service for specifications, drawings, estimates and prices. Satisfaction assured on all orders, and deliveries made promptly. Always ready for service. Continuous work has proved their worth.

Corner KENT and SLATER STS., OTTAWA, ONT.

Canadian Porcelain Co.

Limited

Hamilton Canada

Porcelain Insulators and Pole Line Hardware

THE JOHN INGLIS COMPANY, LIMITED

ENGINEERS AND BOILER MAKERS

ENGINES, BOILERS

AND

TANKS of all kinds

Write us for prices and specifications.

Plant of the John Inglis Co. Limited

Penstocks, Heavy Plate Work, and Special Machinery.

14 STRACHAN AVE., TORONTO, CANADA

Representatives in Eastern Canada,—JAS. W. PYKE & CO., Ltd., 232 St. James Street, MONTREAL.
Ottawa Representative,—J. W. ANDERSON, 7 Bank Street Chambers.

Hunt-Spiller Gun Iron

FOR 12 OF THE PRINCIPAL PARTS OF A LOCOMOTIVE

1 Cylinder Bushings
2 Cylinder Packing
3 Pistons
4 Valve Bushings
5 Valve Packing
6 Valve Bull Rings

HUNT-SPILLER GUN IRON
THE PRODUCT OF SPECIALISTS

7 Side Rod Bushings
8 Knuckle Pin Bushings
9 Pedestal Shoes
10 Pedestal Wedges
11 Driving Boxes
12 Crosshead Shoes

More than one hundred years ago the late Cyrus Alger of Boston perfected a process for securing a high grade strong iron with exceptional wearing qualities. For the last seventeen years this present Organization has devoted its time and effort to the adaption of this product for use in the wearing parts of the modern locomotive.

GOOD RESULTS — ECONOMICAL OPERATION
SATISFIED CUSTOMERS OF YEARS STANDING

All prove the advisability of using Hunt-Spiller Iron for this service.

Made only by

Hunt-Spiller Manufacturing Corporation

W. B. LEACH, Pres. & Gen. Mgr. Office and Works: J. G. PLATT, Vice-Pres. & Sales Mgr.
383 Dorchester Ave., SOUTH BOSTON, 27 Mass.
Canadian Representative, Canuck Supply Co., 148 St. James St., Montreal, P.Q.

"Safe Railway Oil Storage Systems"

There is a Bowser system for every requirement. Our Engineers will be glad to take a survey of your needs. They are at your service.

S. F. BOWSER COMPANY, Ltd.
66-68 Fraser Avenue
Toronto, - Canada

BOWSER

Systems are:
Leak-proof
Evaporation-proof
Deterioration-proof
Convenient
Rapid
Highly Efficient
Conserve space and reduce fire hazard to minimum

THE WOOLERY

CHAMPION COLD WEATHER ENGINE

FOR RAILWAY MOTOR CARS

Runs in 60 Below Zero Weather

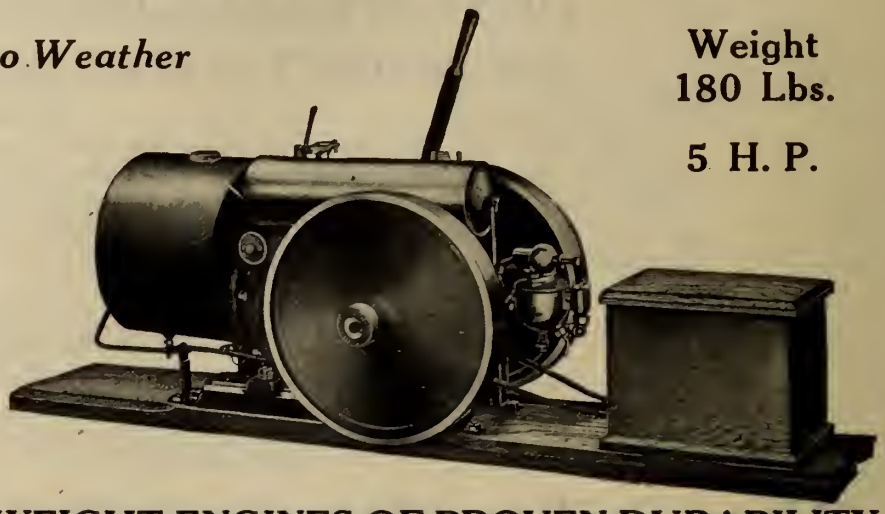
Weight
180 Lbs.

5 H. P.

5 and 7½ H.P. Single Cylinder
PATENTED,
SELF-ADJUSTING
SLIDING BASE.

FROST PROOF
STEEL WATER JACKET.

10 and 15 H.P. Twin Cylinder
with Belt and Roller Chain
Transmission.



REVERSIBLE LIGHT WEIGHT ENGINES OF PROVEN DURABILITY

Guaranteed 4 Years

Canadian Agency—Dominion Equipment & Supply Co., Winnipeg, Man.

WOOLERY MACHINE CO., Minneapolis, Minn., U.S.A.

MADE IN CANADA.

PAGE-HERSEY TUBES, LIMITED

Tubular Poles

NEAT, UNIFORM AND ORNAMENTAL
in appearance, combined with
GREAT DURABILITY, STIFFNESS AND STRENGTH
make them ideal for
ELECTRIC LIGHT AND POWER
TELEPHONE, TELEGRAPH
AND STREET RAILWAY
LINES

and also for
FLAG POLES,
all sizes and weights.

ILLUSTRATION SHOWS A LINE OF PAGE-HERSEY WROUGHT TUBULAR STEEL POLES ON THE BLOOR STREET VIADUCT—TORONTO, CAN.

HEAD OFFICE:
100 Church Street - Toronto, Can.

Reid Newfoundland Co.

St. John's, N. F.

Railway and Steamship Lines
Dry Dock and Marine Works

WOOD AND STEEL SHIPBUILDERS AND ENGINEERS

SPECIAL FACILITIES FOR REPAIRS

SHEER LEGS AND WHARFAGE AT DEEP WATER PIER

SHOPS EQUIPPED WITH MODERN MACHINERY

PNEUMATIC TOOLS, ELECTRIC AND ACETYLENE WELDING PLANT IN OPERATION

VESSELS PAINTED WITH ANTI-FOULING PAINTS

Rates on Application

For Railroad and Steamship Upholstery

The answer to the question, "What fabric is universally used for upholstery?"

Mohair is the logical choice of all upholstery fabrics

Why? **First—Durability. Second—Fast color. Third—Rich appearance. Fourth—Sanitary.**

How long does it last? **According to quality, eight to twenty-five years.**

What evidence that it is sanitary? **Careful scientific tests through many months by some of America's leading railroads, hotels and homes. Particulars gladly furnished on request.**

What is Mohair? **The lustrous fleece of the Angora goat.**

How strong is Mohair compared with wool? **According to Government tests more than two and one-half times.**

For more than thirty years CHASE Goat Brand Plush has been the standard with America's largest railroads and steamship lines.

Recently there was exhibited a seat covering in excellent condition after a constant service of twenty-four years. It was upholstered with CHASE Goat Brand Plush.

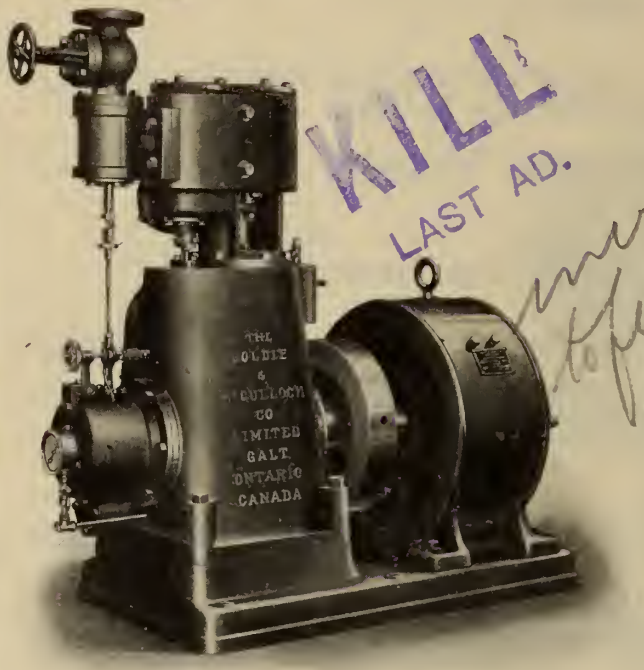
CHASE

MOHAIR PLUSH

L. C. CHASE & CO., Boston, New York, Detroit, Chicago, San Francisco

Leaders in Manufacturing since 1847

Westinghouse



KILL
LAST AD.

Power and Light

Power and Light are both supplied by Westinghouse 7½ Kw., Vertical Engine-Driven Units.

Write for a list of the services to which these units are put in marine service.

Users of Westinghouse equipment are invited to use the repair service stations located at

MONTREAL—10 St. Sophie Lane. TORONTO—366 Adelaide W.
WINNIPEG—158 Portage Ave. E. CALGARY—316 3rd Ave. E.
VANCOUVER—1090 Mainland St.

Canadian Westinghouse Company, Limited
Hamilton, Ontario

Toronto
Bank of Hamilton Bldg.

Fort William
Cuthbertson Block

Montreal
285 Beaver Hall Hill

Winnipeg
158 Portage Ave. E.

Ottawa
Ahearn & Soper Ltd.

Edmonton
211 McLeod Bldg.

Halifax
105 Holis St.

Calgary
Canada Life Bldg.

Vancouver—Bank of Ottawa Bldg.

CANADIAN WESTINGHOUSE

The Norton New Series "BB" Speed Controlled Self-Lowering Jack

Is the Highest Class Jack in the World.

This new pattern No. 5361BB is particularly useful where **small head** and **high lifting capacity** are desired.

Send for latest Catalogue.

A. O. NORTON, Limited

Coaticook, Prov. Quebec, Canada.

Agents:
Mussens Limited, Montreal
Kelly-Powell Limited, Winnipeg
The Canadian Fairbanks-Morse Co., Ltd., Vancouver

We Can Supply

STEEL PLATE

in

Universal Edge up to 40" wide.
Sheared Edge up to 60" wide.

Any thickness
Any lengths.

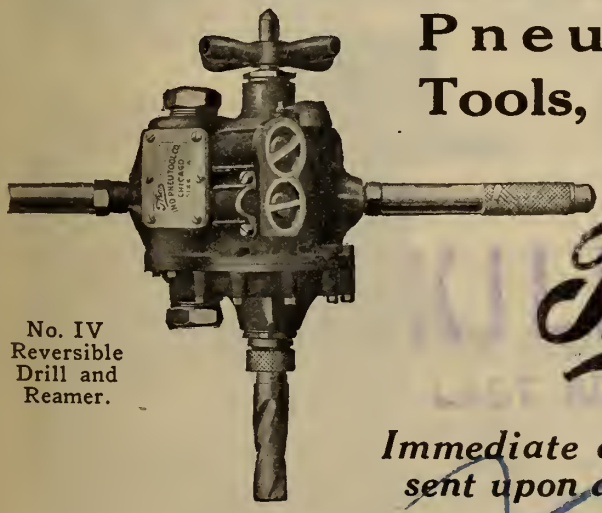
Send us your enquiries

NEED STEEL? LOOK FOR OUR LAST ADVERTISEMENT.

DOMINION FOUNDRIES & STEEL, Limited

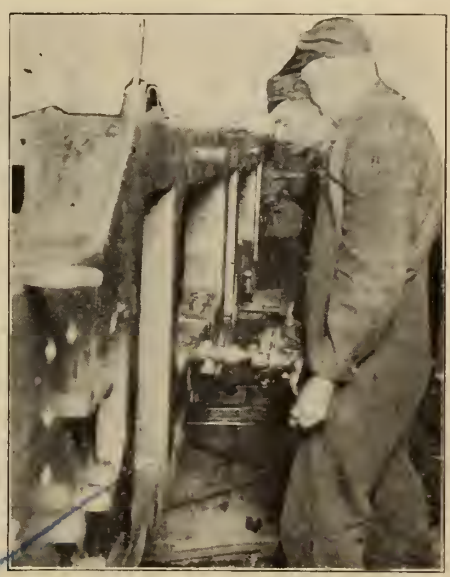
HAMILTON - ONTARIO

For Every Railroad Job requiring the use of Tested Pneumatic Tools, you will find a *Thor*



No. IV Reversible Drill and Reamer.

Immediate delivery—sent upon approval.



Reaming main frame holes with *Thor* Piston Air Drill.

Independent Pneumatic Tool Company

Canadian Offices: 334 St. James St., MONTREAL.

BIRMINGHAM, BOSTON, CHICAGO, DETROIT, NEW YORK, PHILADELPHIA, PITTSBURGH, ST. LOUIS, SAN FRANCISCO, TORONTO, CLEVELAND.

Taylor & Arnold
Engineering Company, Ltd.

AGENTS FOR

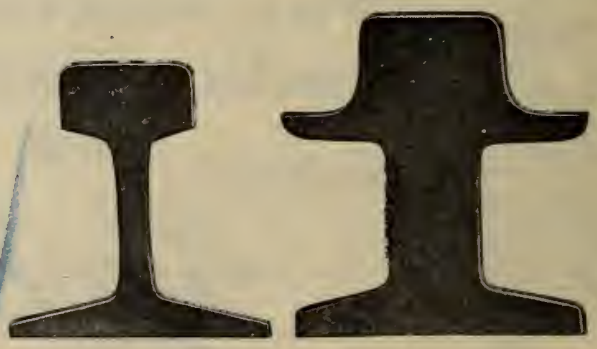
Farnley Stay-Bolt Iron
Brown Bayleys Spring Steel
Armco Welding Wire
Manitoba Steel Foundries, Limited
Otis Steel Company, Etc.

Montreal Toronto Winnipeg

PARTIAL LIST OF FIBRE USES

- Armature wedges
- Bridle rings
- Braddock plates
- Bushings and washers
- Cleats
- Continuous plates
- Dust guards
- End posts
- Engine box liners
- Ferrules
- Fish plates
- Gears, waterproof noiseless
- Gaskets
- Gauge cock handles
- Head pieces
- Insulated rail joints
- Insulations
- Keystone plates
- Liners
- O'Brien plates
- Parts for dynamos and generators
- Pinions
- Pulleys
- Rings
- Standard fish plates
- Switch shims
- Switch parts
- Washer angles
- Webber angles
- Wiring tags

Use Diamond Fibre



Especially adapted for railway and marine purposes where machining and dielectric qualities are required.

We can furnish in sheet, rods or insulating felt paper—or machined into special shapes to suit your specifications.

Diamond State Fibre Co. of Canada Limited
Toronto

RAILWAY AND MARINE LIGHTING

Complete Equipment for Electric or Gas Lighting of Railway Passenger Cars

Complete Apparatus for Harbors and Rivers—Buoys, Beacon Towers and Lanterns

The Safety Car Heating and Lighting Co.

601 Drummond Bldg., Montreal

Most Reliable Under All Conditions

PEDLAR'S "PERFECT" TONCAN METAL CULVERTS

ONCE you install a Pedlar Culvert you can go away and forget it. It will never give trouble from any cause, being equal to any strain to which it may be subjected and absolutely immune from damage by frost or ice.

The material from which it is made, the celebrated anti-corrosive Toncan Metal, is another factor that contributes to its unrivalled durability. Time has no effect on Toncan Metal. It will not rot or corrode, and in this respect is far ahead of any other material ever used in culvert construction.

Easily and quickly installed anywhere with less labor than any other kind of culvert.

Made in sections 8 to 84 inches in diameter (inside measurement). Coupling bands supplied free for longer lengths than 40 feet.

Write for Culvert Booklet R.M.

The Pedlar People Limited

ESTABLISHED 1861

Executive Offices and Factories: OSHAWA, ONT.

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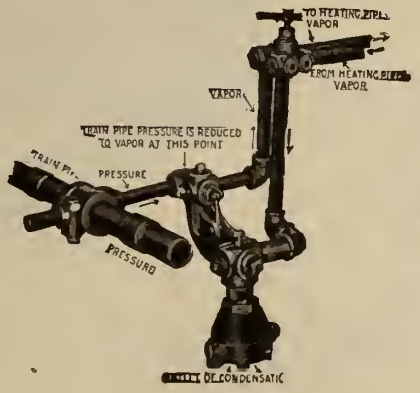

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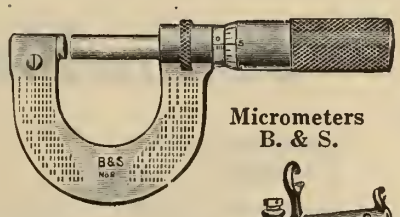

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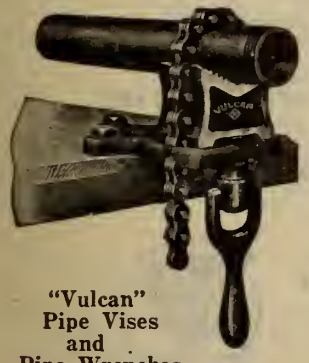

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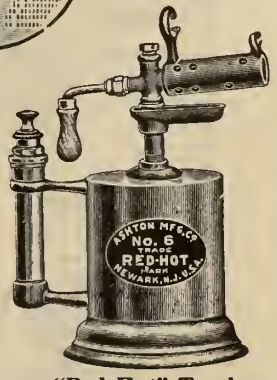

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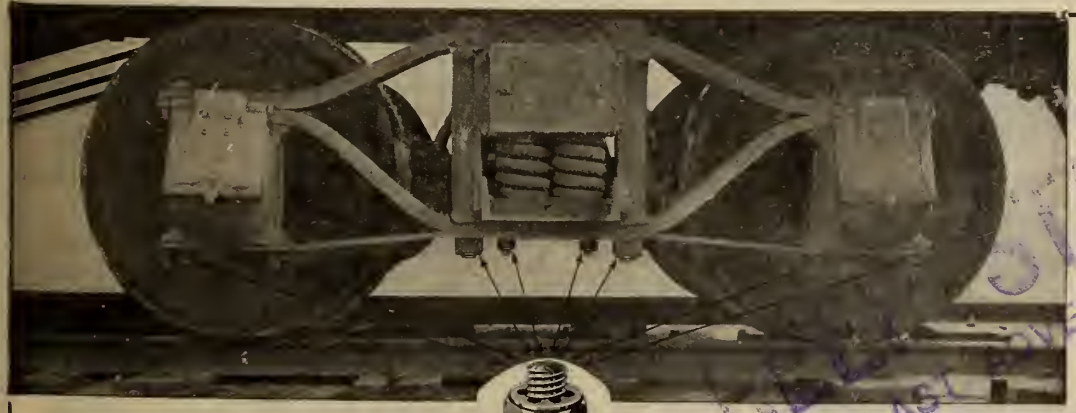

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The HOLD TITE NUT LOCK

STATEMENT

Showing comparative cost using a Standard Nutlock now on the market and the HOLD TITE NUT LOCK as applied to the car hody of a standard 40 top hox car.

STATEMENT was prepared from the specifications of the hody of a standard box car which include the truck.

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Lagonda Cleaner Removing Scale from Arch Tubes.

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Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

The Lagonda Arch Tube Cleaner will remove these scale deposits easily and quickly. They are built for all sizes of tubes and can be driven by either water, air or steam. Send for Catalogue W-1 describing the construction and operation of these Cleaners.

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The engineering skill and practical experience from which Orton & Steinbrenner Buckets are built, covers a range of conditions second to none.

The material you wish to handle is best moved with Orange Peel or Clam Shell Buckets.

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Pneumatic Tools. Tools that are guaranteed.
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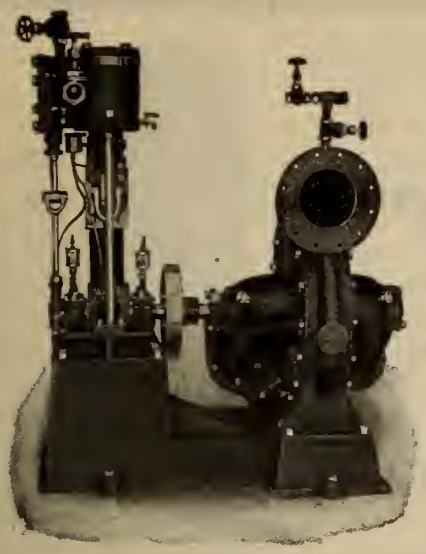

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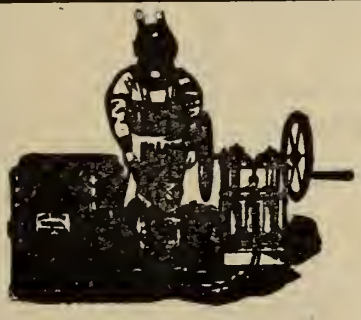

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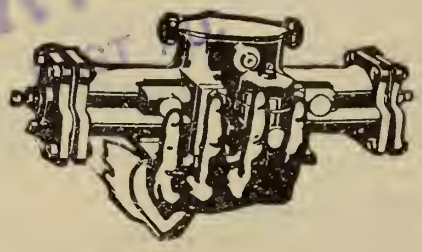

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Ohio Brass Co.
Ontario Specialties, Ltd.
Railway & Power Eng. Corp.
Star Brass Works

TRUCK DEVICES
Standard Car Truck Co.

TRUCKS
Canadian Fairbanks-Morse Co.
Whiting Corporation

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American Steel Foundries
Standard Car Truck Co.

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Canadian Bridge Co.
Dominion Bridge Co.
Hamilton Bridge Works Co.

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F. H. Hopkins & Co.

TUBES, BOILER
Consolidated Steel Corporation

TUBES, BRASS AND COPPER
Peacock Bros.

TUBES
Canadian Allis-Chalmers, Ltd.
F. H. Hopkins & Co.
Page-Hersey Tubes Ltd.

TURNBUCKLES
Canada Foundries & Forgings, Ltd.

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G. P. Nichols & Bro.
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TURNTABLE CENTERS
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Daily Transcontinental Service to North Pacific Coast Points

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74

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Geo. P. Nichols & Bro.

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CARTER'S GENUINE DRY RED LEAD

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Largest manufacturers of white metals in the world

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Lead Traps
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Automatic Heat Control for all Systems—Ventilators
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High Grade Material
First Class Service
Galt Malleable Iron Co., Limited - GALT, ONT.

Alphabetical List of Advertisers

A

Algoma Steel Corporation 124
American Manganese Bronze Co. 125
American Steel Foundries 16
Arnold Co. 102
*Associated Business Papers Inc. 101
*Association of Manufacturers of Chilled Car Wheels 25

B

Babcock & Wilcox 122
Barrett Co. 17
Berry Bros. 119
Bertram, John, & Sons Co. 4
Boss Lock Nut Co. of Canada.... 6
Bowser, S. F., Co. 111
Bradstreet Company 134
British Ministry of Munitions 10
Brown Hoisting Machinery Co.... 3
Buffalo Brake Beam Co. 37
Butterfield & Co. 119

C

Canada Foundries & Forgings, Ltd. 104
Canada Grip Nut Co. 1
Canada Iron Foundries, Ltd. 120
Canada Machinery Corporation.....34
Canada Steamship Lines, Ltd. 36
Canada Wire & Cable Co. 40
Canadian Allis-Chalmers, Ltd. .... —
Canadian Bridge Co. 135
Canadian Bronze Co. 134
Canadian Chicago Bridge & Iron Co. 130
Canadian Consolidated Rubber Co. 7
Canadian Fairbanks-Morse Co.... 24
Canadian General Electric Co..... —
Canadian Gold Car Heating and Lighting Co. 135
Canadian Government Merchant Marine, Ltd. 5
Canadian Mead-Morrison Co. 132
Canadian National Carbon Co..... 122
Canadian National Newspapers and Periodicals Association 138
Canadian National Railways 134
Canadian Pacific Railway ..... —
Canadian Pacific Ry. Colonization Department 104
Canadian Porcelain Co. 110
Canadian Railway and Marine World 105
Canadian Ramapo Iron Works Ltd. 120
Canadian Steel-Tire & Wheel Co. 38
Canadian Vickers, Ltd. 20
Canadian Westinghouse Co. 114
Carr, C. E. A., Co. 118
Carter White Lead Co. of Canada. 135
*Chase, L. C., & Co. 113
Coghlin, B. J., Co. 118
Collingwood Shipbuilding Co. 29
Commercial Acetylene Supply Co. 33
Consolidated Steel Corp. 15
Corbet Foundry & Machine Co... 102
Crane Limited . ..... —
Curtiss-Willis Co. 102

D

Date, John 127
Davis Boring Tool Co. 11
Davis-Bournonville Co. 137
Dearborn Chemical Co. of Canada 14
Diamond Saw & Stamping Works 130
Diamond State Fibre Co. of Canada 41
Dominion Brakeshoe Co. 119
Dominion Bridge Co. 35
Dominion Coal Co. 127
Dominion Foundries & Steel, Ltd. 115
Dominion Iron & Steel Co. 125
Dominion Oxygen Co. 106
Dominion Paint Works, Ltd. ..... —
Dominion Steel Products Co. 104
Dominion Towing & Wrecking Co. 127
Dominion Wire Rope Co. 27
Duner Co. 134

E

Engineering & Machine Works of Canada 126

F

Fairmont Gas Engine & Railway Motor Car Co. 128
Flannery Bolt Co. 35
Franklin Railway Supply Co. of Canada 30

G

Galena Signal Oil Co. 23
Galt Malleable Iron Co. 135
Gartshore, J. J. 102
General Railway Signal Co. of Canada 127
Goodyear Tire & Rubber Co. of Canada . . .. —
Grand Trunk Railway 31
Griffin & Brinkerhoff 134

H

Halifax Shipyards Ltd. 39
Hamilton Bridge Works Ltd. 120
Hart-Otis Car Co. 27
Holden Co. 28
Hopkins, F. H., & Co. 27
Hoyt Metal Co. 135
Hunt, Robert W., & Co. 102
Hunt-Spiller Mfg. Corporation .. 111

I

Imperial Bank of Canada 104
*Imp. Guar. & Accident Ins. Co. 127
Independent Pneumatic Tool Co... 115
Inglis, John, Co. 110
International Correspondence Schools . . .. —
International Machinery & Supply Co. 124

J

Johns-Manville Co., H. W. 122
Joliette Castings & Forgings Ltd. 126

K

Kalamazoo Railway Supply Co... 37
Kennedy, The William, & Sons, Ltd. 2
KeYoke Railway Equipment Co... 12
Kidston, A. G., & Co. 38
Krauser, Webb G. 19

L

Lambert, W. ..... —
Lewis, Rice, & Son 121
Lundie Engineering Corporation. 104
*Luther Grinder Mfg. Co. ..... —
Lyman Tube & Supply Co. 22

M

McAvity, T., & Sons 33
McCord & Co. 39
Marconi Wireless Telegraph Co... 124
Marsh Engineering Works, Ltd. 103
Mason Regulator & Engineering Co. 28
Metal & Thermit Corporation.... 34
Midland Shipbuilding Co. 103
Miller, F. W., Heating Co. 127
Miner, W. H. 32
Montreal Locomotive Works, Ltd. 109

N

National Lock Washer Co. 8
National Pneumatic Co. 128
Nichols, G. P., & Bro. 134
Nicholson File Co. 132
Northern Crane Works Ltd. 127
Northern Electric Co. 21
Norton, A. O., Ltd. 114
Nova Scotia Steel & Coal Co..... 32

O

Ohio Brass Co. 107
*Ontario Specialties, Ltd. 103
Orton & Steinbrenner Co. 123
Ottawa Car Mfg. Co. 109

P

Page-Hersey Tubes, Ltd. 112
Page & Jones 127
Peacock Bros. 9
Pedlar People, Ltd. 117
Petrie, H. W., Ltd. 36
Piper, The Hiram L., Co. 127
Port Arthur Shipbuilding Co. 40
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 116
Pyle-National Co. 123
Q and C Company 26

R

Rail Joint Co. of Canada 123
Railway & Power Engineering Corp. 2
Ramsay, A., & Son, Co. ..... —
Reid Newfoundland Co. 113
Robb Engineering Works 31
Robinson Co., E. A. 121

S

Safety Car Htg. & Ltg. Co. 117
Sinclair, Angus .....e..... 102
Slater, N., Co. 108
Smart-Turner Machine Co. 125
Standard Car Truck Co. 126
Standard Underground Cable Co. of Canada 104
Star Brass Works 30
Steel Co. of Canada 13
Superheater Co. 18
Symington Co., The T. H. 29

T

Taylor & Arnold Engineering Co. 116
Tuco Products Corporation 118
Turnbull, Harvard, & Co. 41

U

Union Draft Gear Co. 19
Universal Draft Gear Attachment Co. 19

V

Vapor Car Heating Co. of Canada 121

W

Whiting Corporation 108
Wilt Twist Drill Co. ..... —
Woolery Machine Co. 112

Y

*Yarrows, Ltd. ..... —

*Alternate months.

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OXY-ACETYLENE APPARATUS
OXY-HYDROGEN APPARATUS

WELDING AND CUTTING
DAVIS
APPARATUS
DAVIS-BOURNONVILLE CO.

"MADE IN CANADA"

"Davis Apparatus" for Oxy-Acetylene and Oxy-Hydrogen Welding and Cutting is backed by the longest service, greatest development, and widest practical experience in application.

Time, efficiency, and the greatest number of successful users have made it the standard for comparison.

It provides complete equipment for every requirement and application of the process, from the one-man portable welding or cutting outfit to the largest industrial installations calling for acetylene and oxygen producing and compressing systems with one to two hundred or more welding and cutting stations.

It provides many exclusive developments for mechanical welding and cutting.

ACETYLENE GENERATORS
OXYGEN PLANTS
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WELDING AND CUTTING OUTFITS
WELDING MACHINES
EXCLUSIVE CUTTING MACHINES

DAVIS-BOURNONVILLE COMPANY

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Of Interest to Every Canadian

Number One of a Series of Advertisements

Efficient service is the keynote of membership of

Canadian Railway and Marine World

—IN—

Canadian National Newspapers and Periodicals Association

—a highly constructive service—absolutely dependable and devoid of prejudice and personal bias. It means much to you!

The policies and principles back of this important service enable you to secure practical and impartial information of great value in business and in the home: and they assure a ready fund of literature of exceptionally high standard at all times.

To read the Association's Standards of Practice listed herewith is to understand what this Association means to you.

Standards of Practice

Canadian National Newspapers and Periodicals Association

THE Members of this Association shall dedicate their best efforts to the cause of business, and public service, and to this end shall pledge themselves:

1. To consider first the interests of the Subscriber.
2. To work for truth and honesty in all departments.
3. To eliminate, in so far as possible, their personal opinions from their news columns, but be leaders in thought in their editorial columns, and make their criticisms constructive.
4. To refuse to publish puffs, free reading notices, or paid write-ups, to keep their reading columns independent of advertising considerations, and to measure all news by the standard "Is it real news?"
5. To decline any advertisement which has a tendency to mislead, or which does not conform to business integrity.
6. To solicit subscriptions and advertising solely upon the merits of the publication.
7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements, subject to proper authentic verification.
8. To co-operate with all organizations and individuals engaged in creative advertising work.
9. To avoid unfair competition.
10. To determine what is the highest and largest function in the field which they serve, and then to strive, in every legitimate way, to promote that function.

This is Number One of a series of advertisements regarding an Association that typifies thoroughgoing Canadian stability. Read the forthcoming advertisements in the Agricultural, Business, Educational, Religious and Technical newspapers, and Magazines.

Canadian National Newspapers and Periodicals Association

Office - 70 Lombard Street - Toronto, Ontario

Canadian Railway AND Marine World

ESTABLISHED 1898.

Number 277
Index to contents, 135.

TORONTO, CANADA, MARCH, 1921

Single copies 25c.
Subscription $2 a year

BERTRAM MACHINE TOOLS

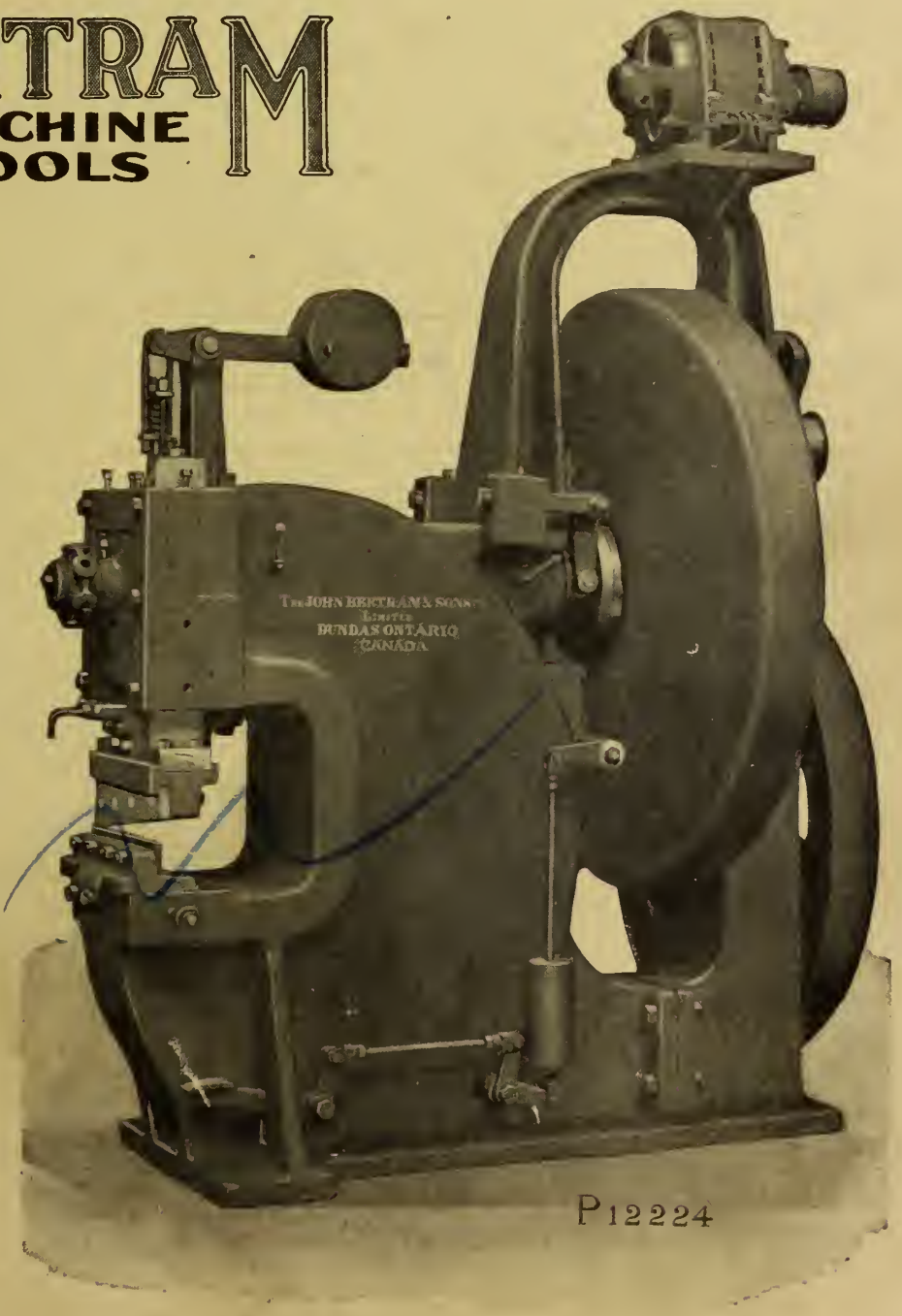


Illustration shows our No. 4 Single Punch and Shear, 12" Throat Motor Drive through belt, fitted with plate shearing attachments.

Capacity

To punch 1" hole through 1" Plate
To shear 1" Plates
To " 6" x 1" Flat Bars
To " 1¾" Round Bars
To " 4 x 4 x ⅜" Angles

Write for full particulars re any machine or machines in which you are interested.

The John Bertram & Sons Co., Limited
Dundas, Ontario, Canada

MONTREAL
723 Drummond Bldg.

TORONTO
1002 C.P.R. Bldg.

VANCOUVER
609 Bank of Ottawa Bldg.

WINNIPEG
1205 McArthur Bldg.

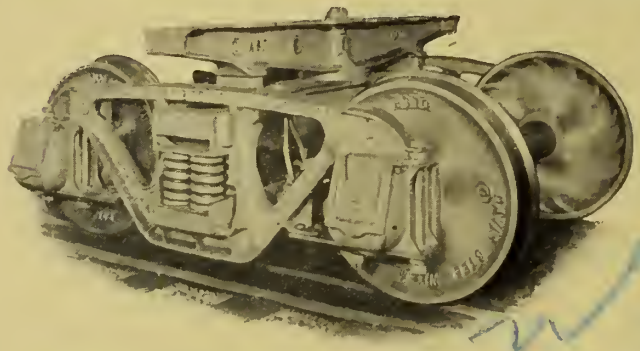
HALIFAX
218 Roy Bldg.

WINDSOR, ONT.
Davis Bldg.

Steam Railways and General, Page 113. Electric Railways, Page 148. Marine and Shipbuilding, Page 161.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS



The changing of Wheels is made easy with the Vulcan Truck.

The removal of the Safety Tie Bolt over each Journal Box, and the jacking up of the end of the Truck, permits the wheels to roll out.

Vulcan Trucks mean strength and decreased maintenance charges.

VULCAN TRUCKS

INTERNATIONAL EQUIPMENT CO. LTD.

MONTREAL, QUEBEC, CANADA.

KENNEDY PROPELLER WHEELS

Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses Winches, etc.

Steel Castings, All Sizes

Try us with your next Order

THE WM. KENNEDY & SONS, LIMITED : OWEN SOUND

ESTABLISHED 1860

40 Laborers at the Cost of 4

Many jobs are still being done by laborers that a locomotive crane could do faster and at a big saving in money. It is only natural that a crane can handle heavy loads better than any number of men. And doing the work of 30 to 40 laborers is not a big day's work for a Brownhoist Locomotive Crane on almost any kind of a handling job.

The Brownhoist shown above is handling timbers for dock construction work along the Mississippi River. The crane is mounted on a barge and moved from place to place along the river where docks are under construction. There are no labor troubles on changing from job to job, and the Brownhoist handles the materials fast and at a cost of $15 to $20 a day.

Brownhoist cranes are backed by an experience of 40 years of crane building. They are built to give steady service on any kind of work over a long period of use. And Brownhoist users will tell you this is so. Write for catalog K which shows how some owners are using their Brownhoists.

BROWNHOIST

Products include:

Locomotive Cranes
Grab Buckets
Drag-line Buckets
Electric Hoists
Tramrails and Trolleys
Overhead Tr. Cranes
Pillar and Jib Cranes
Heavy Dock Machinery
Suspended Concrete Bins

Write for Catalogs

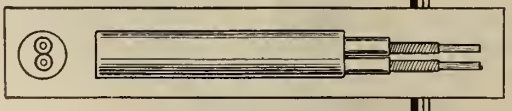
The Brown Hoisting Machinery Company

40 Years in Crane Business — **Cleveland, Ohio, U. S. A.**

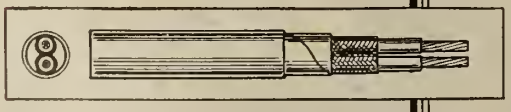
Engineers and Manufacturers of Heavy Dock Machinery, Bridge Cranes, etc., as well as smaller Cranes and Hoists.

Branch Offices in New York, Pittsburgh, Chicago and San Francisco.
European Rep.: H. E. Hayes, 12 Rue de Phalsbourg, Paris.

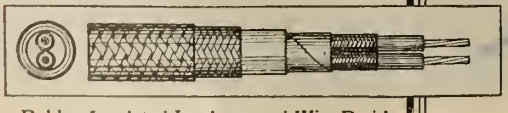
The Launch of the Canadian Highlander at the Wallace Shipbuilding & Dry Dock Co. North Vancouver, B.C.



Cab Tire Cable

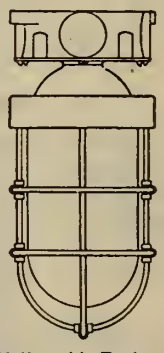


Rubber Insulated Plain Lead-covered Cable

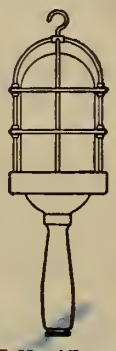


Rubber Insulated Lead-covered Wire Braid Armored Cable. Two Conductor

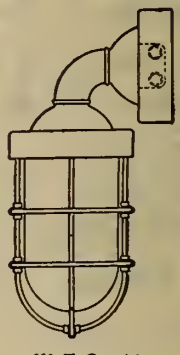
Canada's Merchant Marine Wired with *Northern Electric* CABLES AND FITTINGS



W T. Inside Deck Fitting



W. T. Hand Portable



W. T. Outside Bulkhead Fitting

STOCKS ARE CARRIED AT THE FOLLOWING PORTS:

HALIFAX - MONTREAL VANCOUVER

Northern Electric Company

LIMITED

Montreal	Ottawa		Windsor	Calgary
Halifax	Toronto		Winnipeg	Edmonton
Quebec	Hamilton	London	Regina	Vancouver

Do your tests Measure up to Weston Standards

Weston 310
Portable Wattmeter

KILL

The Weston Model 310 Portable Wattmeter is the ideal instrument for checking switchboard models or to accurately measure the load of any particular circuits.

This instrument and the kindred models—370 Ammeter and 341 Voltmeter—are suitable for use on either A.C. or D.C. circuits. The accuracy of this group is within ¼ of 1 per cent. of full scale value on D.C. circuits and on A.C. circuits with any frequency up to 133 cycles in any wave form.

Our nearest house will gladly furnish detailed information on these or any other Weston instruments

Northern Electric Company
LIMITED

Montreal Quebec Toronto London Regina Edmonton
Halifax Ottawa Hamilton Windsor Winnipeg Calgary Vancouver

66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

Canadian Government Merchant Marine, Limited

REGULAR FREIGHT SERVICES

From MONTREAL, Que. (in Summer)

From HALIFAX, N.S. and ST. JOHN, N.B. (in Winter)

FORTNIGHTLY—To St. John's, Nfld.

WEEKLY—To the United Kingdom, Liverpool, London, Glasgow, Cardiff, Swansea, etc.

FORTNIGHTLY—To British West Indies and Demerara.

EVERY THREE WEEKS—To Santiago, Cuba and Jamaica.

MONTHLY—To Brazil and River Plate.

MONTHLY—To India, Straits Settlements and Dutch East Indies.

MONTHLY—To Australia and New Zealand.

From VANCOUVER, B.C.

MONTHLY—To Australia and New Zealand.

MONTHLY—To China and Japan.

MONTHLY—To Straits Settlements, Java and India.

B. C. KEELEY,
General Agent, Vancouver, B.C.

F. G. WOOD,
General Ontario Freight Agent, Toronto, Ont.

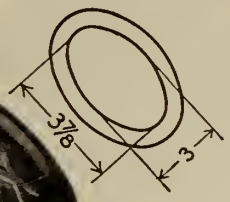
R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, Acting General Freight Agt.,
230 St. James Street, Montreal, P.Q.

Canadian National Railways

Simplex Oval Sockets and Oval Poles

Simplex
No. 29
Cap. 15 tons
Height 28 ins.
Wt. 100 lbs.

Built without a machine screw.



End view of the Simplex Oval Socket

The Grain of the pole is always vertical to the line of strain.

You cannot insert the Pole in the Socket "cross-grained."

Only with the Simplex Car Jack and the strength that the trunnions on the Oval Socket produce, is it practical to use a

6-foot Oval Pole

and only with the Simplex Jacks can you secure Oval Sockets and Oval Poles in which the safety of the Car Repairer is firmly established.

The additional length and strength of the Simplex Oval Pole produces greater leverage and insures a greater and safer day's work.

Again the merited award of the Gold Medal for Safety of Jacks to the Simplex Jacks—by the American Museum of Safety—is exemplified.

Templeton, Kenly & Co., Ltd.

Established 1899 Sole Manufacturers

131 Front Street, W.
Toronto

Chicago.	London.	Paris.	Sydney.
1020 So. Central Ave.	2 Norfolk St.	185 Rue Reamur.	387 George St.

Originators and Builders of Square Sockets for Track Jacks — Oval Sockets for Car Jacks, and Car Jacks in which no machine screws are used.

HIPOWER NUT LOCKS

Carry 'em Through

Safeguard your tunnels by backing up your *"Safety First"* campaign with real Safety Appliances

THE NATIONAL LOCK WASHER CO.

Established 1886

Newark, N. J.

New York Chicago Detroit

EVAPORATORS

The New Weir Evaporator

WEIR PATENT
CONTINUOUS BRINING &
AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

MADE IN CANADA

Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

MADE IN CANADA

G. & J. WEIR (Canada) LIMITED

Sales Engineers

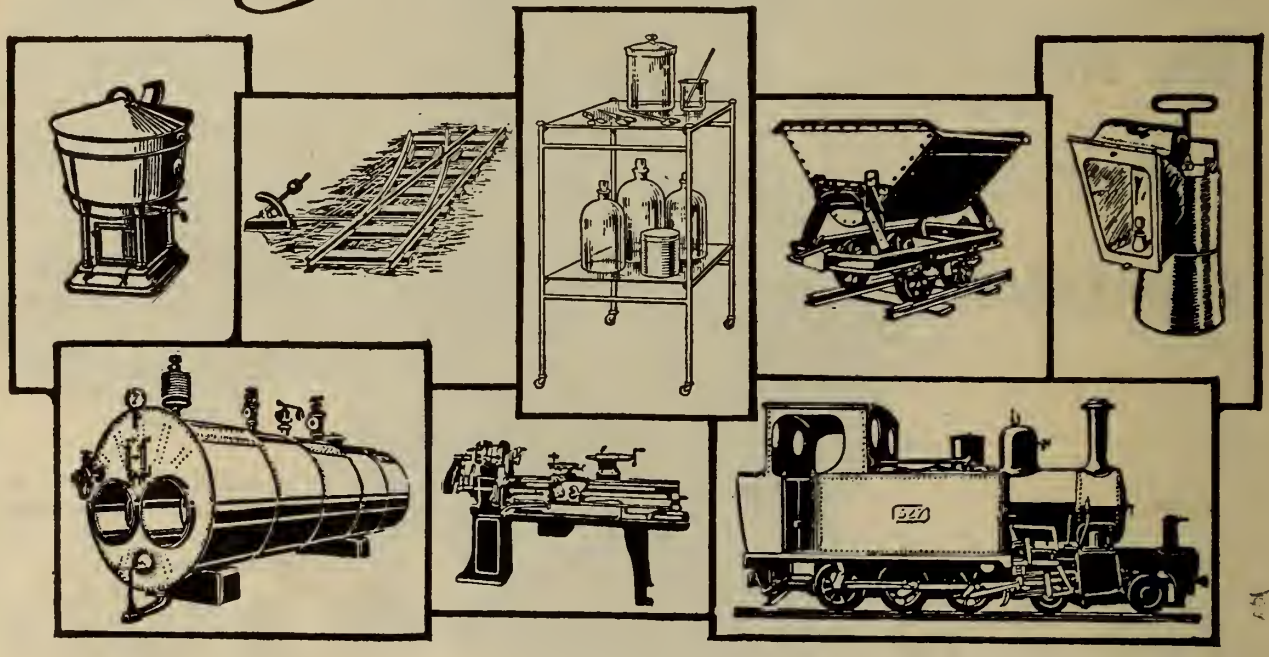
PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver

GR

MINISTRY of MUNITIONS

GOVERNMENT PROPERTY For SALE



The Disposal Board
have

STOCKS

lying in the United Kingdom and Available for Export
of

ENGINEERING STORES

Ferrous and Non-Ferrous Metals	Contractors' Stores	Agricultural Machinery
Plant and Machinery	Electrical Instruments and	Aircraft
Steam Engines and Boilers	Machinery	Furniture
Factory Stores	Medical Stores	Textiles and Clothing
Machine Tools	Chemicals and Explosives	Boots and Leather Equipment
Railway Material	Motor Vehicles	Motor Boats, etc., etc.

Buyers should instruct their representatives in the United Kingdom to communicate with the Secretary, Disposal Board, Ministry of Munitions, Caxton House, Tothill Street, London, S.W.1.

Cable address: "DISPEXPORT, MUNORGIZE, LONDON."

REGULAR
"TWO IN ONE"

SPECIAL
"TWO IN ONE"

"STANDARD"

DAVIS EXPANSION CAR WHEEL BORING TOOLS

Micrometer Adjustment

BORE 98% OF ALL CAR WHEELS

The world-wide reputation of Davis Expansion Car Wheel Boring Tools is based on their efficient, economical and dependable service in the many shops where they are in use. They are recognized throughout the United States as a standard for correct wheel boring and are also extensively used in Canadian wheel shops and foreign parts. This wide distribution is the best evidence of their efficiency and merit.

Equip all your wheel boring mills with Davis Tools for maximum production and greatest efficiency.

for expanding the cutters to compensate for wear.

DAVIS BORING TOOL COMPANY

INCORPORATED

ST. LOUIS, MO., U.S.A.

CANADIAN AGENTS

Williams & Wilson
Montreal, Quebec

J. Bertram & Sons
Dundas, Ont.

Fully 98% of all car wheels in the United States are being bored with Davis Expansion Car Wheel Boring Tools—at a saving of 25% or more in costs.

Practical micrometer expansion compensates for wear on cutters and enables the operator to maintain standard sizes accurately at all times.

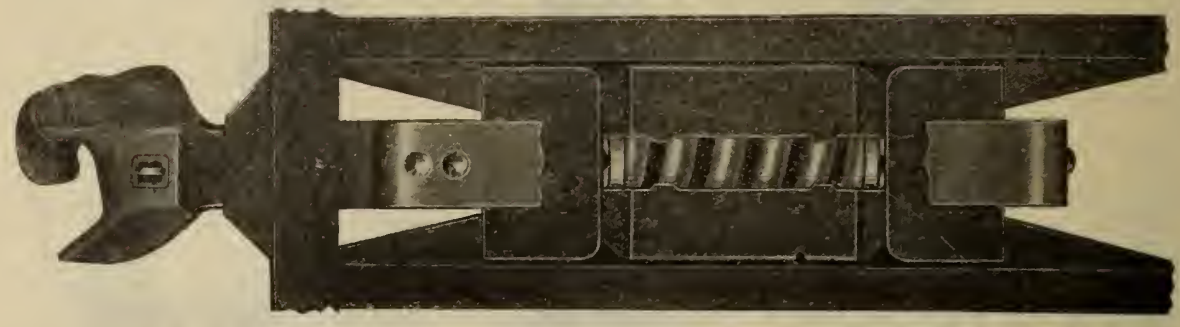
Correct wheel boring increases the mileage of car wheels and reduces the number of wheel failures due to thin, chipped or broken flanges.

Let us explain the Davis System of correct wheel boring which has been adopted as a M. C. B. standard. A letter to-day will bring full particulars.

Largest Exclusive Manufacturers of Expansion Boring Tools and Expansion Reamers.

Murray Cast Steel Friction Draft Gear

MADE IN CANADA



If the superiority of this device has never been apparent to you, it will be upon thorough investigation. For it will reveal that our claims for excellence are based on actual facts.

May be used with any draft attachment.

In use on thousands of cars, including U.S.R.A. standard cars.

KEYOKE RAILWAY EQUIPMENT CO.

Monadnock Building

Chicago, Ill.

Canadian Agents: **Joliette Castings & Forgings Ltd.,**
Transportation Bldg., Montreal

STEEL & IRON PRODUCTS

Quality Service

OF EVERY DESCRIPTION

HAMILTON PIG IRON
Basic Malleable Foundry

STEEL AND IRON BARS

OPEN HEARTH STEEL SHEETS

RAILROAD TRACK MATERIAL
Angle Bars Track Bolts Tie Plates Tie Rods Spikes

SCREWS	WIRE	NAILS
Steel	Steel and Brass, Copper and	Wire
Brass	Bronze, Heavy and Fine,	Cut
Bronze	Bright, Annealed, Coppered,	Boat
Wood and	Galvanized, Tinned, Stranded,	Horseshoe
Machine	Steel and Copper Cable,	Shoe Nails
Screws	Barb, Woven Clothes Line	Tacks

POLE LINE HARDWARE
Pole Steps Cross Arm Braces Guy Clamps Guy Rods

WROUGHT PIPE	FORGINGS	LEAD PRODUCTS
Black Pipe	Car Axles	Lead Pipe
Galvanized Pipe	Shape and Drop Forgings	White Lead
Nipples	Carriage and Automobile	Shot
Couplings	Hardware	Putty

BLOOMS
BILLETS
PLOW BEAMS
ANGLES
CHANNELS

THE
STEEL COMPANY
OF
CANADA
LIMITED
HAMILTON MONTREAL

WIRE RODS
HORSE SHOES
FENCING
RIVETS
BURRS

DEARBORN METHODS OF WATER TREATMENT ARE BASED ON SCIENTIFIC PRINCIPLES

We take the bad water problem that is causing you delays in operation, waste of fuel, and increased labor expense, and by careful analysis determine the proper treatment to bring about the correction of these troubles and that general improvement of operating conditions which—accomplished on other lines—has made

DEARBORN TREATMENT STANDARD ON ONE HUNDRED RAILROADS

DEARBORN TREATMENT renders the mineral substances and acids in water powerless to attack boiler metal, allowing boilers to steam freely, enabling engines to haul heavier tonnage, obtaining greater mileage between boiler washings and effecting a vast saving in fuel and boiler repairs.

Gallon samples of the water supplies required for analysis before recommending treatment.

Dearborn Chemical Company of Canada, Limited

General Offices and Factory, TORONTO

Branch Offices:
Montreal, 263 St. James Street; Winnipeg, 413 McIntyre Block

Consolidated Steel Corporation

165 Broadway, New York, U. S. A.

TORONTO: 201 Royal Bank Building MONTREAL: Eastern Townships Bank Building

SOLE EXPORTER OF THE COMMERCIAL PRODUCTS OF

BETHLEHEM STEEL COMPANY
BRIER HILL STEEL COMPANY
CAMBRIA STEEL COMPANY
LACKAWANNA STEEL COMPANY
LUKENS STEEL COMPANY
MIDVALE STEEL AND ORDNANCE COMPANY
REPUBLIC IRON AND STEEL COMPANY
SHARON STEEL HOOP COMPANY
TRUMBULL STEEL COMPANY
WHITAKER-GLESSNER COMPANY
YOUNGSTOWN SHEET AND TUBE COMPANY

CONSTECO

TRADE MARK

BRANCH OFFICES AND REPRESENTATIVES IN

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Toronto, Canada
Valparaiso, Chile
Wellington, New Zealand

CABLE ADDRESS: CONSTECO, NEW YORK

Cable Codes: Consolidated Steel Corporation, Western Union, A B C Fifth Edition Improved, Scott's 10th Edition, Bentley's Complete Phrase, Lieber's

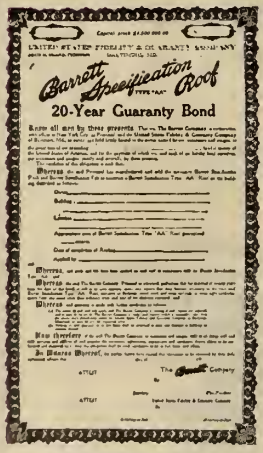
Barrett Specification Roofs

Bonded for 20 and 10 Years

Main building of Wabasso Cotton Co., Ltd. Three Rivers, Que. Eng.: T. Pringle & Son. Ltd., Montreal. Gen. Cont. C. E. Deakin, Montreal. Roofers: G. W. Reed & Co. Ltd., Montreal.

Where Staunch Roofs are Imperative

ONE of the leaders in Canada's fast-growing textile industry is the Wabasso Cotton Company, Limited, which operates large plants at Three Rivers and Shawinigan Falls, Quebec. The main building of the Three Rivers Mills is shown in the accompanying illustration.


Barrett Specification Roof
20-Year Guaranty Bond

The Barrett Specification Bond which protects you against all maintenance costs.

The machinery required in the manufacture of fine cotton fabrics is expensive and intricate. A leak in the roof could easily cause thousands of dollars worth of damage and seriously interfere with the operation of the plant. For this reason, the Wabasso Companies are standardizing on the Barrett Specification Roof for its factory buildings.

These roofs not only provide absolute protection from the elements, but, cost and durability *both* considered, they are by far the most economical roofs it is possible to construct.

Barrett Specification Roofs successfully withstand the test of time.

Bonded against Repairs

Any Barrett Specification Roof of 50 squares or larger, in towns of 25,000 or more, *and in many smaller places where our inspection service is available,* will be guaranteed against repair expense by a Surety Company Bond. This bond, issued by one of the largest Fidelity and Guaranty Companies, runs for 20 or 10 years, depending on the type of roof, and is issued without cost to the owner. Our only conditions are that The Barrett Specification, *revised April 15, 1920,* shall be strictly followed and that the roofing contractor shall be approved by us and the roof laid subject to our approval.

Important Notice

The Barrett Specification Type "AA" 20-Year Bonded Roof represents the most permanent roof covering it is possible to construct, and while we bond it for twenty years only, we can name many roofs of this type that have been in service over forty years and are still in good condition.

Where the character of the building does not justify a roof of such extreme length of life, we recommend The Barrett Specification Type "A" Roof, bonded for 10 years. Both roofs are built of the same high-grade materials, the only difference being in the quantity used.

Full details regarding these Bonded Roofs and copies of The Barrett Specification sent free on request.

WINNIPEG VANCOUVER HALIFAX, N.S.

The Barrett Company LIMITED

MONTREAL TORONTO ST. JOHN, N.B.

Forged Return Bend, Showing Steps in the Manufacturing Process

Superheated Steam in Locomotives

The Importance of The Return Bend

INCREASED economy in fuel and water, a better sustained draw bar pull and greater all round reliability in service are well known advantages of superheated steam locomotives.

A mechanically correct superheater—one that not only gives a high superheat temperature, but also one which is low in maintenance cost, is necessary if the full advantages of superheating are to be realized.

The Return Bend constitutes an important part of any locomotive superheater.

The patented forged steel return bend in the Superheater Company's designs is machine forged in such a way as to insure a smooth internal surface.

Each return bend is made integral with the tubes forming a loop of the unit out of the metal of the tubes themselves. No electric or acetylene welding is used.

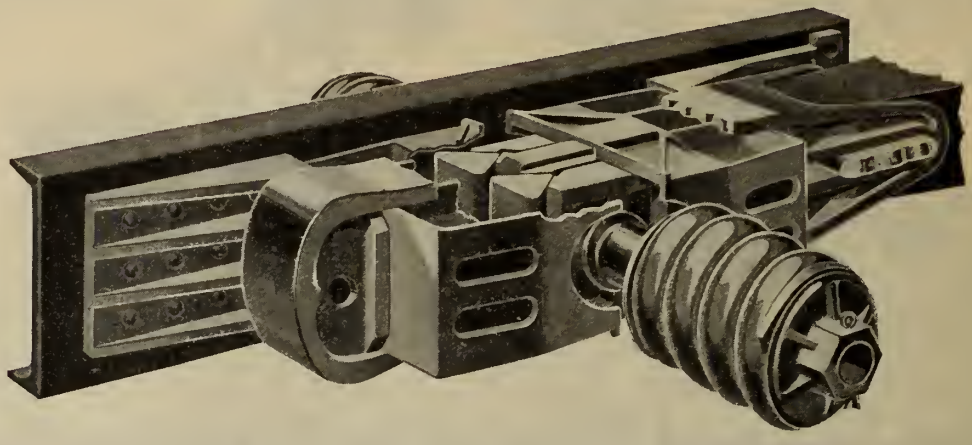
THE SUPERHEATER COMPANY, LTD.

TRANSPORTATION BUILDING,
MONTREAL

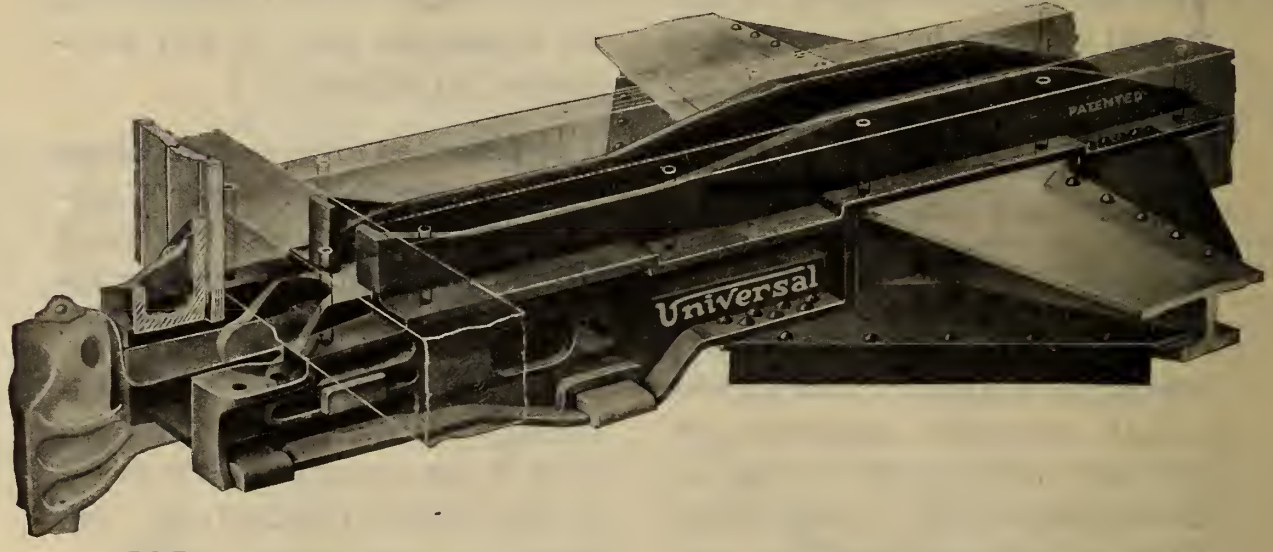
WORKS AT SHERBROOKE, QUEBEC

Designing Engineers and Manufacturers of Steam Superheaters and Pipe Coils for all purposes.

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING
CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER
Transportation Building, MONTREAL

KILL
LAST AD.

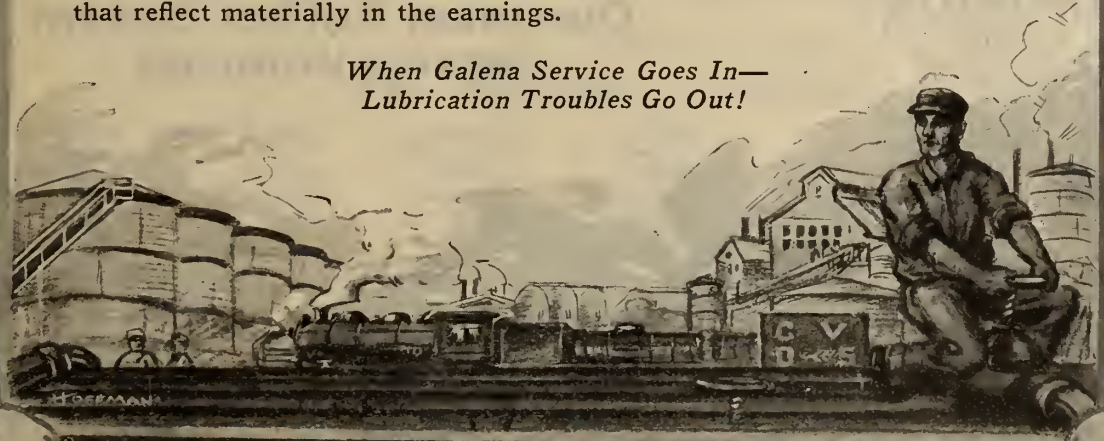
The Advantages of Galena Service

The Galena Service organization is probably more generally known in railway circles—both steam and electric—than any similar body in existence. Co-operation—the practical kind—is what this service brings to the operating departments of railroads. Co-operation that works for efficiency and economy and invariably succeeds in securing highly satisfactory results.

Under present conditions there are plenty of difficulties facing railway officials without the addition of the lubrication problem. Yet there is scarcely an item of more importance, as successful operation is absolutely dependent upon proper lubrication.

Galena Service lifts this burden from the shoulders of the busy executive and assumes the responsibility of the lubrication question. It provides the means and methods by which efficient and economical lubrication is assured and in many ways proves a valuable aid in creating operation betterments that reflect materially in the earnings.

When Galena Service Goes In—
Lubrication Troubles Go Out!



The Galena-Signal Oil Co. of Canada
Limited
TORONTO - MONTREAL

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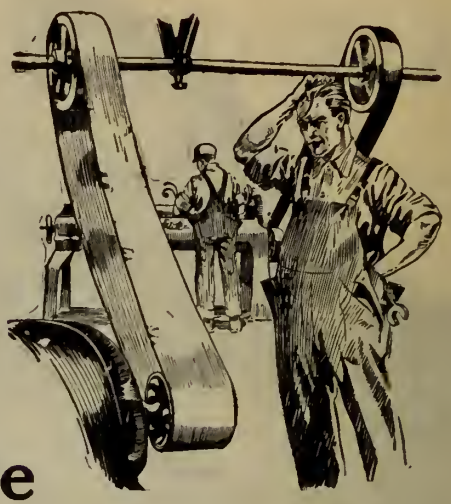


Curing a Mean Drive

Practically every factory of any size has one or more mean drives which seem to defy all attempts to correct them.

Our transmission experts take more real satisfaction in solving mean drives than in selling belts.

Dominion Friction Surface Belting

has helped to solve many transmission problems, and we have yet to find a drive where it will not provide efficient, satisfactory service.

It will cost you nothing to have one of our belting experts study your problem.

The first step to that satisfactory service is to 'phone or wire our nearest service branch.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Our Dominion Hose, Packing and Industrial Rubber Goods are all the Same High Standard as Dominion Friction Surface Belting.

Dominion Rubber System Service Branches

Halifax	Toronto	Fort William	Edmonton
St. John	Hamilton	Winnipeg	Calgary
Quebec	London	Brandon	Lethbridge
Montreal	Kitchener	Regina	Vancouver
Ottawa	North Bay	Saskatoon	Victoria

Belting

Transmission "Dominion," "Keewatin," "Para."
Conveyor: "Rockproof," "Canadian," "Hiheat"
Elevator: "Dominion," "Rockproof."
Agricultural: "Dominion," "Star."
Grain Elevator: "Metcalf Standard," "Grain King."

Hose

Air: "Kushion Kover," "4810 Airtite," "Star."
Steam: "Indestructible," "Rockproof," "Para."
Water: "Indestructible," "Para," "Kushion Kover," "Star."
Suction: "Para," "Star," "Trade."
Garden: "Canadian," "Dominion," "Star."

Packing

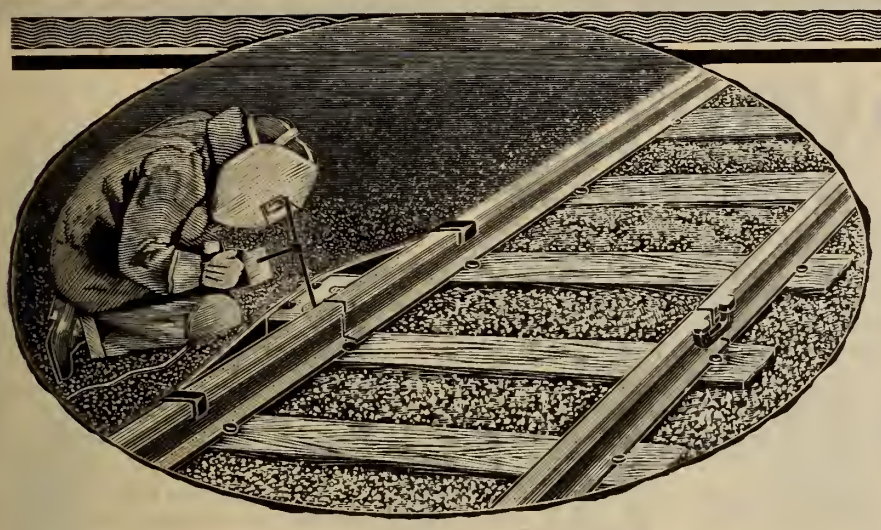
Sheet: "Join-Tite," "Star," "Importers."

Rod: "Cabestos," "Valve-Bestos," "Canadian."

Valves: "Montreal," "Commereial." "Canadian."

Miscellaneous

Mats, Matting and Flooring, Plumbers' Specialties, Rubber-Covered Rolls, Friction Tape, Splicing Compound, Dredging Sleeves, Hard Rubber Goods, Tubing, Rinex Soles, Catspaw Heels, Jar Rings, Moulded Goods.



Showing Lincoln Bonds being applied on open radial tracks.

Current Leakage on Radial Tracks Costs Money

Every defective bond on your tracks costs you many hundreds of dollars every year. They rob your company of power. They slow up the service.

Lincoln Bonds Save this Money

Bond your rail joints with Lincoln Bonds. They weld securely the steel of the rails with the bond head. They assure perfect contact between bond and rail. And they are easily and quickly installed—one every forty-five seconds.

Let us demonstrate the possibilities of Lincoln Rail Bonds.

THE LINCOLN ELECTRIC CO. of Canada Limited

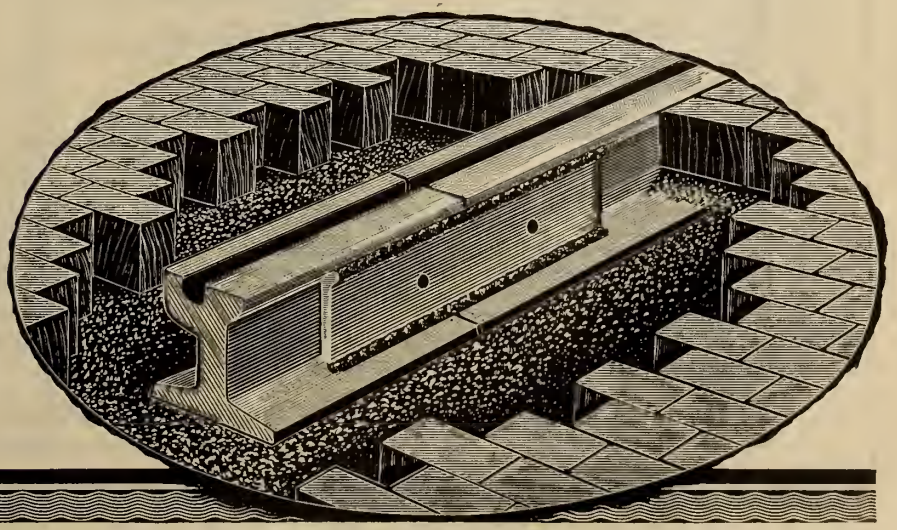
Head Office and Works:—136 John St., Toronto

Phone Adelaide 7200

Montreal Branch:—Coristine Building

Canadian Representatives for

RAIL WELDING & BONDING CO. of AMERICA



A Lincoln Welded Joint on paved street.

ADVERTISING

By Dr. FRANK CRANE

(Copyright by Frank Crane)

ADVERTISING is the greatest business in the world. That is not because it enables business people to sell more goods, not because it is a way to make great profits. Nothing can be really great for any purely dollar-and-cents reason.

It is because, in advertising, business becomes vocal. When, in the course of evolution, the animal acquired speech and became able to utter himself, he had made the longest stride in development. He had stepped from brute to man.

The human soul dates back to the first word. "In the beginning was the Word."

Advertisement is the utterance of human energy. Craftsmanship is good, and industry, and organization, and business ability; but they are dumb giants until they find speech—dumb and dangerous.

Business, including manufacturing, farming, transportation, and selling, is to the new world what fighting was to the old. The old world organized only to kill, and its genius was displayed by great generals. Its heroes were the mighty killers. To them it set up its statues.

The new world, typified by, led by, America, is organized to serve, to make human life richer, deeper, stronger, more complex and heterogeneous.

And business is simply service. Business comes to itself, attains maturity and full self-expression only through advertising.

Advertising is the breath of life breathed into the nostrils of business, by which it becomes a living soul.

Thus advertising not only enlarges business; it radically changes the nature of business.

By it business passes from bureaucracy and autocracy into democracy. It takes the whole people into its growth. It enters the veins of the commonwealth. It becomes a function of communal life.

Without advertising comes decay and death.

Nations need advertising. If they would advertise they would prevent war. War is the self-expression of dumb brute force. *Advertising is the self-expression of intelligent strength that knows how to speak.*

It is the something plus in advertising that is significant. It is this something plus that makes advertising to business what art is to handiwork, what music is to feeling, what language is to the soul.

LIST OF MEMBERS

Each has subscribed to and is maintaining the highest standards of practice in their editorial and advertising service.

Advertising and Selling
American Architect
American Blacksmith
American Exporter
American Funeral Director
American Hatter
American Machinist
American Paint Journal
American Paint and Oil Dealer
American Printer
American School Board Journal
Architectural Record
Automobile Dealer and Repairer
Automobile Journal
Automotive Industries
Bakers Weekly
Boiler Maker
Boot and Shoe Recorder
Brick and Clay Record
Buildings and Building Management
Building Supply News
Bulletin of Pharmacy
Canadian Grocer
Canadian Railway & Marine World
Candy and Ice Cream
Chemical & Metallurgical Engineering
Clothier and Furnisher
Coal Age
Coal Trade Journal
Concrete
Cotton
Daily Metal Trade
Distribution and Warehousing
Domestic Engineering
Dry Goods Economist
Drygoodsman
Dry Goods Reporter
Electric Railway Journal
Electrical Merchandising
Electrical Record
Electrical World
Embalmers' Monthly
Engineering and Contracting
Engineering and Mining Journal
Engineering News-Record
Factory
Farm Implement News
Farm Machinery—Farm Power
Fire and Water Engineering
Foundry (The)
Furniture Journal
Furniture Manufacturer and Artisan
Furniture Merchants' Trade Journal
Gas Age
Gas Record
Grand Rapids Furniture Record
Haberdasher
Hardware Age
Heating and Ventilating Magazine
Hide and Leather
Hospital Management
Hotel Monthly
Illustrated Milliner
Implement and Tractor Age
Implement & Tractor Trade Journal
Industrial Arts Magazine
Inland Printer
Iron Age
Iron Trade Review
Lumber
Lumber Trade Journal
Lumber World Review
Manufacturers' Record
Manufacturing Jeweler
Marine Engineering
Marine Review
Millinery Trade Review
Mill Supplies
Mining and Scientific Press
Modern Hospital
Motor Age
Motorcycle and Bicycle Illustrated
Motor Truck
Motor World
National Builder
National Druggist
National Petroleum News
Nautical Gazette
Northwest Commercial Bulletin
Northwestern Druggist
Nugent's, The Garment Weekly
Oil News
Oil Trade Journal
Plumber and Steam Fitter
Power
Power Boating
Power Farming Dealer
Power Plant Engineering
Price Current—Grain Reporter
Printers' Ink
Railway Age
Railway Electrical Engineer
Railway Maintenance Engineer
Railway Mechanical Engineer
Railway Signal Engineer
Retail Lumberman
Rubber Age and Tire News
Shoe Findings
Shoe and Leather Reporter
Shoe Retailer
Southern Engineer
Southern Hardware & Implement Journal
Sporting Goods Dealer
Starchroom Laundry Journal
Tea and Coffee Trade Journal
Textile World Journal
Welding Engineer
Woodworker

THE ASSOCIATED BUSINESS PAPERS, INCORPORATED

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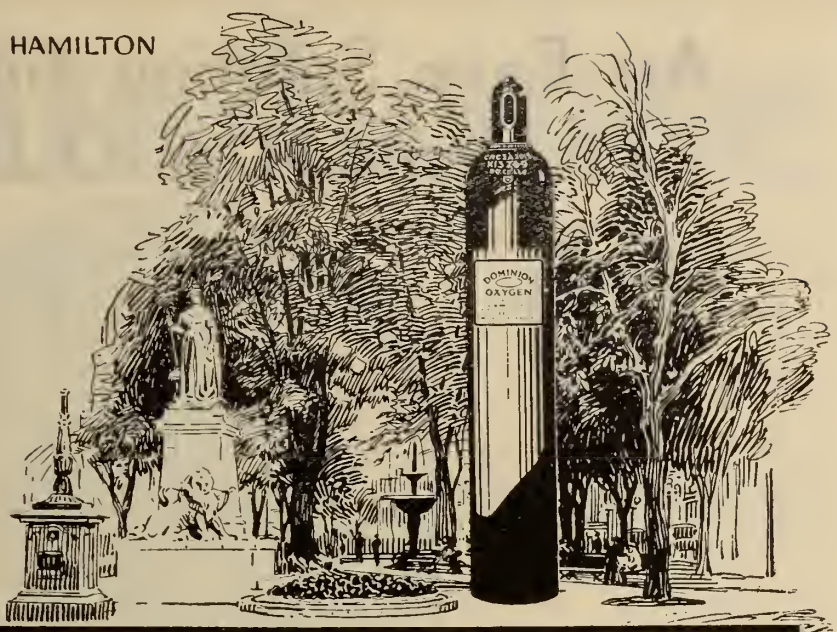
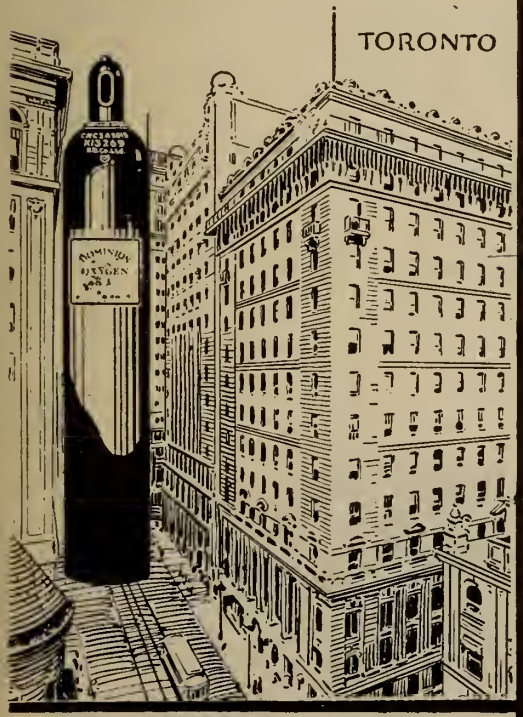




Dominion Oxygen

when and where you want it

FROM four centrally located points the Dominion Oxygen Company, Limited, supplies Canadian industry with the commercial oxygen it needs. Thanks to the completion of these first four distributing stations, Canadian manufacturers can now rely on a never-failing source of immediate oxygen supply.

Delivery of pure oxygen in any quantity, at any point, at any time, is made certain by Dominion's producing and distributing organization.

The manufacture of uniformly pure oxygen in quantities large enough to insure prompt attention to your needs has been the aim of the Dominion Oxygen Company, Limited, since the formal announcement of its building plans. The fact that every order for oxygen is filled on the day it is received is evidence of the efficiency already reached.

Dominion Oxygen Service is based on the Company's realization of Canada's need of an always available supply of uniformly pure oxygen. Dominion oxygen, in the high capacity cylinder built for economical and safe handling, fills that need.

DOMINION OXYGEN COMPANY, LIMITED

Hillcrest Park, Toronto

Hamilton Montreal Windsor

D-15

An Easy Solution for Catenary Problems—*Use O-B Service*

The photograph is of an interworks railway. The extensive yard work introduced interesting construction.

Large quantities of standard O-B Materials were used. A new clevis strain clamp was developed to take care of the long cross-span.

O-B Engineers are familiar with all that is latest and best in overhead practice. They know intimately the lore of the trade. It is not surprising, then, that they find ingenious solutions to catenary puzzles.

O-B Engineers will take over all the details of your catenary construction as they have on other projects. Or, working from your plans, they will specify practicable designs.

Usually, standard devices are best. Sometimes, special articles are produced. Always, you can rely on this company for the satisfactory solution of your Catenary problems.

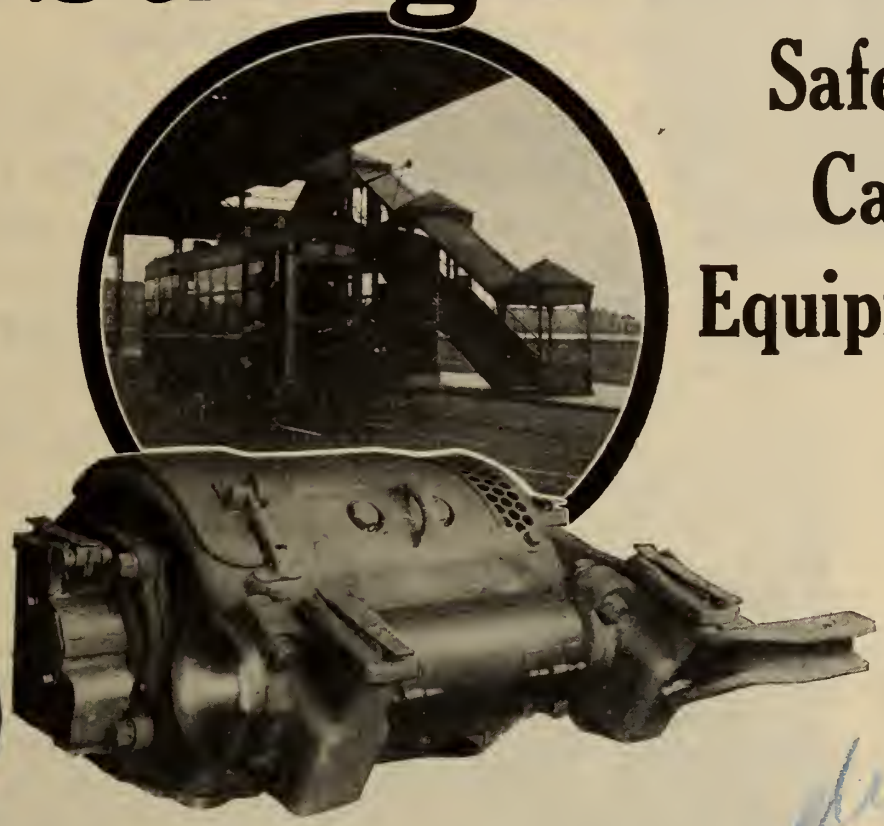
The Ohio Brass Company, Mansfield, Ohio

New York Philadelphia Pittsburgh Chicago Los Angeles
San Francisco Paris, France

Manufacturer: Trolley Materials, Rail Bonds, High Tension Porcelain Insulators, Third Rail Insulators, Electric Railway Car Equipment.

Westinghouse

Safety Car Equipment



CANADIAN WESTINGHOUSE

ECONOMY

Today's Issue

The Safety car has won success on its own merits. The war was a factor in hastening its adoption, for the economies it would effect were sorely needed.

Safety car equipment is an important consideration.

The entire Westinghouse line of motors and control has been designed to obtain the most reliable and efficient apparatus of the minimum weight consistent with conservative design.

Our nearest office will gladly supply complete information.

Canadian Westinghouse Co., Limited, Hamilton, Ont.

Toronto	Montreal	Ottawa	Halifax	Ft. William	Winnipeg	Edmonton	Calgary	Vancouver
Bank of Hamilton Bldg.	285 Beaver Hall Hill	Ahearn & Soper Ltd.	105 Hollis St.	Cuthbertson Block	158 Portage Ave. E.	211 McLeod Bldg.	Canada Life Bldg.	Bank of Ottawa Bldg.

Service Stations

MONTREAL—10 St. Sophie Lane. WINNIPEG—158 Portage Ave. E.
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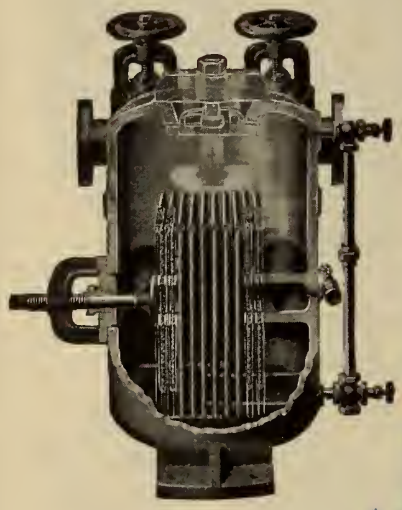

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The Reilly Multiscreen Feed Water Filter and Grease Extractor efficiently removes this oil from the water. It is also suitable for the removal of mud or sand from lake or river water when used for boiler feed.

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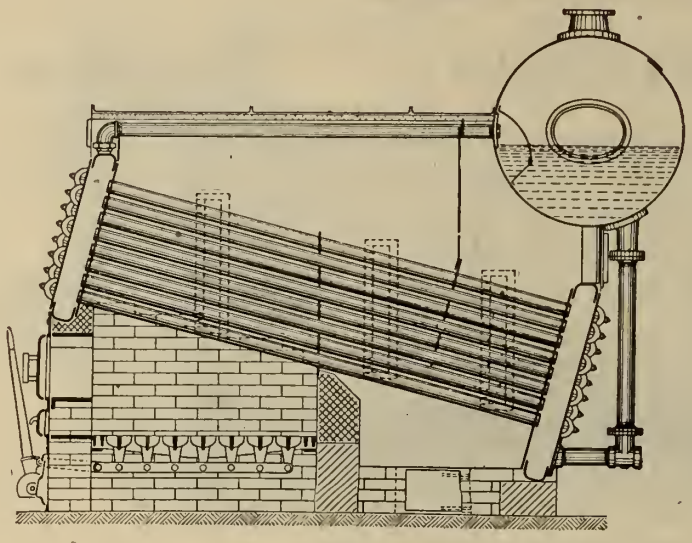

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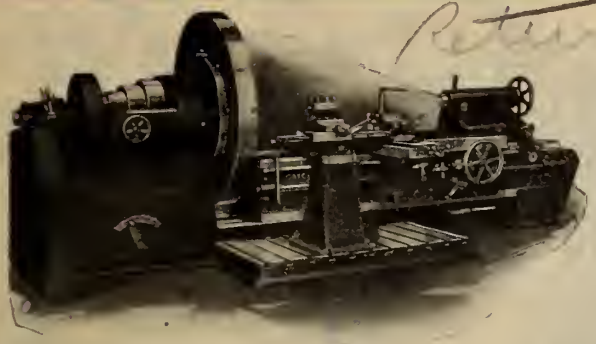

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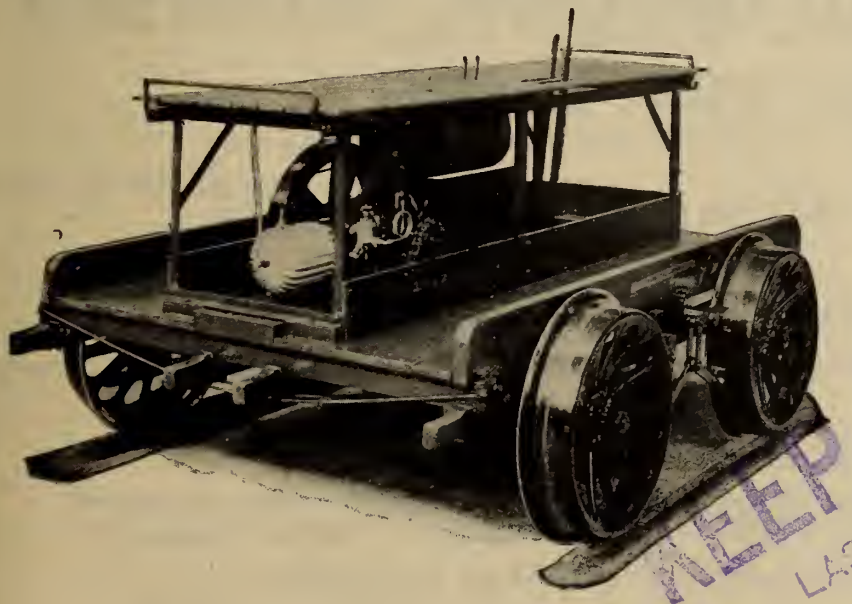

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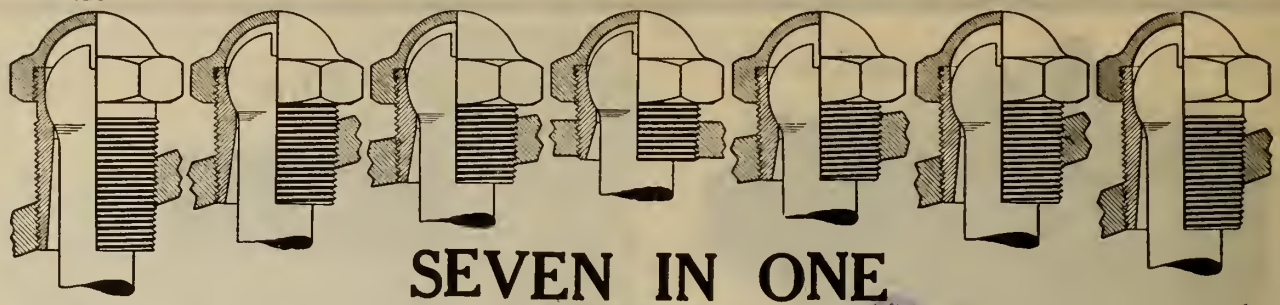

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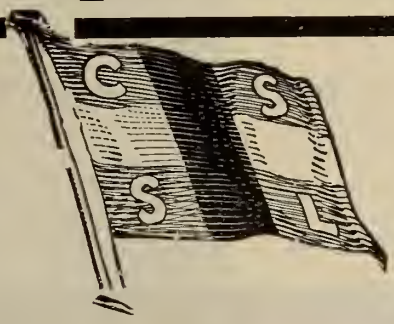

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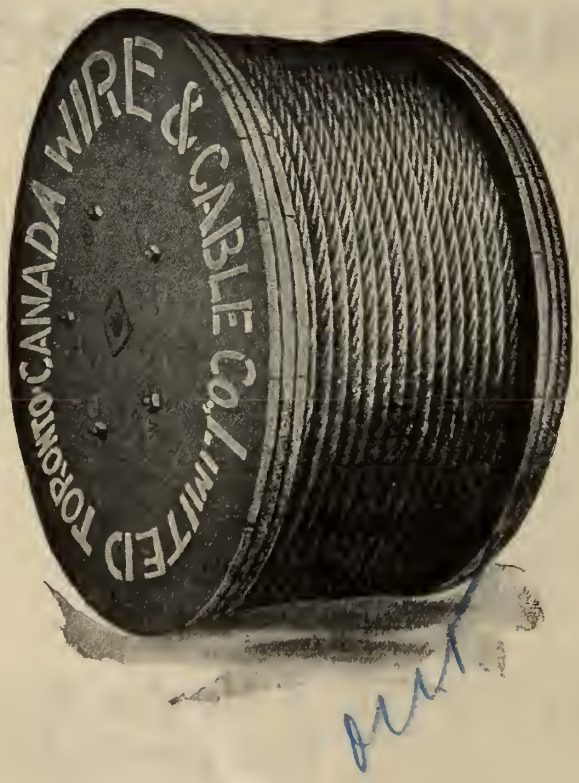

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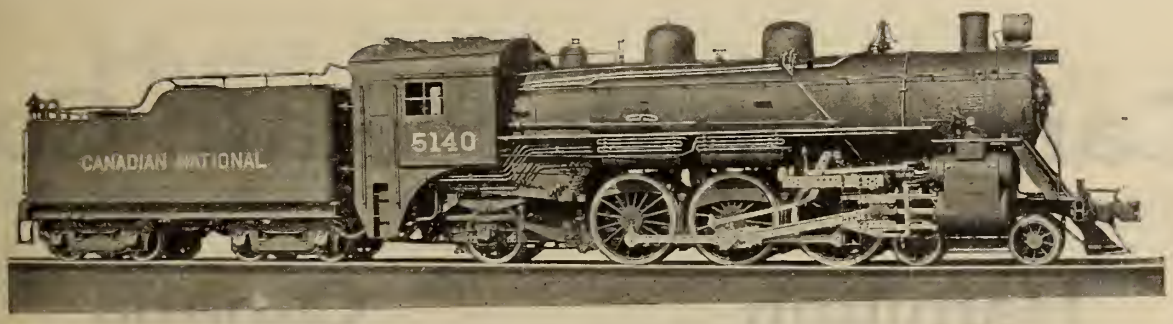

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FOR 12 OF THE PRINCIPAL PARTS OF A LOCOMOTIVE

1 Cylinder Bushings
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DON'T FORGET THE PRINCIPAL WEARING PARTS OF YOUR LOCOMOTIVE

Hunt-Spiller Gun applied to your locomotives will decrease your repair costs, and time, and increase the operating mileage per locomotive between shoppings.

Specify Hunt-Spiller Gun Iron for these parts on your next requisition for such castings.

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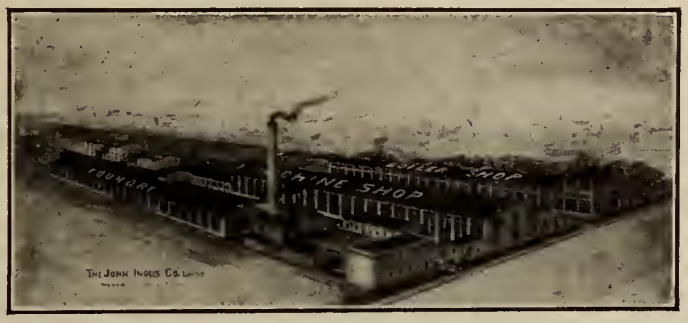

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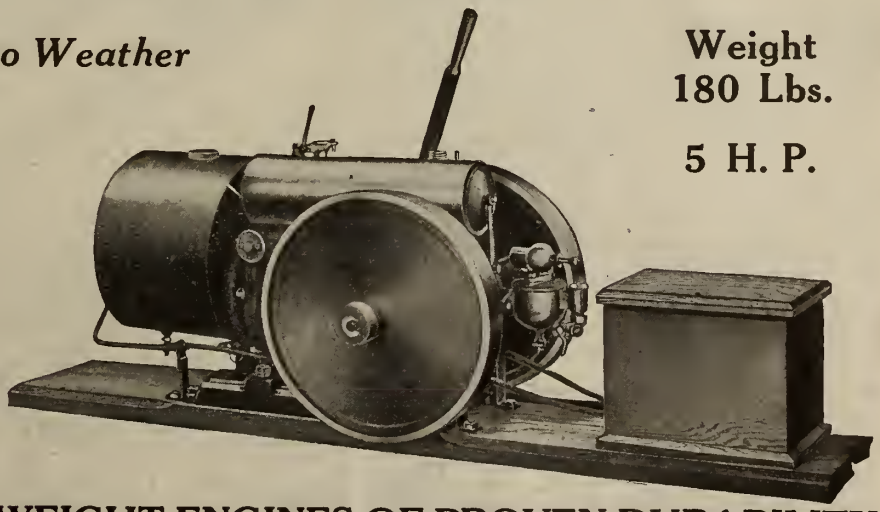

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These reamers have eccentric relief and can be set to size without regrinding. They are unexcelled for design and simplicity and ease of adjustment.

The eccentrically relieved blades are stronger than others, do not chatter, and produce a smoother hole. The hand, shell and fluted chucking reamers have interchangeable nuts, screws and wrenches. The bottom of a hole can readily be faced.

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PRATT AND WHITNEY

Canadian Railway and Marine World

March, 1921

Leaside Shops, Canadian National Railways.

The Canadian National Rys. shops in Leaside, a town adjoining Toronto on the northeast, occupy a portion of a large area of land acquired by Canadian Northern Ry. interests in 1911, and are situated immediately north of Leaside station, C.P.R., on the latter's Toronto-Montreal line. Connection with the double track C.P.R. line is had by a track from Duncan, on the C.N.R. Toronto-Sudbury line, 11.1 miles from Toronto Union station to a point on the C.P.R. line some 1,200 yards east of the new shops. There is not as yet a connection between Leaside shops and the C.N.R. Toronto-Ottawa line, although authority has been given to build a track to connect the latter line with the C.P.R. near the same junction point as is made by the Duncan connection. The C.N.R. has running rights over the C.P.R. tracks to a point west of North Toronto station.

Passenger Car Shop and Transfer Table, Leaside, Canadian National Railways.

The general arrangement of the shops is shown by the accompanying plan. To the northwest of, and immediately adjoining the C.P.R. yard, just east of the C.P.R. Leaside station, provision has been made for a 15 track freight classification yard, with capacity for over 600 cars, a feature of this yard being that the north lead will extend directly as an inward track to the locomotive house. The passenger car yard ladder track will also extend direct to the turntable, and from this track will be branch tracks to the stores platform, scrap docks, and both ends of the transfer table, while a well arranged layout of switches and cross-overs will provide for facility of movement within the yards.

A most important point in the layout of any repair shops concerns the distribution of material to all portions of them, and in this respect the Leaside shops are well planned. The main stores, and the platform adjoining, provided for the storage of castings, are convenient to the locomotive house, power house, locomotive shop, car shop and blacksmith shop, and plank flooring between the locomotive shop and stores building fits this area for the storage of wheels. Bar iron and similar materials are stored between the blacksmith shop and locomotive shop, and the east portion of the stores platform, nearest the car shop, is utilized for storage of car parts and castings. At the north side of the car repair yard, the heavier grades of car castings are stored. There also is the lumber storage area, which parallels the track leading to the north end of the transfer table. A series of petty stores and tool rooms, in connection with the various shops, completes the storage and material distribution system.

The principal buildings are the locomotive house and power house, the combined stores and office building, blacksmith shop, locomotive shop and passenger car shop, the two last being served by the same transfer table. There are numerous auxiliary buildings, the functions of which will be mentioned further on in this article. All buildings are equipped with steel lockers for employes' use, and modern lavatory conveniences.

The locomotive house, of which the first unit of 10 stalls is completed, is of solid brick construction and concrete foundations, and with tar, felt and gra-

vel roofing. The stalls are 100 ft. long, 14 ft. wide in front, and 30 ft. wide at the rear. All tracks have concrete lined pits, with end drainage, and steam heating coils at the side. The house is equipped with three drop pits, for driving, locomotive truck and tender truck wheels. A concrete floor, 20 ft. wide, extends the length of the house, adjoining the outer wall. The large windows ensure the interior being well lighted, and electric lights are used for artificial illumination. The arrangement of the lighting causes a good light to be thrown into cab interiors, a desirable feature in locomotive house work. The house is piped for compressed air, water and steam; the air compressors and water pumps being located in the boiler house, and the steam being piped from there also. A Hancock boiler testing apparatus is also being installed.

This locomotive house is not in use as a terminal for road locomotives, the only power now using it being two yard locomotives doing transfer work between Leaside and Rosedale, general switching and handling the special train for employes between Leaside and North Toronto station three times a day. It is also being used for the repair of work equipment, principally hoists and steam shovels. The C.N.R. freight and passenger locomotives running out of Toronto are being taken care of at the G.T.R. locomotive house at York, 5.44 miles from the Union Station, on the Toronto line.

The turntable, 80 ft. long, is to have an air motor installed.

In connection with the locomotive house is a small machine shop, equipped with lathes, planer, radial drill, power hack saw, etc., all driven off a line shaft by one motor. The accompanying cross-section of the house furnishes further details of construction.

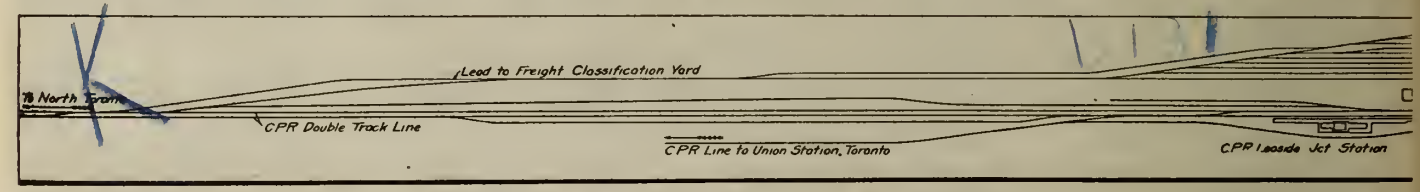
Coal, Sand, Water, etc.—The coaling plant, a Fairbanks-Morse installation, is of 200 tons capacity, of the endless chain bucket conveyor type, and electrically operated. The coal is unloaded into a hopper on the center track, there being two chutes for each track on both sides. The sand house is in connection with the coaling plant, the steam coil drying system being used. The water tank, of 60,000 gal. capacity, is of wood on concrete foundations, and the ash plant, on the north inward track, will be mechanically operated on completion.

Oil Storage.—Auxiliary to the locomotive house is the oil house, also of brick on concrete foundations. It is equipped with four 1,000 gal. tanks, three 500 gal. tanks, and a 200 gal. gasoline tank, the last being outside the building. The ground floor is of concrete, and the tanks below are filled through openings in the floor. A complete set of eight Bowser pumps is installed. The tank room, beneath the floor, is of concrete construction and heated with steam coils.

The boiler and power house, of the same type of construction as the locomotive house, is equipped with four 200 h. p. Babcock & Wilcox boilers, hand fired, with coal storage at the north side. These boilers supply steam for heating the entire plant, the automatic steam trap principle being employed. The power house portion of the building is equipped with a Canadian Ingersoll-Rand compressor, and three boiler feed pumps, condenser and fire pump. Power for the entire plant is received here from the Toronto & Niagara Power Co. at 13,200 volts, and the main transformer, which is water cooled, steps it down to 550 volts, for the use of machine motors. Auxiliary transformers take the current at 550 volts, and step it down to 110 for lighting purposes. Two generators, the capacity of each being 375 k.v.a., are held in reserve. The switchboard was made by the Northern Electric Co., and the high tension instruments by the Canadian General Electric Co., the main transformer by the Maloney Electric Co., and the auxiliary transformers by the Ferranti Co.

The locomotive shop is to the north of the locomotive house, and is of transverse type, built of brick, on concrete foundations, with felt, tar and gravel roofing, and plank floor. One of the accompanying illustrations shows the general design. This shop is 300 x 151 ft. There are 12 tracks in the erecting shop portion of it, all equipped with pits, one of which is fitted with an electric pit jack of 200 tons capacity, operated by a 25 h.p. Canadian General Electric a.c. motor, and having a maximum lift of 90 in. At present, two tracks are used exclusively for tender work, which, not counting the drop pit track, leaves nine tracks for locomotive repairs.

The large number of windows ensures excellent lighting, and night illumination is by electricity. The shop is heated by steam coils, the steam being piped from the boiler house. Ventilation is provided by windows in both sides of a large hood extending the length of the


Lead to Freight Classification Yard
To North Toronto
CPR Double Track Line
CPR Line to Union Station, Toronto
CPR Leaside Jct Station

Leaside Shops, Canadian National Railways. See also opposite page.

Leaside Shops, Canadian National Railways. See also opposite page.

roof, these also providing an additional source of light.

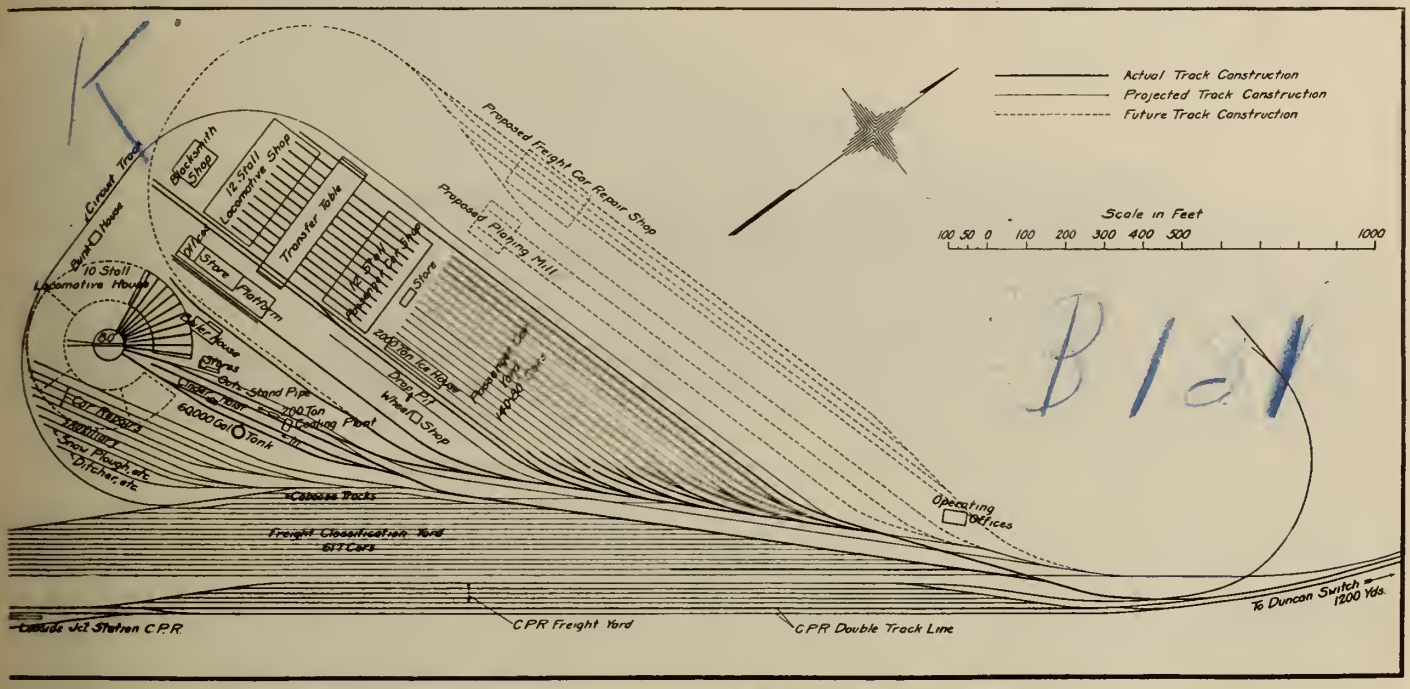
In addition to the machines on the ground floor, which occupy the west half of the shop, a second floor, or gallery, extends along the west side of the shop, and on this floor are located the air brake repair department, the department for repairing injectors, lubricators and other brass parts, and the tool repair and tool

a month; in 1920, 97 were repaired there.

Transfer Table.—As shown by the accompanying plan, the transfer table is located to serve both the locomotive shop and the passenger car shop. It is of 80 ft. span, and operates on 5 rails laid on concrete supports. The pit is of concrete construction and 372 ft. long. The table is electrically operated, current being taken from an overhead trolley wire,

flooring. Ample light is furnished by large windows, and also through windows through hoods in the roof, 12 in number, which extend across the building and are located vertically over each track. Artificial illumination is by means of electricity, and heating is by steam coils, the steam being piped from the boiler house.

The shop contains 12 repair tracks, 10



Leaside Shops, Canadian National Railways. See also opposite page.

Leaside Shops, Canadian National Railways. See also opposite page.

making rooms.

All machinery is electrically driven, the larger machines by individual motor, the smaller from a line shaft. The shop is equipped with two Northern cranes, of 10 and 25 tons capacity, the runways for which extend the total length of the shop. The average number of locomotives repaired at present is eight

supported on arms extending from poles embedded in concrete at the west side of the pit, and used with a 50 h.p. Fairbanks-Morse motor. One track at the north end, and two at the south, provide for movements on and off the table.

The passenger car shop, also of transverse type, and of brick on concrete foundations, is 283 x 140 ft. It has plank

of which are being used for passenger car repair work. The space for two tracks at the north end of the shop is used for a wood working plant, where matchers, planers, band saws and boring machines are in operation, pending the construction of the proposed planing mill as indicated by the plan.

A gallery, 25 ft. wide, access to which

is had by three different flights of stairs, extends across the east side of the shop. At the north end of this gallery is the pattern making shop; the next section contains the cabinet making department; then follows the upholstering department, and at the south end is the tinsmithing department.

On the ground floor, at the south end, below the gallery, is the paint shop. Also, adjoining, is a 35 k.w. Westinghouse generator, direct coupled to a 32 h.p. Lancashire motor, this set being used for charging car lighting batteries. The whole shop is so wired that batteries may be charged at any track at which a car is standing. Also, below the gallery, and at the center of the east side of the shop, is the general car foreman's office. The petty stores adjoin the office, and north of them are the quarters for pipe fitters. Modern lavatory facilities are provided at the northeast corner, on both floors, and all departments are furnished with steel lockers for employes. At present, the number of passenger cars receiving general repairs at this shop runs from 15 to 19 a month.

Freight Car Repairs.—The yard east of the passenger car shop, shown on the plan as a passenger car yard, is being used for freight car repairs. There are 15 tracks, of which one is used for scrap, and three for storage purposes as required, the remaining 11 being used for freight car repairs continuously. The repair tracks are 20 ft. c. to c., and the yard capacity is about 280 cars.

Along the north side of the yard, lumber and heavy castings are stored, and along the same side runs a service 3-rail track, standard and narrow gauge. Another 3-rail track divides the yard transversely. For each set of two repair tracks, a longitudinal, narrow gauge, service track is provided, and at the point of intersection of these service tracks and the transverse track, small turntables are installed.

In connection with freight car repairs, the building at the north side of the yard houses a blacksmith shop, equipped with steam hammer, a pipe shop, and an electrically operated wood sawing machine.

Locomotive House, Leaside Shops, Canadian National Railways.

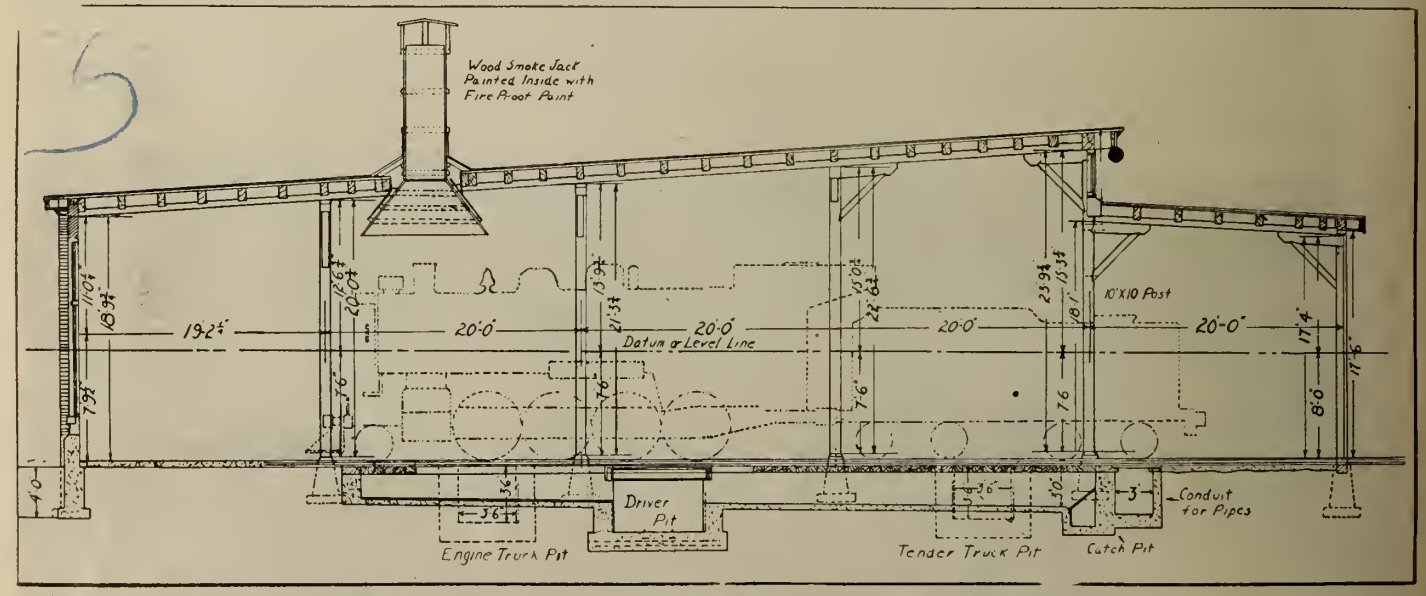
Further material storage space is provided at the rear of this building. At present, about 125 cars a month are being equipped with Bradford and Universal steel draft gear, in addition to the regular repair work. Provision for a freight car repair shop and planing mill has been made as shown on the plan.

The stores department building, 60 x 180 ft., located between the locomotive house and locomotive shop, is of brick, on concrete foundations. The west end of this building, three stories high, contains the offices. The first floor offices are occupied by the General Storekeeper and the Storekeeper, and staffs, those on the second floor by the Superintendent of Shops, and the Supervisor of Work Equipment, Ontario and Quebec lines, and staffs, and the third floor offices are occupied by the stores and mechanical accounting department staff. The east end of the building contains the stores, and adjoining it is the stores platform, which is as wide as the stores building itself, and approximately as long. This platform is used for storage of castings and the heavier grades of locomotive car and track material, level with the car floor, facilitating loading and unloading of material.

Scrap Handling Facilities.—A notable feature is the scrap storage platform, adjoining the east end of the ice house. This platform is 40 x 200 ft., is equipped with a standard gauge track which runs from end to end, a track on each side, and a travelling crane to handle scrap to and from cars. This facility, in addition to taking care of scrap from the Leaside plant, also receives and classifies the discarded material from the Ontario District lines. The crane operates on the track on the platform, and the arrangement is such that the scrap material can be unloaded, classified, and piled up, or reloaded in another car, as the case may be, in one handling.

The blacksmith shop is of the same type of construction and materials as the locomotive and passenger car shops, and lies to the west of the locomotive shop, the area between the two buildings being used as a storage space for locomotive tires, castings, and heavy iron and steel material. This shop is 70 x 100 ft., is well lighted, and equipped with modern machinery. Outside the shop is a concrete oil storage tank, divided into four compartments, from which oil is forced by punrps, through pipes, to the oil fires in the shops.

The first aid building is a notable feature of the shops. It is fitted up as a combined rest room for the office staff, and a place for medical and surgical at-



Longitudinal Section, Locomotive House, Leaside Shops, Canadian National Railways.

tendance. It is equipped with furniture, electric heaters, etc., and a complete supply of medical and surgical necessities are kept on hand. It is the headquarters for these supplies for the Ontario District, and the first aid kits are made up here.

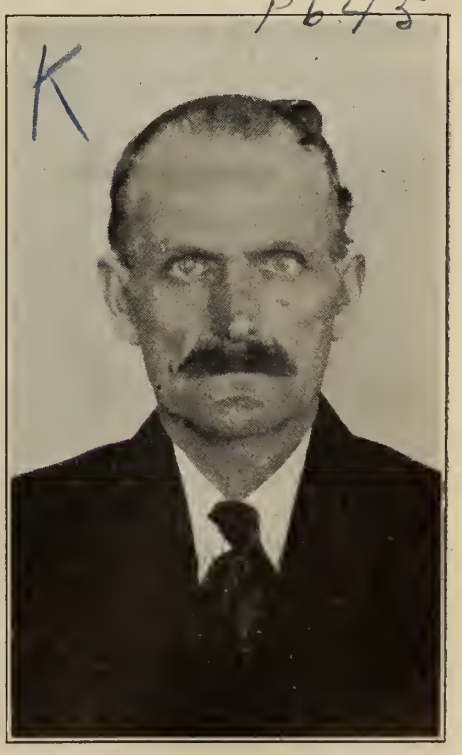
portion is used for storage of passenger car storm sash.

The ice house is of 2,000 tons capacity, but is not all being used for ice storage, a portion of it being used for storage of other material.

Additions, Enlargements, etc.—In so far as future additions and enlargements are concerned, the accompanying plan shows the ultimate capacity of the classification yard, and shows the area the locomotive house would occupy if it were enlarged to 45 stalls. The location of the proposed planing mill and freight car shop is also shown, but at the time of writing, information was not available as to when this work will be undertaken. It is expected that several of the passenger car yard tracks are to be covered. New machinery for the different shops

Locomotive Shop, Leaside, Canadian National Railways.

Gallery of Locomotive Shop, Leaside, Canadian National Railways.



Otis Grant,
Superintendent of Leaside Shops, Canadian National Railways.

Wheel Shop, Etc.—The frame construction building shown on the plan as a wheel shop is not at present used as such. The east portion of it contains a complete waste reclaiming plant which is very efficient in operation. The west

is being received and installed from time to time, and it is probable that extensions and enlargements will be made to the existing plant, to keep pace with the de-

velopment and growth of the National System.

The total number employed in the shops is about 1,000, the locomotive department employing 430, blacksmith shop 36, car department 446, and locomotive house 37, the remainder being in the electrical department, boiler house, power house, offices and stores.

Location, Construction, etc. — The shops, yards, etc., were planned and laid out under the direction of A. F. Stewart, then Chief Engineer, Eastern Lines, Canadian Northern Ry., at Toronto, now Chief Engineer, Canadian Government Rys., etc., at Moncton, N.B. The grading, which was commenced in the latter part of 1917, and completed in 1918, was done by Franceschini & Co. The plans for the buildings were prepared by G. C. Briggs, Supervisor of Buildings, Canadian Northern Ry., and construction was done by company forces, under his supervision. The yard was laid out and track laying and ballasting completed under the supervision of R. A. Baldwin, Assistant Engineer, Eastern Lines, W. Huffman being the Resident Engineer in charge of the work. The entire shops are in charge of Otis Grant, Superintendent of Shops, who was born at McAdam Jct., N.B., July 13, 1869. He first entered railway service in May, 1884, since when he has been, to Oct. 1889, messenger boy, New Brunswick Ry. (now C.P.R.); Oct. 1889 to May 1895, machinist's helper, C.P.R., McAdam Jct., N.B.; May 1895 to May 1904, machinist, C.P.R., McAdam Jct.; June 1904 to Oct. 1904, leading hand machinist, C.P.R., McAdam Jct.; Nov. 1904 to Feb. 1906, Asst. Foreman, C.P.R., McAdam Jct.; Feb. 1906 to Jan. 1907, Shop Foreman, C.P.R., McAdam Jct.; Jan. 1907 to Aug. 1908, Locomotive Foreman, C.P.R., McAdam Jct.; Feb. 1909 to May 1909, machinist, Canadian Northern Ontario Ry., Parry Sound: May 1909 to Sept. 1913, Machine Shop Foreman, C.N.O.R., Parry Sound; Oct. 1913 to June 1915, Shop Foreman, C.N.O.R., Parry Sound; July 1915 to Nov. 1919, Locomotive Foreman, C.N.O.R., Parry Sound; Dec. 1919 to date, Superintendent of Shops, Canadian National Rys., Leaside, Toronto.

The foremen are as follows:—Erecting Shop, H. Daley and R. Currie; Machine Shop, E. Farrar and W. Sherwood; Boiler Shop, W. Hewitt; Tool Room, E. Doherty; Air Brake, E. Brooks; Blacksmith Shop, J. Templeton; Tender Shop, E. Ross: Carpenter Shop, W. Craven; Paint Shop, W. Fleming; Locomotive House, J. Crooks; Foreman Pipe Fitter, J. Cotton; General Car Foreman, H. J. White; Asst. Passenger Car Shop Foremen, A. Gouge, E. Bushey; Truck Foreman, J. Johnson; Paint Shop, A. Arthurs; Tinsmith, H. Cornell; Patternmaking, W. Smith; Freight Car, W. Gouge; Asst. Freight Car Foremen, G. Potter, J. Smith, A. Pettibone and J. Nolan; Engineer, Power House, J. G. Young; and Electrical Foreman, J. Stirling.

The steam shovel and general work equipment repair work is under W. H. Secord, Supervisor of Work Equipment, Ontario and Quebec Lines, J. McDonald being foreman in charge. Miss Hill is the nurse in charge of the first aid building.

We are indebted to W. H. Robinson, Official Photograph, Canadian National Rys., for the photographs from which the accompanying half tone illustrations were made.

C.P.R. Cantilever Bridge Over St. John River.

The present cantilever bridge at St. John, N.B., carrying the tracks of the St. John Railway & Extension Co., operated by the Canadian Pacific Railway over the Reversible Falls, on the St. John River, at St. John, N.B., was built in 1887, by the Dominion Bridge Co. The time having come to renew the bridge, to accommodate heavier and more powerful power, to enable increased tonnage to be handled with a consequent reduction in cost of operation, it was therefore decided recently to build a new bridge alongside the old structure, with the necessary connecting lines at each end to link up with the main line, between Fairville station and the heart of the City of St. John.

The conditions were such that the most economical site for the new bridge was found to be immediately north of the present cantilever bridge and at a distance of approximately 30 ft. c. to c. therefrom. After borings had been made near the water's edge, and at various points along the center line, it was found that a main cantilever span length of 450 ft. could be obtained, which was considerably less than the main span would have been if located in any other position.

The approach from the west will consist of eight 70 ft. deck girder spans, supported on concrete piers. This construction was adopted instead of the usual steel trestle which had been originally used for the west approach, for the reason that the side hill on which this approach is located is of such a nature that considerable expense would have been necessary for shoring the old trestle during construction.

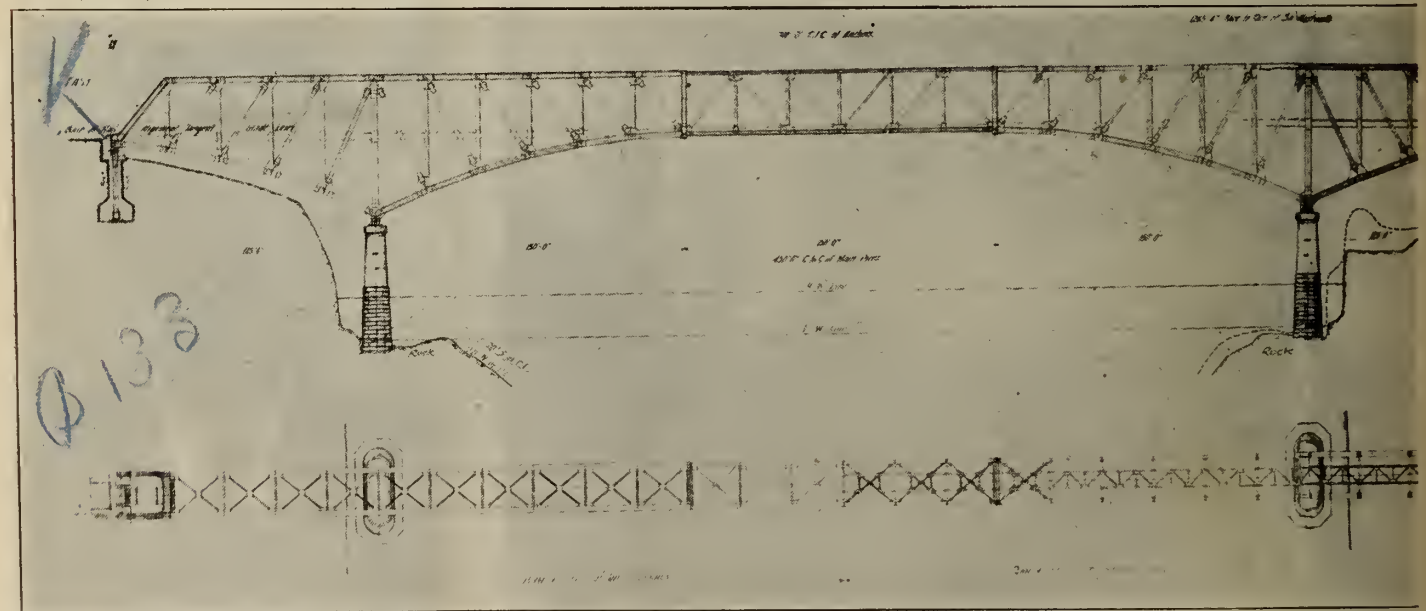
The main cantilever span will be a stiff structure of the through type, with a horizontal top chord throughout, which will allow the use of stiff portals and other horizontal bracing. The lower chords of the cantilevers themselves will have pleasing curves, which besides improving the aesthetics of the structure, will provide more headway over the water than straight chords.

The vertical headway for the new bridge will be 2 ft. 7 in. greater than that provided by the old bridge, for the length of the suspended span, which is 150 ft.

The steelwork of the cantilever, as before stated, will be of the stiff rivetted type, no pins being used anywhere, except in the anchor links at each end and at the points of support for the suspended span.

The piers are of concrete, with the exception of those parts of the main piers between high and low water, which are faced with substantial courses of granite, pointed with lead wool in the extreme lower courses, and the usual cement mortar in the upper.

The east anchorage was obtained by excavating a suitable cavity into the



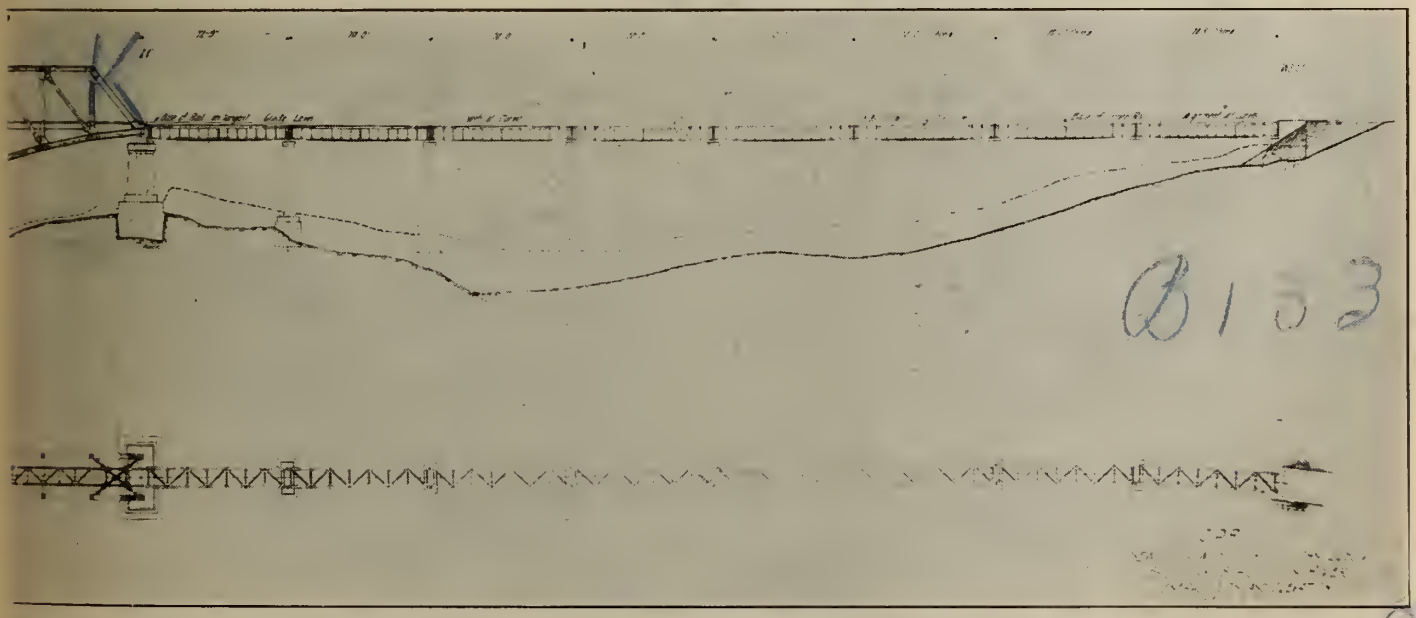
C.P.R. Cantilever Bridge, St. John, N.B. General plan and elevation. See also opposite page.

solid rock, and the anchor link will be securely concreted into it. The west anchorage, however, is composed of a mass concrete pier, of suitable dimensions to give the usual factor of safety as regards uplift.

Foundation Co., of Montreal, and while no great difficulties were encountered in obtaining suitable foundations, yet the nature of the ground necessitated efficient and expensive precautions, in order to allow the work to go ahead for a end early in the spring, and to have the bridge ready for trains by the end of the working season of this year.

The work is being carried out under the direction of J. M. R. Fairbairn, Chief Engineer, C.P.R. P. B. Motley, Engi-

C.P.R. Cantilever Bridge, St. John, N.B. General view, looking east, Aug. 28, 1920.
This illustration shows, in the foreground, the earlier portion of the work on the substructure of the western approach viaduct to the new bridge, then the present C.P.R. cantilever bridge, and beyond it the arch bridge for vehicular, pedestrian and electric railway traffic, built by the New Brunswick Government.



C.P.R. Cantilever Bridge, St. John, N.B. General plan and elevation. See also opposite page.

The location of the new bridge on the north side of the present cantilever, necessitated some rock excavation to accommodate it. At the east end this rock was used for grading both ends of the bridge and for other purposes.

The preliminary borings were made and the substructure was built by the maximum amount of time during tide fluctuations. The whole of the substructure was completed between April 1920 and Jan. 15, 1921.

The contract for the steel work has been given to the Dominion Bridge Company, Montreal, and the intention is to commence erection work from the west

neer of Bridges, C.P.R., is responsible for design and construction, with Ralph Modjeski, of New York, as consulting engineer. C. F. Draper is Resident Engineer in charge of construction.

In addition to the illustrations on this page, others are given on page 120.

C.P.R. Cantilever Bridge, St. John, N.B. General view, looking east, Nov. 2, 1920.
This illustration shows, in the foreground, the substructure of the western approach viaduct to the new bridge.

C.P.R. Cantilever Bridge, St. John, N.B. General view, looking west, Dec. 31, 1920.
This illustration shows the western main pier of the new cantilever bridge, the west anchor pier, and the piers for the western approach viaduct, then a portion of the present C.P.R. cantilever bridge and a portion of the New Brunswick Government's bridge for vehicular, pedestrian and electric railway traffic. On the main pier in the foreground will be seen the granite facing, between high and low water marks.

Railway Mechanical Methods and Devices.

Handy Trucks for Railway Repair Shops.

Two trucks, which greatly facilitate the work for which they were constructed, and which were made at, and used in, the C.P.R. repair shops at West Toronto, are illustrated herewith. The one shown in fig. 1 is for carrying locomotive side rods between the erecting shop and the machine shop. The wheels, 20½ in. outside diameter, have 3 in. tread, and the yoke supporting them is of 13 in. inside width. This yoke is made of 1½ in. square stock, and the other yoke, for supporting one end of the rod which is being carried, is of 2½ x ½ in. stock. The length over all is 8 ft. 3 in., the handle being of 1½ in. pipe. The method of supporting the rod in the truck is as shown, and the chain can be lengthened or shortened at will.

The truck shown in fig. 2 is specially adapted for the carrying of driving boxes from point to point in the shop. The inside width of the yoke supporting the wheels is such that the largest size driving box may be taken, and the pair of grab hooks shown make the operation of picking up or letting go of a box the work of but a second.

As the handling of material from point to point within a locomotive repair shop is a matter of great importance, and one wherein there is often lots of opportunity to introduce time and labor saving methods and devices, the practical value of additions to equipment such as those described above is at once apparent.

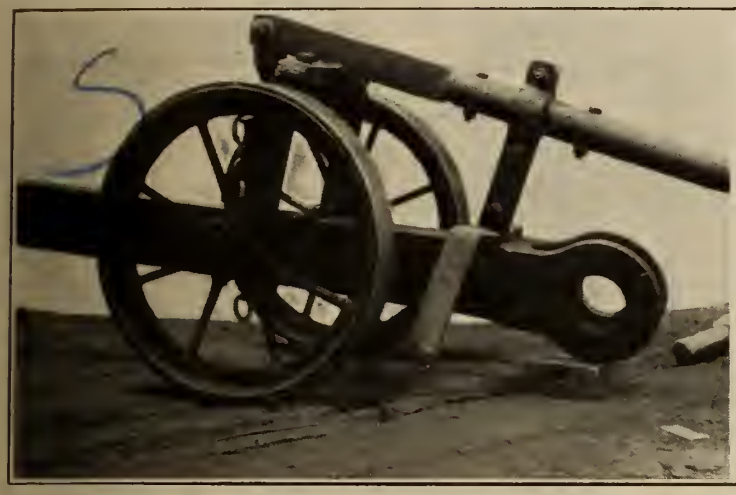
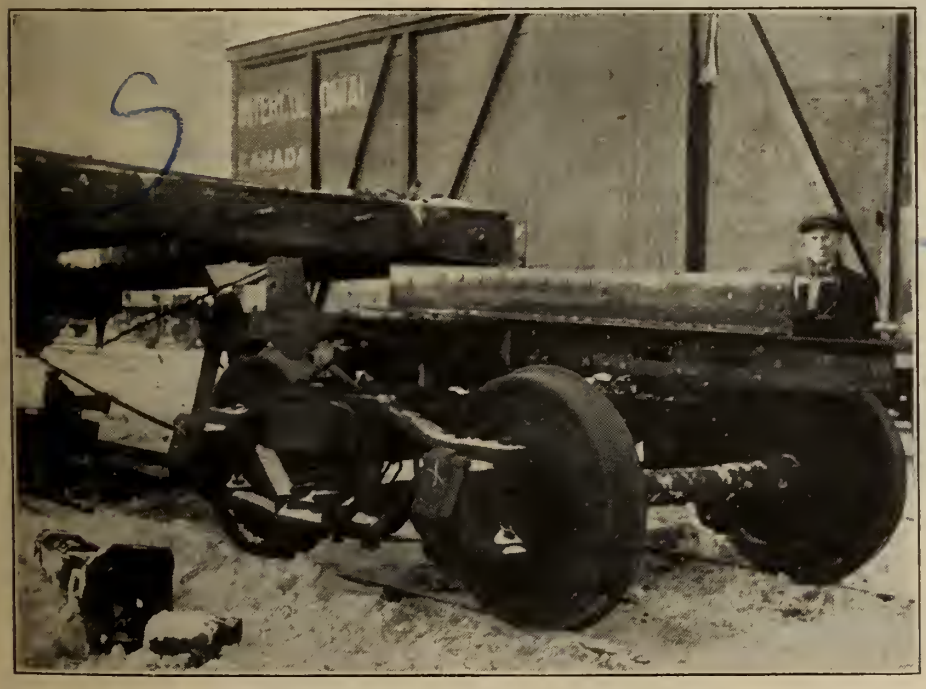


Fig. 1. Handy Trucks for Railway Repair Shops.

Fig. 2. Handy Trucks for Railway Repair Shops.

Equipping Freight Cars with Steel Draft Gear.

The freight car repair department, Canadian National Rys. Leaside shops, Toronto, is equipping from 90 to 100 cars monthly with Bradford and Universal steel draft gear. The work, which is being done in strict accordance with M.C.B. standards, necessitates the removal of the wood draft timbers, and the replacing of the deadwoods by those standard for the new steel draft gear. The new gear extends 3 ft. back of the bolster, and is bolted to the center sills. Bunting blocks behind the bolster are bolted to the center sills through the draft gear extension. Drawbars, pockets, springs, etc., are all new, and all standard safety appliances are applied. The accompanying illustration of a flat car which is being equipped, shows the method of doing the work, which is under the supervision of G. Potter, assistant to W. Gouge, Freight Car Foreman.



Equipping Freight Cars with Steel Draft Gear.

Welding Universal Valve Chest.

An interesting welding job was done recently at the Canadian National Rys. Leaside Shops, Toronto. The live steam portion of a universal valve chest became badly fractured in service. A portion of the wall of the chamber was cut out with air operated tools, and a patch of the same thickness and the required shape and size made. This was V'd back for ¾ in. all around, and welded in by the oxy-acetylene method. The work was heated to a cherry red, the new patch welded in, and the entire casting covered with dry sand, in which it was allowed to cool. A considerable saving was the result of this repair, which was done at little expense, and the repaired portion has shown no sign of weakness. The accompanying illustration shows the valve chest, and the patch which was welded on, just before the commencement of the operation. The welding was done by M. Karluk, leading welder, under the supervision of H. Daley, Erecting Shop Foreman, and Otis Grant, Superintendent of Shops, C.N.R., Leaside.

Welding Universal Valve Chest.

Portable Babbitt-melting Furnace.

Fig. 1 of the accompanying illustration shows a small C.P.R. babbit-melting furnace used in West Toronto shops, C. P.R. Being set on small wheels, it can be taken from place to place throughout the locomotive shops, and operated in a location convenient to the work. Fuel oil is used, in connection with compressed air, and a hose connection to the compressed air line in the shop is all that is necessary to be able to use the furnace at any point in the shop.

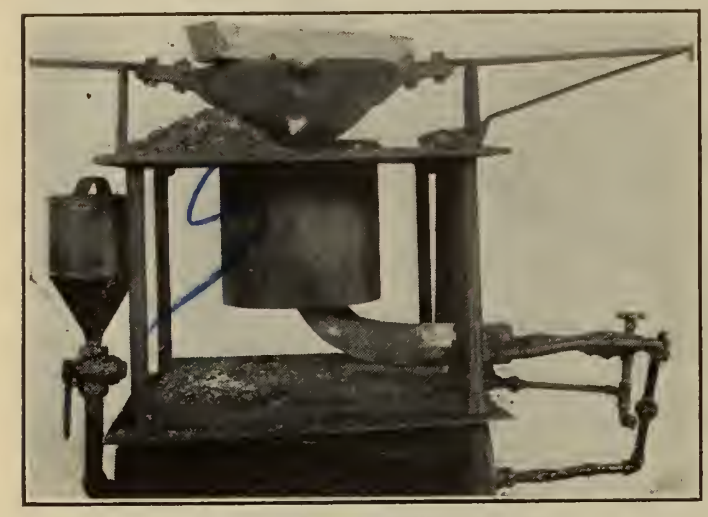


Fig. 1. Portable Babbitt Melting Furnace.

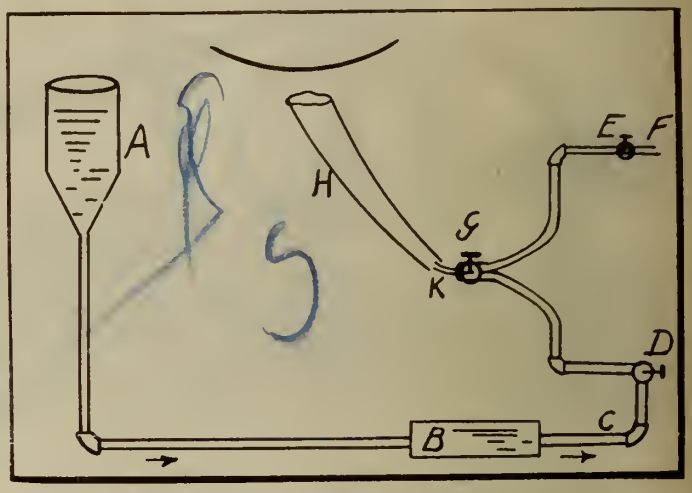


Fig. 2. Portable Babbitt Melting Furnace.

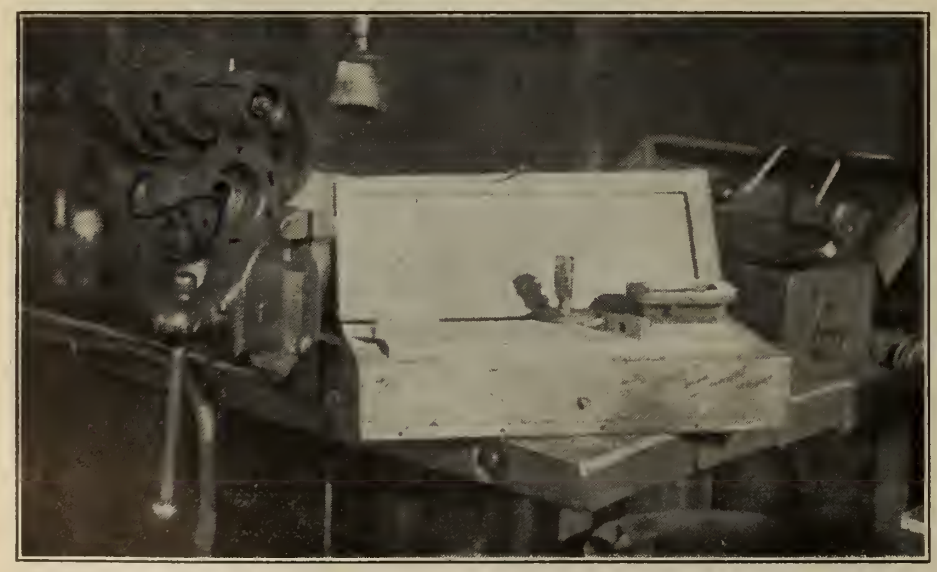
The principle of operation, which is simple, is seen by reference to fig. 2. The fuel oil tanks A and B are filled; the oil flow through pipe C is controlled by valve D; the compressed air entering through the hose connection F is controlled by valve E; the combined jet is controlled by valve G. The jet is ignited at nozzle K, and the flame is directed to the ladle through pipe H.

This furnace is employed in pouring hub liners, re-babbitting truck axle bearings, and in babbitting and soldering jobs of all descriptions.

Apple shipments from Halifax, N.S., to United Kingdom ports were 119,044 barrels in January, making a total for the season to Jan. 31, of 732,613, against 376,137 for the corresponding period of 1919-20.

Facing Valves of No. 6 E.T. Brake Equipment Distributing Valve.

The distributing valve is one of the most important parts of the no. 6 engine and train equipment, which style of brake is the present standard in locomotive practice. It replaces the triple valve and auxiliary reservoir of the old style brake equipment, and by its action ensures the brakes remaining set, regardless of brake cylinder leakage or piston travel. The application portion of the distributing valve contains the application valve and exhaust valve; the equalizing portion contains the equalizing valve and graduating valve, and it is essential to the proper action of the locomotive and tender brakes that these internal valves have a perfect bearing on their seats. Great care is thus required in facing them.



Babbitt Plate and Distributing Valve Parts of No. 6 E.T. Brake Equipment.

A method of facing these valves, largely used in the past, is as follows:—A steel plate, perfectly flat, has spread over its surface a very thin film of colored grease; the valve, secured in a vise, is scraped with a special tool, then taken out, and the valve face drawn over the surface of the steel plate. The portions of the valve face showing color indicate the bearing surface. The operation is repeated until the valve face is flat and a contact exists completely around every port opening.

In the air brake department of the Canadian National Rys. Leaside Shops, Toronto, in charge of E. Brooks, Air Brake Foreman, a large babbitt plate, with a perfectly level surface, is in use for this work. The valve to be faced is first tested, to note any particularly high points, which are removed as above described, or by means of a very fine file. Emery flour, of a high quality, is splinkled on the face of the babbitt plate, and the valve face is worked against the face of the babbitt plate until it is down to a perfect bearing surface. The valve seats are faced with a babbitt face plate of the same width as the seat, which is rubbed over the seat, with as much flour emery as will remain in contact with the face plate when it is inverted.

The accompanying illustration shows a distributing valve with some of the interior valves removed, these valves, the application valve cap, and the babbitt face plate used in the facing operation, together with its case. The method described has been in use on the Canadian National Rys. for three years, and the results have been uniformly successful, the saving in time over the old method being great.

Changing Superheater Joints.

The Vaughan-Horsey superheater has two headers, the one for saturated steam being directly connected to the dry-pipe, and the superheated steam header connecting to the two steam pipes conveying steam to the valve chests. The series of superheater pipes which extend back toward the firebox connect the saturated superheated steam headers.

Changing Superheater Joints.

Past practice, in making the joints of the superheater pipes and the headers, was to use a copper gasket, the retaining nut being tightened over it with a

long handled wrench. At present, however, these superheaters are being equipped with ball joints between the pipes and header pipe connections, as this type of joint is found to give better service. Another advantage is that whereas a new copper gasket has to be used every time a superheater joint is broken, necessitating a new set of gaskets every time the locomotive is shopped, and the superheaters gone over, the ball joint gasket can be used over and over again indefinitely.

In making the change, the pipe connection on the header must be tapered out, so as to accommodate the ball joint gasket, and the work is done as shown in the accompanying illustration. The tool used is a ratched rose-bit, in combination with a stand to keep it applied to the work. The stand is so made that it screws on the pipe connection which is to be changed, and at the center of the inside of the top of the stand is a center for the ratchet, thus ensuring the bit keeping a good center and doing an accurate job. This job could be done with the superheater units in the front end of the locomotive, by uncoupling and moving to one side the pipe which is in the way of the tool stand, while changing any specified joint, but, as a matter of fact, the change is made when the locomotive is in for general repairs, and the superheater units wouid have to be taken out and gone over in any event.

A complete installation of the largest size can be changed in about 16 hours, and from a performance and maintenance standpoint the new type of joint is much superior to that in former use. We are indebted to H. Tod, Erecting Shop Foreman, C.P.R. West Toronto shops, for this information concerning the above.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John River Bridge-Douglas Ave. Grade Separation.—These two works are related to each other and everything depends on the Board of Railway Commissioners' decision as to the height above water of the new bridge which the company is building across the St. John River at the reversible falls, St. John, N.B. Marine interests have asked the Board to direct the raising of the bridge by 9½ ft. above the level proposed by the railway, and we are advised that if this is done the overhead crossing of the highway over the railway tracks would be out of the question, and a subway to take the roadway under the tracks would be the only solution. The type of structure for the overhead crossing of the highway that is said to be mostly favored is a 90 ft. span reinforced concrete arch, and the location lends itself to such a structure with a minimum of grade on either side of the tracks.

A conference of engineers and representatives of local interests was held in St. John, Feb. 9, at which it is reported that the marine interests pressed for a bridge with as great a clearance as the highway bridge alongside—91½ ft. at slack water. It was pointed out that the new railway bridge as planned will give a greater clearance than the present one, and that no objection was taken by local interests until the piers for the new structure were 75% completed.

Interprovincial & James Bay Ry.—The C.P.R. has, for some years, had a branch line, starting from Mattawa, Ont., 314.4 miles west of Montreal, on the main line, and running to Timiskaming, Que., formerly Lumsdens Mills, on Lake Timiskaming, 37.5 miles, with another branch from Kipawa Jct., Que., 36.2 miles from Mattawa, to Kipawa, Que., 9.2 miles. In 1914 the latter branch was extended for 10 miles, but this extension has not been operated. As stated in previous issues, the C.P.R. has, on behalf of its subsidiary, the Interprovincial & James Bay Ry., entered into a contract with the Quebec Government for the construction of 66 miles of the line, to start from the present end of track 10 miles north of Kipawa, and 45.4 miles from Mattawa, and to run to the Quinze River, 60 miles from Kipawa, to Ville Marie, on the shore of Lake Timiskaming. This will make about 68 miles to be built, or two miles more than covered by the subsidy agreement with the Government, under which the company will receive a cash bonus of $1,600 a mile, as provided for in the Quebec Statutes of 1920, in addition to 4,000 acres of land a mile authorized in 1919, and a further cash subsidy of $6,400 a mile in case the company does not receive a subsidy of the same amount from the Dominion Government. The Board of Railway Commissioners has approved of the company's route maps, from mile 10 from Kipawa to mile 70 at the Qunize River, and from mile 48.2 on the line from Kipawa to Quinze River, to Ville Marie, 7.8 miles. Right of way is being bought and the clearing of it will start at an early date. (Feb., pg. 69.)

Montreal-Smiths Falls Track Relaying. A press report states that about 100 miles of 100 lb. rails are being laid between Montreal and Smiths Falls, Ont.

London Division Betterments.—A press report states that approximately $60,000 has been appropriated for general maintenance of way work to be done on this division during the year, that about 20 miles of 85 lb. rails will be laid on Port Burwell, St. Marys and St. Thomas branches; that 150,000 ties wil be replaced; that about 20 miles of ballasting will be done between London and Chatham, and an additional 20 miles between Guelph and Goderich.

Western Lines Betterments. — D. C. Coleman, Vice President, Western Lines, is reported to have stated, on returning from Montreal to Winnipeg recently, that a considerable amount of bridge replacement, rail replacement and work of that character will be undertaken and that there will be certain improvements to terminal, shop and passing track facilities, to enable the grain crop to be handled with efficiency.

Milden-Empress Line.—D. C. Coleman, Vice President, Western Lines, is reported to have stated recently that the contracts for grading the first 59 miles of this line were let in 1919 and 1920, and the work on them is only about half completed. When the grading is finished, the track on this 59 mile section will be laid. It is not the intention to let contracts for further grading on this line in 1921. The line will follow the amended route map as approved by the Board of Railway Commissioners.

Keppel-Kelfield Line.—D. C. Coleman, Vice President, Western Lines, is reported to have stated recently that no announcement could then be made as to the starting of construction on this line.

Coaling Plants. — The company has built recently a standard 280 ton double truck coaling station at Revelstoke, B.C. and standard 100 ton stations at Sicamous, Notch Hill, Ruby Creek and Vancouver, B.C. A 50 ton addition is being built to the mechanical coaling plant at North Bend, B.C.

Port Coquitlam Line.—A press report states that a suggestion was made to Grant Hall, Vice President, while at New Westminster, B.C., recently, that the branch line from there to Port Coquitlam should be electrified, and operated by the British Columbia Electric Ry.

Vancouver Pier.—A press report states that it is expected that tenders will be asked for at an early date for the construction of the new pier, "B.C.," some details of which were given in Canadian Railway and Marine World for Feb. 1920, pg. 75.

The Pacific Construction Co. is expected to complete its dredging and filling contract on the site by Mar. 1. (Feb., pg. 69.)

The Largest Locomotives on the Canadian Pacific Railway.

A Vancouver subscriber has written asking Canadian Railway and Marine World whether the decapod (2-10-0) is the largest locomotive operating on the C.P.R.'s British Columbia district. The C.P.R. Mechanical Department has provided us with the following information:

The largest locomotives on the British Columbia District are of the decapod (2-10-0) type, known as the R-3 class, locomotives of this class being in the 5700 series. Following are some of the principal details:—

Tractive effort	54,000 lb.
Total weight of engine	240,000 lb.
Loaded weight of tender	180,000 lb.
Total weight of engine and tender combined	420,000 lb.

The largest locomotive in the Province of British Columbia, in fact on the C.P.R. system, is the Santa Fe (2-10-2) type, the locomotives of this class being in the 5800 series. Following are some of the principal details:—

Cylinders	26½ x 32 in.
Driving wheels	58 in.
Tractive effort	65,870 lb.
Weight on drivers	275,600 lb.
Total weight of engine in working order	354,600 lb.
Loaded weight of tender	180,000 lb.
Total weight of engine and tender combined	534,600 lb.

The C.P.R. has 15 Santa Fe locomotives in service, 3 on the Quebec District and 12 on the Alberta District.

The dividing point between the Alberta and British Columbia districts is at Field, B.C., 2201.2 miles from Montreal and 505.3 from Vancouver. Field itself is in the B.C. District.

Rapid Coal Handling.—The Norfolk & Western Ry. has contracted for another car dumper which will have a tremendous capacity. It will take the largest road cars and overturn them into specially designed motor driven transfer cars having power operated bottom gates through which the coal will be distributed to the lines of coal loading bins on the piers. The ships coming alongside the piers will then be loaded rapidly by gravity with breakage of the coal reduced to the minimum. Mechanical trimmers, which are claimed to effect a wonderful saving by eliminating hand trimming, will be used. Could the road cars be supplied without interruption, this machine alone would have a capacity for loading into ships over 8,000,000 tons of coal a year when operated for eight hours during each working day. This represents 1,440 ocean going ship cargoes.

Train Schedules and Locomotive Fuel Consumption.

By Edwin Winfield, Assistant Editor, Canadian Railway and Marine World.

A study of locomotive fuel consumption is, by the very nature of the subject, a complicated one, because there are so many factors which influence the performance of locomotives in regard to fuel economy. It may be studied from three points of view, as follows:—

1. The design. This introduces considerations such as grate area and heating surface, boiler capacity and cylinder volume, port area and valve steam distribution; the effects of compounding, superheating, feed water heating, and of the introduction of various economy devices into locomotive practice.

2. Maintenance. As examples of the considerations entering herein may be mentioned the effect of frequency of boiler washing; front end adjustment and exhaust area; injector losses; valve, piston, superheater and steam pipe leaks; defective grates, defective lubrication and so on.

3. Operation. As factors of design and maintenance more readily lend themselves to classification and standardization, while operating conditions, in so far as locomotives are concerned, are always characterized by change and uncertainty, it is the writer's opinion that the operating end of the study of fuel consumption is the most interesting one, and the one offering the best field for enquiry.

It is obvious that, in a paper of this nature, fuel economy cannot be discussed from any one of these three points of view, and thoroughly covered. The discussion must be confined to one feature in one of these divisions. The point chosen for discussion here is a detail of operation, and has to do with the relation between a train schedule and the amount of coal burned by the locomotive.

Before proceeding with this analysis, it may be well to mention two things, (1), that there is close agreement between the results obtained by investigators under test conditions, and the results of close observation from day to day while on the road, and (2) that on account of the frequent presence, in more or less degree, of conditions which are given no, or not enough, consideration in theoretical calculations, or arranged tests, the degree of economy obtainable in actual service is not equal to that which may be demonstrated as possible. It is possible only under a system of day to day observation under road conditions to study these factors not brought to light otherwise, and to establish their importance.

In attempting to determine the relation between locomotive fuel consumption on the one hand, and the way in

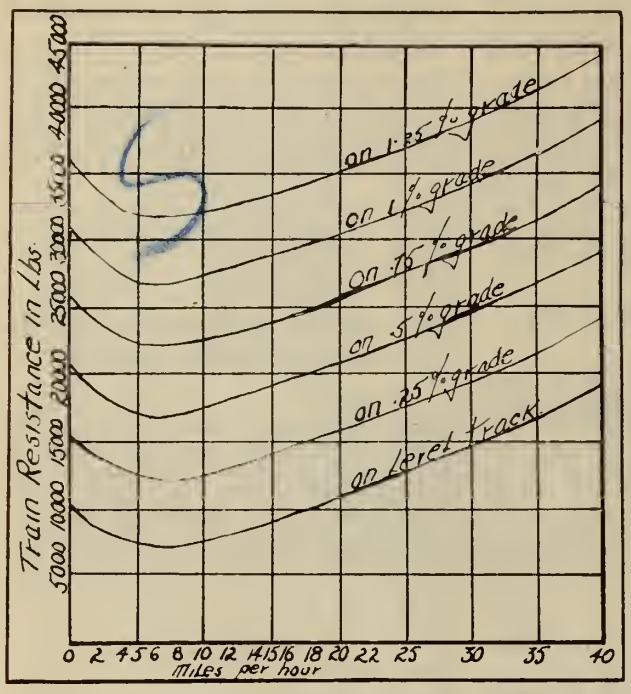


Fig. 1. Variation of train resistance with speed.

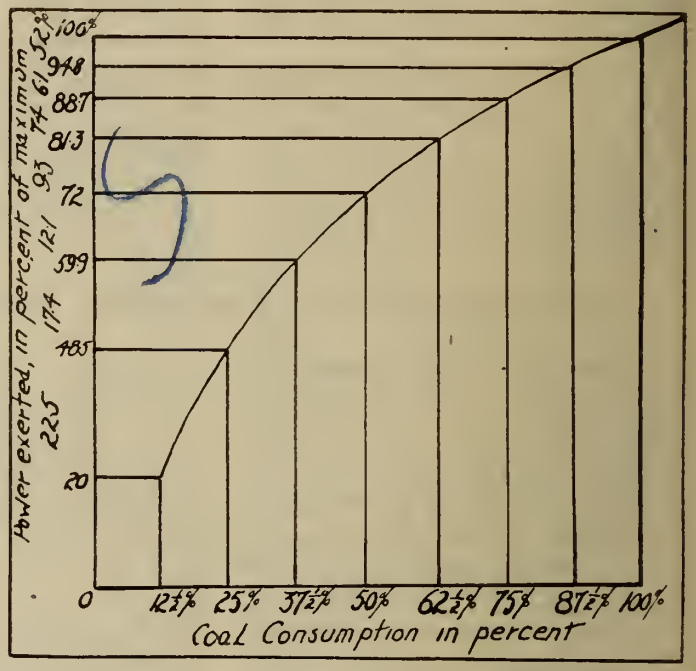

Power exerted, in percent of maximum
100% 94.8 88.7 81.3 72 59.9 48.5 36.1 22.5 12.4 2.0
0 12½% 25% 37½% 50% 62½% 75% 87½% 100%
Coal Consumption in percent

Fig. 2. Variation in coal consumed, with power exerted.

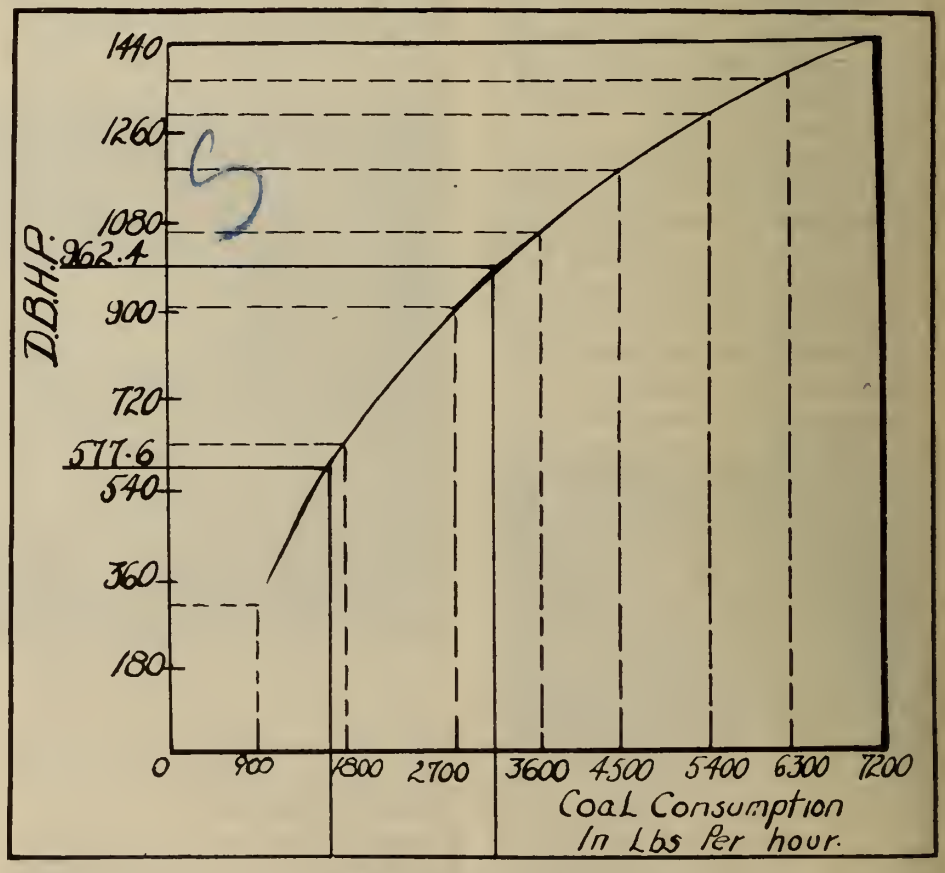


Fig. 3. Application of fig. 2.

which a train schedule fits a division on the other, and the first thing to be presented is the variation in train resistance in agreement with variations in speed. Fig. 1 represents a good average relation. It is assumed that the train make up, as affected by loads and empties, is taken care of by an adequate scheme of adjusted tonnage rating. No first principles are introduced in the derivation of train resistance, tractive effort, etc. The figures and charts have been derived from various sources, and averages struck, and these are representative of conditions as they exist.

The next consideration is the locomotive. We here deal with a modern mikado type freight locomotive, capable of developing a maximum tractive effort of 54,000 lb., the boiler capacity being such that this tractive effort can be sustained without trouble at 10 miles an hour. When worked a maximum capacity, this locomotive will burn 7,200 lb. of coal an hour.

Another consideration has to do with variation in fuel consumed by the locomotive, in relation to variation in the power exerted by it. The relation is demonstrated by fig. 2, which perhaps makes clear why it takes half as much coal again, or more, to take a train up a hill, and let it drift down the other side, as it does to take the train the same distance on the level. It will be observed that fuel consumption does not increase directly in proportion to increase in power exerted, but a great deal faster, and the greater the power exerted, the faster the rate in increase in coal burned. Cinder losses, and imperfect combustion, the degree of imperfection increasing as rapidity of combustion increases, produce remarkable results.

Fig. 2 shows that to increase the tractive effort exerted from 42.5 to 59.9% of the maximum (an increase of 17.4% of the maximum), an increase of 12.5% of the maximum coal consumption is required. To increase the tractive effort exerted from 72 to 81.3% of the maximum (an increase of but 9.3% of the maximum), the same additional amount of coal must be burned.

Fig. 3 is an application of fig. 2 to the locomotive here considered. Assuming for the purposes of our calculations that 1440 represents the maximum working drawbar horsepower attained by this locomotive, and which is represented by the consumption of 7,200 lbs. of coal per hour, it can easily be determined, by drawing in the proper ordinates to the curve, the amount of coal it is necessary to fire to support the locomotive at whatever stage within her range of power she is working.

The next consideration is the profile of the division on which this locomotive is working. Fig. 4 shows the general profile. The following table is a comparison of two schedules for a 1,600 ton freight train handled from A to O over this division. The columns in each case show the speed between stations, the time used between stations, the drawbar power the locomotive must exert throughout this period of time to haul the train at this speed, and the amount of coal which must be fired to support this effort.

Schedule 1.

	Speed	Time	Power	Coal
A-B	20 m.p.h.	16 min.	577.6	504 lb.
B-C	18 m.p.h.	20 min.	962.4	1,068 lb.
C-D	24 m.p.h.	17.5 min.	784	698 lb.
D-E	30 m.p.h.	12 min.	down grade	
E-F	22 m.p.h.	24.5 min.	978.5	1,367 lb.
F-G	25 m.p.h.	9.5 min.	847	423 lb.
G-H	15 m.p.h.	16 min.	1,360	1,666 lb.
H-I	30 m.p.h.	16 min.	down grade	
I-J	18 m.p.h.	33.3 min.	1,183	2,522 lb.
J-K	24 m.h.p.	15 min.	784	598 lb.
K-L	30 m.p.h.	14 min.	down grade	
L-M	24 m.p.h.	12.5 min.	784	499 lb.
M-N	14 m.p.h.	25.7 min.	1,066	1,619 lb.
N-O	22 m.p.h.	71 min.	.....	2,343 lb.
		305 min.		13,307 lb.
				12,085 lb.
Coal saved				1,222 lb.

Schedule 2.

	Speed	Time	Power	Coal
.....	24 m.p.h.	15 min.	784	598 lb.
.....	15 m.p.h.	24 min.	762	910 lb.
.....	30 m.p.h.	14 min.	1,136	982 lb.
.....	36 m.p.h.	10 min.	down grade	
.....	16 m.p.h.	33.7 min.	610	970 lb.
.....	28 m.p.h.	8 min.	1,045	483 lb.
.....	10 m.p.h.	24 min.	862	1,080 lb.
.....	36 m.p.h.	13.3 min.	down grade	
.....	13 m.p.h.	46 min.	812	1,932 lb.
.....	24 m.p.h.	15 min.	784	598 lb.
.....	32 m.p.h.	13 min.	down grade	
.....	24 m.p.h.	12.5 min.	784	499 lb.
.....	12 m.p.h.	30 min.	901	1,440 lb.
.....	24 m.p.h.	65 min.	784	2,593 lb.
		323.5 min.		12,085 lb.
		305 min.		
		18.5 min. slower time.		

The table is constructed as follows:—In schedule 1, from A to B, 6 miles, it takes 18 minutes to run, at 20 miles an hour. Fig. 1, shows that train resistance for a 1,600 ton train at 20 miles an hour on level track is 10,830 lb. Twenty miles an hour is equivalent to 1,760 ft. a minute. Drawbar power is 10,830 times 1,760, divided by 33,000, which is 577.6. Fig. 3 shows that a drawbar horsepower of 577.6 requires the consumption of 1,680 lb. of coal an hour. This d.b.h.p. is exerted for 18 minutes. Hence, to take the train from A to B, at the speed indicated, requires 18 sixtieths of 1,680, or 504 lb. of coal. The amount of coal consumed between succeeding stations is figured similarly.

It will be seen that one schedule keeps the train on the road 18½ minutes longer than the other. Yet, owing to having this extra time, and to a better distribution of time in accordance with profile, this schedule saves 1,222 lb. of coal over the other. Basing calculations on an average of six trains a day, the coal saving would amount to $16,056 a year, with coal at $12 a ton at the firebox door. As to the 18½ minutes, the average number of hours a day a freight car is in motion on the main line is represented by a surprisingly low figure; running a train over a division on a schedule which represents just about as good a job as the locomotive can do, to leave it standing in the yard a couple of hours before the yard locomotive can get around to it, will make for a poor coal consumption record.

In the comparison of these two schedules, no account was taken of train order or time table meets, stops for water or to register train, or other factors which would influence the amount of coal consumed, this on the supposition that the effect would be the same in both cases. It will now be well, however, to consider the fuel performance of the locomotive hauling an extra train, which will more nearly portray conditions as they exist. This train will be of 1,600 adjusted tons, as before, and hauled by the same locomotive as in the preceding two schedules.

On leaving A it is necessary to work the locomotive hard, to get to C for an opposing passenger train. This is reflected in the higher coal consumption figures. Taking the siding, keeping the locomotive "alive," and train line maintained, while at C for 30 minutes, to meet two sections of the passenger train, pulling out and accelerating to road speed again, will require the consumption of 420 lb. more coal than if the stop had not been made. The train proceeds to E, where water is taken. There being quite a stiff pull out of E, the water stop costs 240 lb. of coal.

At F a 19 order is received to meet an opposing superior class train at H, also instructions to hurry over to H so as not to delay the opposing train. Acting on these instructions, the locomotive is further called on to exert nearly its maximum power from F to H, with corresponding increases in fuel consumption. At H the power required to lift the train in entering and leaving the passing track, and in accelerating to road speed again, requires an additional 420 lb. of coal.

On the way from I to J, an air hose bursts. Lifting the train on this grade, after a new hose is put on, and the train line recharged, requires an extra 240 lb. of coal. The water stop at J requires 200 lb. more coal than would have been burned had the stop not been necessary. The extra then makes N, where it heads into an auxiliary track to meet a schedule freight train and be passed by a passenger train. It backs out, takes water, and proceeds to O, the work and delay at N having cost 340 lb. of coal. The following table records the performance.

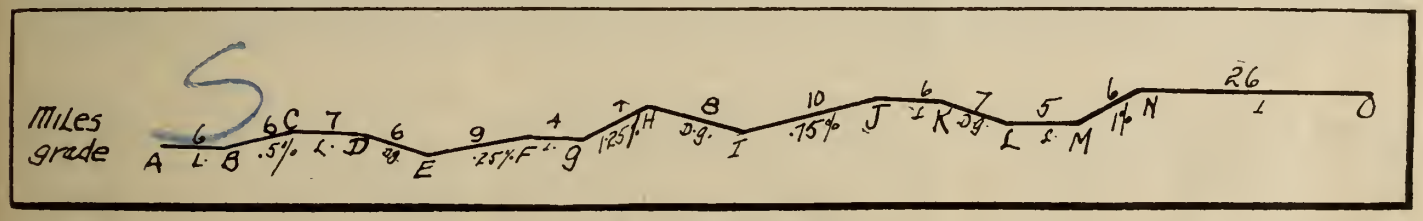


Fig. 4. Profile of division.

	Speed	Time	Power	Coal
A-B	30 m.p.h.	12 min.	1,144	862 lb.
B-C	22 m.p.h.	16.4 min.	1,267	1,476 lb.
C-D	30 m.p.h.	14 min.	1,144	989 lb.
D-E	30 m.p.h.	12 min.	down grade	
E-F	20 m.p.h.	27 min.	853	1,215 lb.
F-G	30 m.p.h.	8 min.	1,144	574 lb.
G-H	15 m.p.h.	16 min.	1,360	1,653 lb.
H-I	30 m.p.h.	16 min.	down grade	
I-J	18 m.p.h.	33.3 min.	1,190	2,497 lb.
J-K	24 m.p.h.	15 min.	781	665 lb.
K-L	30 m.p.h.	14 min.	down grade	
L-M	30 m.p.h.	10 min.	1,144	718 lb.
M-N	16 m.p.h.	22.5 min.	1,241	1,856 lb.
N-O	24 m.p.h.	65 min.	781	2,881 lb.
		281 min.		15,386 lb.
Plus				
Meet at C				420 lb.
Water at E				240 lb.
Meet at H				420 lb.
Burst hose				240 lb.
Water at J				200 lb.
Work at N				340 lb.
				1,860 lb.

This table shows that conditions requiring the locomotive to exert nearly its maximum power over various portions of the road, resulted in a fuel consumption of 15,386—12,085, or 3,301 lb. more coal for hauling the train than was required by the most favorable of the two preceding schedules. Meeting trains, taking the siding, delays and stops required the consumption of 1,860 lb. of coal additional.

The lesson demonstrated by these considerations is to the effect that, in the operation of a train over a division, it should be so scheduled that the locomotive can take its time on the hills; it should be able to use all its time in running, and not be unduly subjected to delays which necessitate it trying to make up as much time as possible. Of course, in the case of passenger trains and fast freights, fuel has to be sacrificed to secure the desired speed, and the only consideration in these cases is that of properly distributing over the division the allowed time. But in the operation of the majority of freight trains, the aim should be to give the train a reasonable and well distributed running time, well within the capacity of the locomotive, cut the delays down to a minimum, and and make the total number of stops as small as possible. From a fuel conservation viewpoint, which, upon thought and analysis, is found to be representative of operating efficiency in its entirety, the practice of giving full tonnage trains work to do at different side tracks along the road, cannot be too strongly condemned.

After a study, of long duration, of this matter of fuel economy, on a division where its importance is continually emphasized, and where the degree of efficiency obtained is high, the writer has concluded that the viewpoint which has to do with operating conditions is the one from which the subject of locomotive fuel economy deserves the most study and is representative of the field wherein the greatest economies can be effected. So far as maintenance is concerned, the existence of defects, and their effect as concerns the amount of coal consumed, can be so well located and classified with reference to a well defined standard of maintenance, that the whole matter resolves itself down to the necessity of repairing existing defects, and guarding against the occurrence of others. So far as design is concerned, the subject is a matter of mathematical calculation, and accumulated knowledge based on tests and past performance throughout a long period of time, and is a problem of concern to the qualified individuals entrusted with its solution.

The operating features, however, present a succession of variations, changes and uncertainties, wherein great waste can take place, or great savings can be effected. Such things as lighting up, cleaning fires, and terminal handling generally; the prompt supply of locomotives to operating department on demand, prompt utilization of locomotives by operating department when supplied; correct tonnage rating, and weather reduction standards; efficiency of car inspection and brake testing; character of train dispatching; handling of way freight work; the relation between train schedules and division profile; all of these things have their influence on fuel economy. On considerations such as these, it must be apparent that there is no better or more faithful indicator, in demonstrating the kind of job a division is doing in the line of clean cut railroading, than the record of locomotive fuel consumption.

Editor's note. — The subject of the foregoing paper is of such vital importance that we invite a thorough discussion of it, and we shall be glad to hear from any of our readers, either in elaboration of the subject as dealt with above, or in criticism of any of the views expressed.

The Canadian National Railways' Position and Construction and Operating Policy.

The following statement has been issued from Canadian National Rys. headquarters:—When the Grand Trunk Railway System is incorporated in the Canadian National Railways, the mileage of Government-owned railways in Canada will be 22,375 miles, comprising more than 50% of the total railway mileage.

Writing in 1876, in the preface of his history of the Intercolonial Ry., Sir Sandford Fleming said: "The Intercolonial Ry. is national in its objects and character." This great railway engineer was, at the time, Engineer in Chief of the Newfoundland, Intercolonial, and Canadian Pacific Railways, the latter then being projected as a Government undertaking, and it is to this he refers in the last sentence of the preface when he states that the completion of the work "realizes the national aspirations of half a century, by bringing within a few hours, the old fortress of Halifax and the older citadel of Quebec, and which must form an important section of the railway, destined, ere long, to extend from east to west through the entire Dominion." The words then spoken with confidence by a man experienced in achievement have been fulfilled, but in a manner quite different to that then in the mind of the writer. The Canadian Pacific became a privately-owned company and is now the only competitor of the system that is "national in its objects and character," of which the Intercolonial is an important section.

Future Development Largely Internal. Canada's main traffic arteries are built for some time to come, and the National system's immediate development will be largely internal; some branch lines will be required, but apart from these and connections for operating economy, such as the Long Lake cut-off, between the National Transcontinental and the Canadian Northern east of Nipigon, there will be little additional mileage warranted in the near future.

The policy will naturaly be to bring the physical properties of the National lines into excellent operating position, meaning more than mere maintenance of line and equipment, and involving the bringing about of a proper balance of facilities, the removal of features that limit the capacity of certain sections of line, such as an inadequate terminal, which, when congested, may affect the operation of a division, putting in double track where required, improving terminal equipment and so on. This work is not spectacular, but will be reflected in the operating statement at the end of the year. Work of this kind can only be undertaken on the assumption that the traffic will develop, for which various sections of the National system were built, and, naturally, such development work may have to be discontinued, or postponed, when business conditions are depressed to the extent that these traffic possibilities seem remote. At present, the business outlook is too uncertain to justify any large expenditure for equipping the National systems to handle large increases in traffic. With possibly one or two local situations excepted, the National system has a capacity above the traffic to be immediately handled.

Co-ordination.—The monetary advantages of co-ordination are apt to be over estimated by the public, who, seeing two ticket offices combined in one, at once jump to the conclusion that operating expenses are being cut in half. Unfortunately, the effect of such consolidation is limited to a very small percentage of the total operating expense. The traffic expenses of Canadian railways are less than 2% of the total. As a matter of fact, if the total expense of the traffic departments could be cut in half on all Canadian railways, the saving would not be within $1,000,000 of meeting the recent 8½c. increase per hour for section forces wages. While the economies by co-ordination, made up of small items, aggregate quite a large sum, yet, compared with the general wage increase, average more than $25 a man per month, which took effect throughout last year, the amount is negligible. The increase referred to is, it is hoped, the last of a series of advances of which the McAdoo Award was the main feature, with its many supplements. The result is that the average wage of railway employes in Canada has advanced from the pre-war rate of $700 a year to $1,700 a year.

As long as lines have to be maintained (and what lines can be abandoned?) the maintenance charge remains; the equipment must be kept up. Reductions in train service effect economies, but the cost of station service at outside points is not affected by the number of trains handled, but by the spread of hours of the staff as affecting overtime. The case is similar in connection with branch line runs. The inclusion of the Grand Trunk Pacific lines with those of the Canadian Northern in the west, under Canadian National Rys. management, has, of course, effected economies; as regards the actual operation of the G.T.P., through removal of some administration expenses, yet, as stated, these have come, unfortunately, at a time when they have been overshadowed by large wages increases.

In the case of the Grand Trunk lines in the east, also being co-ordinated with the National system, the savings effected are not noticeable, when compared with the increases occasioned by the adoption of the United States Railroad Labor Board's 1920 award, which made increases effective May 1, 1920, involving large back time payments. The co-ordination that has been effected, with the G.T.R. still maintaining itis corporate existence, has naturally been limited, but those that loom up as possible, when the lines are consolidated, are substantial.

Rate Increases Absorbed by Wage Rise. The rate increases granted by the Board of Railway Commissioners not being up to the scale that was requested by the railways, and, coming as they did with a business decline, have not produced sufficent additional revenue to offset the step-up in expenses which wage increases

and attendant rise in other costs placed on the railways during the past year. Under the circumstances, the only course for the management to pursue, is to reduce operating expenses to the lowest possible notch consistent with safe operation and reasonable service. Action along these lines is sometimes opposed by local interests that consider they are unfairly affected, but the matter must be handled on lines of broad policy in the interest om the owners of the property, who are the Canadian people, represented by the Government of Canada. The management have every reason to believe that the public will appreciate the fact that the steps being taken to make ends meet are in the national interest, and that the campaign of retrenchment will have general support.

Machinery Flat Cars, Canadian Pacific Railway.

The C.P.R. has had built recently, at its Angus shops, Montreal, five machinery flat cars, designed for special service, one of which is shown in the accompanying illustration. They are of the usual fish belly type, of specially strong construction, to carry heavy concentrated loads.

Machinery Flat Car, Canadian Pacific Railway.

The end sills are pressed steel, in one piece, and on the top, extending the full width of the car, a piece of timber 6 x 10 in. is fitted to form an end blocking for the load. The end stake pockets pass through this blocking and are flush with the top.

The deck is 2½ in. thick, secured to the underframe by bolts, which pass through longitudinal steel straps laid on top of the wood near the sides of car. The car is equipped with W.A.B. 10 x 12 in. air cylinder and Ureco drop hand brake.

The trucks are of low construction, with Vulcan side frames and cast steel bolsters. The following are the principal dimensions:—

Length inside pulling face of knuckles	45 ft. 5 in.
Length of load platform	40 ft. 0 in.
Width of load platform	8 ft. 10 in.
Width over all	9 ft. 9⅝ in.
Truck centers	32 ft. 0 in.
Truck wheel base	5 ft. 8 in.
Height from rail to top of deck	3 ft. 7 5/16 in.
Height from rail to top of brake shaft	5 ft. 7 in.
Couplers, type D, shank	5 x 7 in.
Diameter of wheels	33 in.
Size of journals	6 x 11 in.
Tare weight	44,200 lb.
Limit load	165,800 lbs.

The through traffic between Vancouver and the Okanagan and Kootenay districts via Kettle Valley Ry., is reported to have been suspended for the winter owing to snowslides in Coquihalla valley extending for about 14 miles. The Kettle Valley trains will, it is said, connect with the C.P.R. at Spence's Bridge, with the main line trains 3 and 4.

Freight and Passenger Traffic Notes.

At a grain growers' convention at Moose Jaw, Sask., Feb. 2, it was reported that up to Jan. 21, the C.P.R. had moved 67,157 cars, or 92,335,375 bush. of wheat, and the Canadian National Rys. had moved 40,975 cars, or 49,170,000 bush.

The Quebec Harbor Commission's application to the Board of Railway Commissioners, for an order that export rate on grain from Georgian Bay ports to Quebec be made the same as to Montreal, was heard Feb. 3, and judgment reserved.

Alberta wheat is being moved through Vancouver, B.C., to United States and other ports, a shipment of 2,700 tons having been made to San Francisco, Cal.; and about 7,000 tons have been shipped to continental Europe. The motorship Siam is expected to load a further 5,500 tons for Europe.

The North Vancouver City Council's ferry committee will, it is reported, approach the Pacific Great Eastern Ry.'s management with regard to the possibility of co-operative arrangements for handling of through passengers from Vancouver to points on the railway's North Shore line from North Vancouver to Whytecliffe, B.C., 13 miles.

The Prince Rupert, B.C., News claims that 2,000,000 lb. of halibut, equal to 103 car loads, valued at $200,000, were diverted to Ketchican and Seattle, United States ports, during 1920, owing to a shortage of refrigerator cars to ship east, and that a revenue of about $60,000 was thus lost by the express company operating from Prince Rupert.

The Pacific Great Eastern Ry., a press report states, put in operation on Feb. 21, a new train schedule between Squamish and Deep Creek, B.C. Instead of two trains a week leaving Squamish, Wednesdays and Saturdays, the new schedule provides for only one, leaving Squamish on Mondays, stopping over at Lillooet, and running on to Deep Creek on Tuesday, returning to Williams Lake the same night, resuming the trip on Thursday to Lillooet, and proceeding thence to Squamish on Friday morning.

On the Minister of Agriculture's recommendation the Governor General in Council has made the following regulation, to be added to those made Nov. 30, 1909, under the Animal Contagious Diseases Act: "The agent of any railway or common carrier receiving cattle or other live stock for shipment shall attach to the waybill accompanying such shipment the district health cerificate relating to such cattle or other live stock, whenever the owner or shipper possessing such certificate requests him so to do."

The Quebec Board of Trade recently heard representatives of the Gaspe peninsula explain transportation conditions in that area, and appointed a deputation to co-operate with the Gaspe delegates and to interview the Quebec Government to ask improvements in railway and steamship service to Quebec and Montreal. One of the Gaspe delegates is reported to have stated that it took some of them almost a week to reach Quebec, owing to the inefficient equipment of the railways serving the district.

The Hudson Bay Ry., we are officially advised, has no regular train schedule. The line is being operated by the Canadian National Rys., and since July 14, 1920, a train has been operated on alternate Wednesdays, leaving Pas, Man., at 7 a.m., and running to Piquitenay, mile 214, where the contractor's temporary headquarters are situated. The fare is 5c. a mile, and C.N.R. agents are advised that through tickets to points on the line are not to be sold. The end of track is at mile 332.

The Quebec, Montreal and Southern Ry. is reported to have been fined $20 for not having printed its bill of lading forms in French as well as English, as required by a Quebec statute. Action was taken by a private person in the form of a qui tain action. The company represented that it had forms in both French and English, but that it was not possible to combine them and still keep the bill of lading within the limits of a certain size. The judge held that the law was imperative that the bills of lading and other shipment forms should be printed in both languages and on the same form. Half the penalty goes to the Crown and half to the party bringing the action.

The Imperial Privy Council's Judicial Committee, a London, Eng., cable of Feb. 4 states, has refused the Canadian Northern Ry.'s application for leave to appeal against the Quebec High Court's judgment in the action brought against it by Messers. Greenshields of Montreal, which involved a matter of about $300 and represented the value of a consignment of goods given to a firm of carriers, who acted as the company's agents, and from whose wagon the goods were stolen. Two Quebec courts found against the railway company, which was barred from appealing to the Supreme Court of Canada, because of the statutory provision that there can be no appeal to the Supreme Court in cases involving less than $2,000. The presiding judge in the judicial committee asked if the company would pay the costs of an appeal whichever way it went, but the railway's counsel was not prepared to assent. The court held that the case did not involve any intricate or delicate problems about which Quebec judges needed any further direction.

Canadian National Railways Construction, Betterments, Etc.

Quebec Viaducts.—We are advised that a contract has been let for the superstructure for the new bridge construction involved in the revision of the crossing of Riviere-du-Loup, at mile 103 from Quebec, and for a revised crossing of the East Yamachiche River, at mile 96 from Quebec.

Allenby Junction Connection.—We are officially advised that the connection of the St. Maurice and Montreal Divisions at Allenby Jct., mile 5.6 St. Lawrence Division, approved by the Board of Railway Commissioners recently, is merely the reversing of the direction of the connection and does not involve any new arrangement of tracks of any account; but merely changing the direction of the crossover.

Hornepayne Building.—A large amount of building has been done recently at this important division point, on the Superior Division, 573.4 miles west of Montreal.

The new station building is a commodious brick structure 34 x 133 ft., planned to afford the maximum service facilities. The basement walls are of concrete and the main floor is of reinforced slab construction. The main floor is laid out with a general waiting room, smoking room, large luncheon room with counter and tables, operators rooms, yard office, baggage room, etc. The second floor comprises a large general office and offices for the divisional officials.

A 16 stall locomotive house has been completed recently at Hornepayne, which is a radical departure from the usual stereotyped roundhouse, the building being rectangular. Within heavily buttressed brick enclosing walls and covered by a lofty steel trussed roof, lined with numerous monitors, are the 80 ft. turntable, the machine shop, blacksmith shop, boiler room, pump room, locomotive supply room, tool room, locomotive foreman's office, general office, locomotive men's registering office, etc. The number of steel columns supporting the roof trusses has been kept to a minimum, there being only 19 in the whole building which is 287 x 223 ft., and covers an area of about 1½ acres. The building was designed by Geo. C. Briggs, Architect, C.N.R., and built by the construction department.

Eleven houses have been built this year in Hornepayne by the C.N.R. to help to relieve the housing situation by providing modern dwellings.

The boarding house at Hornejayne, is to be enlarged, the work to commence in the spring. The building will have a basement and three floors, with outside dimensions of 32 x 139 ft., with a rear extension for kitchen, etc. When the alterations and additions are completed the building will be equipped and run along hotel lines, with large dining room and luncheon counter; large reading room with fireplace alcove, billiard room, etc. There will be 50 bedrooms. A portion of the second floor is to be set apart for women.

Western Lines Improvements.—A press report states that standard 85 lb. rails will be laid this year on the sections of the C.N.R. which now have 60 lb. rails, and that extra ballasting will be laid.

Edmonton, Alta.—We are officially advised that the plans for fitting up a building in Edmonton for the accommodation of the C.N.R. office staff has no connection with the question of the creation of a new station there. The move has been necessitated by the co-ordination of the Canadian National Rys. and Grand Trunk Pacific Ry. staffs there.

St. James Interlocking Plant.—A press report states that since the operation of the Grand Trunk Pacific Ry. by the Canadian National Rys. management the two tracks between Pembina and St. James Jct., Man., are being operated as a double track east and west passenger line, and the Canadian Northern Ry. main track to Portage Jct. is being used as a freight line. This made it necessary to change part of the layout and interlocking plant at St. James, which is completed, the working having been done by the company's forces.

Yorkton Water Supply.—A press report states that C.N.R. engineers are preparing plans and estimates for a new water supply at Yorkton, Sask.

Hanna-Medicine Hat Branch.—Work on the Red Deer bridge on this line is being proceeded with rapidly, a press report stating that about 2,000 ft. of the work have been completed.

Edmonton Station. — The Edmonton, Alta., City Commissioners have been instructed, a press report states, to communicate with the C.N.R. management to ascertain, if possible, what it is proposed to do this year about building a union station and a subway at 1101st St.

Vancouver and Victoria Terminals.—A press dispatch states that the British Columbia Railways Department has reported to the Legislature that during 1920 the amount approved for payment to the C.N.R. on account of work done on the terminals at Vancouver and Victoria was $542,832.69.

The Pacific Construction Co. is reported to be making satisfactory progress with the fill at the reclaimed land on False Creek Flats, Vancouver. When the fill is completed the road work will be gone on with. (Feb., pg. 72.)

Early Locomotive Name Plate.—The Ottawa Women's Historical Society has received for its museum from E. W. Beatty, K.C., President, C.P.R., the name plate of the locomotive Bytown, which hauled trains on the Prescott & Ottawa Ry. in the fifties.

Canadian National Rys. reduced the sleeping car service between St. John and Campbellton, N.B., from daily to two days a week on Feb. 7. The sleeping car for Campbellton is attached to train 10 leaving St. John at 11.25 p.m. Mondays and Thursdays only, and the one for St. John is attached to train 32 at Campbellton on Tuesdays and Fridays, reaching St. John on train 9 the following mornings.

Model of the C.P.R.'s First Locomotive.

One of the features of the C.P.R. staff's last New Year's reception at Windsor station, Montreal, was a model of the company's first locomotive, the Countess of Dufferin, which was made from a photograph in about three days. It was about 20 ft. long, mounted on a couple of baggage trucks, and was propelled by a baggage man, who was dressed as Father Time. The model negotiated its way through the concourse without any difficulty.

The four passengers carried on the tender, as shown in the accompanying illustration, represented four hardy pioneers, one, an Indian chief; the second, a cowboy; the third, a hayseed (presumably, our informant says, from Ontario);

Model of Canadian Pacific Railway's First Locomotive, Countess of Dufferin.

and the fourth, a French-Canadian habitant. They were singers from the C.P.R. Recreation Club, and at midnight led off "Auld Lang Syne," after which each of them sang an appropriate ditty. The Indian chief sang "Good Morning Mr. Zip, Zip, Zip"; the cowboy sang "My Little Grey Home in the West"; the hayseed sang, "I am McDonald from the Farm," and the habitant sang "Alouette," after which a lady member of the staff, Mademoiselle Rose Dumas, sang, "O! Canada!" in French, and then the locomotive disappeared.

Equipment for Points Beyond Switching Limits.—The Railway Association of Canada has issued the following circular:—The question of practice to be followed by railways performing switching service, in furnishing equipment for loading to points beyond switching limits on a carrier road, has received consideration, and the following is recommended to member lines for adoption as standard practice:—"Railways performing switching service, when supplying cars for loading to points beyond the switching limits on a carrier road, shall furnish either equipment belonging to the line to which the load is to be delivered, or other foreign equipment that may be properly loaded under Car Service Rules via such carrier, and in event of inability to do so, road haul carrier shall be called upon to furnish necessary cars."

Canadian National Rys. and Canadian Government Merchant Marine have, a press report states, leased 911 Government St., Victoria, B.C., for offices, and expect to move in in March, when alterations have been completed.

The Roberval-Saguenay Ry. Co. applied recently to the Quebec Public Service Commission for authority to reduce train service on the Laterriere branch from daily to biweekly.

Increases Authorized in Express Rates by Board of Railway Commissioners.

The Board of Railway Commissioners passed general order 327 Feb. 2, as follows:—Re application of Express Traffic Association of Canada, on behalf of express companies subject to the Board's jurisdiction, for an increase of 40% in the tolls at present in effect. Upon hearing the application at Toronto, Saskatoon, Edmonton, Prince Rupert, Victoria, Vancouver, Vernon, Nelson, Medicine Hat, Calgary, Regina, Winnipeg, Fort William, Moncton, Halifax, St. John, Montreal, and Ottawa, on various dates between Sept. 2 and Dec. 13, 1920, in the presence of counsel for and representatives of the express companies, the Express Traffic Association of Canada, the cities of Montreal and Toronto, Boards of Trade of Toronto, Saskatoon, Edmonton, Vancouver, Nelson, Calgary, Fort William, Sault Ste. Marie, Montreal, and Halifax, Montreal Chamber of Commerce, Dominion and Nova Scotia Departments of Agriculture, Canadian Manufacturers' Association, Canadian Fisheries Association, Fisheries and Produce Association, British Columbia Fisheries, National Dairy Council, Canadian Creamery Association, Canadian Produce Association, United Farmers of Ontario, United Farmers of Alberta, United Fruit Growers, Niagara Fruit Growers, shippers of produce from Prince Edward Island and certain other shippers of fresh fish, Church & Co., Saskatoon Bread Co., Saskatoon Pure Milk Co., Modern Steam Laundry of Saskatoon, Saskatchewan Dairymen's Association, Alberta Dairy Association, Ogilvie Flour Mills Co., Alberta Box Co., Vernon Fruit Co., Calgary Brewing & Malting Co., and Stock Growers' Protective Association, and what was alleged, and upon reading the written submissions filed, judgment, dated Feb. 2, 1921, was delivered by the Chief Commissioner and concurred in by the other members of the Board who heard the application, a certified copy of the said judgment being attached hereto; the Board orders that the changes in the tariffs of the express companies subject to the Board's jurisdiction, as set forth in the judgment, which is hereby made part of this order, be authorized.

Chief Commissioner Carvell's Judgment, referred to above, covers 28 foolscap pages of typewriting, and we are unable, on account of pressure on our space, to reproduce it in full. After very fully reviewing the evidence given at the hearing and the arguments, he said:—"I find on an examination of the Express Classification that beer and other spirituous liquors are carried at second class rates. I think all alcoholic liquors should be advanced to the first class."

Further on he said:—"The express companies asked for a 40% increase, and I have given their best estimate of the results should this request be granted. They have stated that if the cartage differential were eliminated they could produce practically the same results on an increase of 33 1/3%. I have above decided that this differential should be eliminated. I am also of the opinion that there will be some reduction in the cost of carrying on the express business during the coming year, especially in the maintenance and feed of horses, maintenance of equipment, and purchase of supplies, and, while it will not be very great, yet, with the allowance that should be made for the revenue from the money order business, I am of the opinion that an increase of 30% would produce them about the amount of money which they should receive, viz., sufficent to pay the cost of operation, maintenance, and depreciation, and leave sufficient to pay interest upon the actual investment and possibly a small amount of money for reserve. These figures relate more particularly to the Dominion Ex. Co. than to the Canadian Ex. Co., as the whole case seemed to be based upon their requirements.

"According to exhibit 45, the result of one day's shipments by the Dominion Ex. Co. showed that by weight the goods moving on first class rates amounted to 61.36% of the whole, those moving on second class rates to 32.68%, and those moving on commodity rates to 5.96%. As the goods carried under second class and commodity rates consist largely of food and food products, I naturally am anxious that no greater increase be imposed upon this traffic than is absolutely necessary, and I find that an increase of 35% on first class rates and charges, 25% on second class rates, and 20% on commodity rates will produce about the same revenue as a flat increase of 30%, and, as the greater increase should be imposed upon the more expensive goods carried at first class rates, I therefore decide that the express companies be permitted to increase their rates and charges 35% on all traffic, excepting that classified second class, on which the increase may be 25%, excluding articles of food covered by published commodity tariffs on which the increase may be 20%.

"The increases herein authorized may be provided for by the publication and filing, on one day notice, at all express offices, of blanket supplements to the existing tariffs. In the disposition of fractions any amount not exceeding 2½c. may be waived, and above 2½c. and up to 5c. may be considered as 5c."

The judgment was concurred in by Assistant Chief Commissioner McLean and Deputy Chief Commissioner Nantel.

Aerial Transportation Notes.

The Minister of Customs has granted a license to Fredericton, N.B., as an air harbor.

The Civil Service Commission has made the following appointments for the Canada Air Board:—J. A. Glen, O.A.S., Air Station Superintendent, British Columbia; C. McLaurin, O.A.S., Air Station Superintendent, Ottawa.

A London, Eng., cable states that French air lines have started cutting the fare by aeroplane between Paris and London to $17.50. English lines are reported to have stated that they are unable to make a profit with the fare at $50.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Statistics, Internal Trade Division.

Week ended Feb. 11, 1921:	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William						
C.P.R.	1,064,308	646,753	143,715	.....	60,270	1,915,056
Consolidated Elevator Co.	1,058,687	114,049	36,422	32,500	.....	1,241,658
Ogilvie Flour Mills Co.	954,807	200,160	75,927	.....	187	1,231,081
Western Terminal Elevator Co.	942,399	188,680	17,943	102,211	8,267	1,259,498
G. T. Pacific	2,632,164	1,912,523	210,263	297,069	62,063	1,114,082
Grain Growers' Grain Co.	1,736,717	493,661	84,811	.....	14,145	2,334,334
Fort William Elevator Co.	182,217	160,903	64,644	206,216	24,095	638,075
Northwestern Elevator Co.	628,952	22,075	13,079	43	*29	662,120
Port Arthur—						
Port Arthur Elevator Co.	2,647,272	1,887,843	604,005	1,199	42,664	5,182,883
Sask. Co-op. Elevator Co.	3,323,284	458,062	73,023	85,363	9,080	3,948,812
Canadian Government Elevator	479,046	1,152,040	182,006	518,318	34,234	2,365,644
Davidson and Smith	31,052	47,379	11,048	.....	1,439	90,918
*Total Public Terminal Elevators	15,678,903	7,289,038	1,516,886	1,242,919	256,415	25,984,161
Total Private Terminal Elevators	2,688,831	1,614,244	345,793	244,110	9,546	490,524
Saskatoon: Can. Gov't Elevator	471,251	793,575	1,902	1,654	.....	1,268,382
Moose Jaw: Can. Gov't Elevator	586,983	295,980	.....	3,690	1,838	888,491
Calgary: Can. Gov't Elevator	270,553	1,030,565	36,831	651	95	1,338,695
Vancouver, B.C.: Can. Gov't Elevator	300,580	125,236	12,514	.....	.....	438,329
*Total Interior Terminal Elevators	1,628,367	2,245,355	51,247	5,995	1,933	3,933,897
Midland—						
Aberdeen Elevator Co.	200,884	109,875	.....	.....	.....	310,759
Midland Elevator Co.	355,000	386,768	.....	.....	.....	741,768
Tiffin, G.T.P.	150,381	595,693	10,000	37,831	.....	793,905
Port McNicoll	120,288	503(228	64,470	.....	.....	687,986
Goderich—						
Elevator and Transit Co.	.....	462,433	.....	.....	.....	462,433
West Can. Flour Mills Co., Ltd.	328,107	86,440	10,000	.....	.....	424,547
Toronto: Campbell Flour Mills Co.	238,511	.....	.....	.....	.....	238,511
Kingston—						
Commercial Elevator Co.	.....	30,614	2,814	.....	.....	33,428
Port Colborne—						
Dom. Gov't Elevator	48,903	.....	.....	.....	.....	48,903
†Maple Leaf Milling Co., Ltd.	220,654	.....	.....	.....	.....	220,654
Montreal—						
Harbor Commissioners No. 1 and 2	235,521	637,142	53,728	.....	1,459	927,850
Ogilvie Flour Mills Co.	230,071	1,733	.....	.....	.....	231,804
Quebec Harbor Commissioners	.....	228,370	.....	.....	.....	228,370
Wesst St. John, N.B., C.P.R.	1,017,237	70,267	224,705	.....	.....	1,312,209
St. John, N.B., Can. Nat. Rys.	451,017	.....	.....	.....	.....	451,017
†Total Public Elevators	3,596,574	3,112,563	365,717	37,831	1,459	7,114,144
†Total Country Elevators	13,630,852	12,7$7,144	1,878,137	1,398,271	.....	29,058,204
U.S. Atlantic Seaboard Ports—						
Baltimore, Md.	511,398	.....	.....	.....	38,505	549,903
Total U.S. Atlantic Seaboard Ports	511,398	.....	.....	.....	38,505	549,903
Total Quantity in Store	37,735,726	26,412,344	4,157,780	2,929,126	307,858	71.542,833

*Overshipped. **Week ending February 4th, 1921.

*Empire Elevator Co., Eastern Terminal Elevator Co., Thunder Bay Elevator Co. and Eastern Richardson Elevator Co., now operating under Private Terminal Elevator License.

Mainly About Railway People Throughout Canada.

Mrs. Apps, widow of Wm. Apps, some time General Master Car Builder, C.P. R., and mother of J. O. Apps, General Agent, Mail, Baggage and Milk Traffic, C.P.R., Montreal, died at her home, in Toronto, Feb. 9, aged 75.

B. M. Armstrong, Controller of Railway Mail Service, Post Office Department, Ottawa, has resigned. An Ottawa dispatch says that the railway mail service branch and the mail contract branch will be merged.

J. E. Armstrong, M.P. for East Lambton, Ont., has been elected chairman of the House of Commons' Railway Committee.

E. W. Beatty, K.C., President, C.P.R., was one of the speakers at the Canadian Railway Club's dinner in New York on Jan. 21, and was the principal speaker at the Engineering Institute of Canada's annual dinner in Toronto, Feb. 2.

A. Brostedt, General Freight Agent, Canadian National Rys., Vancouver, sailed from there on Feb. 10 on the s.s. Empress of Asia for the Orient, as C.N.R. official representative to look into trade conditions in China, Japan, the Philippines and the Straits Settlements. He will visit the principal places in those countries, and is expected to return to Canada in July or August. He was accompanied on the Empress of Asia by N. S. Brown, one of the managers, at Hong Kong, of Butterfield & Swire, Oriental Agents for Canadian National Rys. and Canadian Government Merchant Marine, who had been in England and returned to China via Canada.

A. B. Calder, who has been appointed on the Executive Staff, C.P.R., was born at London, Ont., Aug. 24, 1867, and from 1882 to 1887 was in various capacities on C.P.R. construction west of Winnipeg, Man. He entered C.P.R. service in 1887, since when he has been, to 1889, in Passenger Department, Winnipeg; 1889 to Oct. 1893, ticket agent, Tacoma, Wash.; Oct. 1893 to July 1895, Travelling Passenger Agent, Tacoma, Wash.; July 1895 to Dec. 1897, Travelling Passenger Agent, San Francisco, Cal.; Dec. 1897 to Nov. 1904, Travelling Passenger Agent, Tacoma, Wash.; July 1895 to Dec. 1897, Travelling Passenger Agent, San Francisco, Cal.; Dec. 1897 to Nov. 1904, Travelling Passenger Agent, Seattle and Tacoma, Wash.; Nov. 1904 to Nov. 1910, General Agent, Passenger Department, Seattle, Wash.; Nov. 1910 to Sept. 1911, Chicago, Ill.; Sept. 1, 1911, to Dec. 1916, General Agent, Passenger Department, associated with his father in a general ticket agency at Winnipeg, and since Jan. 1917, Assistant General Passenger Agent, C.P.R. In 1917 he was associated with the British Canadian recruiting mission, under Col. J. S. Dennis, and he represented the C.P.R. President on the company's special trains during the Prince of Wales' Canadian tour in 1919 and the Imperial press tour in 1920.

H. R. Charlton, General Advertising Agent, G.T.R., Montreal, attended the 19th annual dinner of the Canadian Camp at New York, Feb. 18.

H. J. Dalton, who has been appointed Auditor of Disbursements, C.P.R., Montreal, was born in 1862, and entered C.P. R. service in 1887, since when he has been, to 1889, clerk in Audit Department, Western Lines, Winnipeg; 1889 to 1899, Travelling Auditor, Montreal; 1899 to 1913, Chief Travelling Auditor, Montreal; 1913 to Feb. 1, 1921, Assistant Auditor of Agencies, Montreal.

W. R. Devenish, General Superintendent, Ontario District, Canadian National Rys., Toronto, was presented with a club bag, and a bar pin for Mrs. Devenish, on leaving Moncton, N.B., recently, where he was Superintendent, C.N.R., for some time.

Edward Fitzgerald, Deputy Chairman, Canadian Advisory Committee, Hudson's Bay Co., Winnipeg, formerly Assistant General Purchasing Agent, C.P.R., Montreal, has been elected a director of National Trust Co.

Hugh Gallinger, a G.T.R. brakeman, has been presented with the Royal Canadian Humane Society's bronze medal, in recognition of his rescue of a child from a burning building at the risk of his life. He noticed fire near the track while on his train at Coteau Jct., Que., and, leaving the train, he proceeded to the upper story of the building, where he had been told a child had been trapped, and brought the child to the ground safely.

Major G. P. MacLaren,
Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Railway System.

D. B. Hanna, President, Canadian National Rys., addressed the Pembroke, Ont., Board of Trade Feb. 1.

Mrs. Hays, widow of Chas. M. Hays, formerly President, G.T.R., and Grand Trunk Pacific Ry., left Montreal, Feb. 2, on a trip to California.

David H. Hays, only brother of the late Chas. M. Hays, formerly President, G.T.R. and Grand Trunk Pacific Ry., died in California, recently.

C. K. Howard, General Tourist Agent, Canadian National Rys., attended the 19th annual dinner of the Canadian Camp at New York, Feb. 18.

W. R. Ingram, Traffic Manager, Swift Canadian Co., Winnipeg, who has been appointed General Traffic Manager for all Swift enterprises in Canada, with office in Toronto, received his early transportation training on the Louisville & Nashville Ry. and has been with the Swift Canadian Co. for 20 years.

Dr. Jno. D. Langham, who died at Minitonas, Man., Feb. 4, aged 27, was the son of Edward Langham, ex General Purchasing Agent, Canadian National Rys., Toronto. He served with the Canadian Medical Corps, during the war, and then started practicing at Minitonas. He was buried at Toronto.

Ernest E. Lloyd, who has been appointed Assistant Comptroller, C.P.R., Montreal, was born at Great Grimsby, Eng., Sept. 2, 1868, and came to Canada in July 1876, settling in Winnipeg. He entered C.P.R. service Dec. 27, 1877, and was, to June 13, 1894, in various positions in the Stores Department, Winnipeg; June 13, 1894, to Dec. 17, 1897, in charge of payrolls and labor statistics, Stores Department, Winnipeg; Dec. 17, 1897 to Feb. 1, 1903, chief clerk, Stores Department, Vancouver, B.C.; Feb. 1, 1903 to Dec. 1, 1904, chief clerk to General Storekeeper, Montreal; Dec. 1, 1904 to Jan. 15, 1910, on the separation of the Accounting and Storekeeping Departments, chief clerk to Auditor of Stores and Mechanical Accounts, Montreal; Jan. 15, 1910 to Aug. 1, 1913, Assistant Auditor of Stores and Mechanical Accounts, Montreal; Aug. 1, 1913 to Feb. 1921, Auditor of Stores and Mechanical Accounts, Montreal.

Guy Sebern Lytle, who has been appointed acting trainmaster, C.P.R., Moose Jaw, Sask., was born at Denison, Iowa, Sept. 23, 1878, and entered transportation service Sept. 1, 1891, since when he has been, to Feb. 1, 1893, messenger, Seattle & Northern Ry., Anacortes, Wash.; Feb. 1, 1893 to Jan. 7, 1897, agent, Seattle & Northern Ry., and Seattle & Lake Shore & Eastern Ry., at various points in Washington; Jan. 7, 1897 to May 2, 1898, operator and clerk in Superintendent's office, Seattle, Lake Shore & Eastern Ry., Seattle, Wash.; May 2, 1898 to Mar. 31, 1901, dispatcher, Seattle & International Ry. and Northern Pacific Ry., Seattle Wash.; Mar. 31, 1901 to Feb. 1, 1907, dispatcher, Northern Pacific Ry., Tacoma, Wash.; Feb. 16, 1907 to Sept. 1, 1909, dispatcher, same road, Missoula, Mont.; Sept. 1, 1909 to May 16, 1911, Assistant Chief Dispatcher, same road, Missoula, Mont.; May 16, 1911 to Sept. 5, 1912, Inspector of Train Dispatching, same road, St. Paul, Minn.; Sept. 5, 1912 to Apr. 9, 1913, Chief Dispatcher, same road, Missoula, Mont.; Apr. 9 to Aug. 25, 1913, Inspector of Transportation, C.P.R., Winnipeg; Aug. 25, 1913 to Aug. 1919, Car Service Agent, Manitoba District, C.P.R., Winnipeg; Aug. 1919 to Jan. 1921, Car Service Agent, Saskatchewan District, C.P.R., Moose Jaw, Sask.

H. T. Malcolmson, Superintendent, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., declined to be nominated as President of the Central Railway Club, Buffalo, N.Y., recently, on the ground that he expected to be appointed presiding officer for two years of a large fraternal organization in Hamilton.

Albert Edward McAmmond, who has been appointed Chief Dispatcher, Kenora Division, Manitoba District, Kenora, Ont., was born at Britannia Bay, Ont., Feb. 19, 1879, and entered C.P.R. service June 1, 1896, since when he has been, ot Jan. 2, 1897, night operator, Stittsville, Ont.;

Jan. 2 to May 21, 1897, night operator, Hull, Que.; May 21 to Sept. 15, 1897, night operator, Pembroke, Ont.; Sept. 15, 1897 to Oct. 2, 1902, agent, The Brook, Ont.; Oct. 2, 1902 to June 4, 1904, night operator, Carleton Jct., Ont.; June 4, 1904 to May 1, 1910, dispatcher, Ottawa, Ont.; May 3 to June 4, 1910, operator, Regina, Sask.; June 5 to Dec. 5, 1910, dispatcher, Macleod, Alta.; Dec. 5, 1910 to Jan. 11, 1911, operator, Pincher, Alta.; Jan. 11, 1911 to Jan. 8, 1921, dispatcher, Medicine Hat, Alta.

Alex. McDonald, of Winnipeg, was stated in a Regina press dispatch recently as having been appointed freight rate expert to the Saskatchewan Government. We are officially advised that the appointment is a temporary one, to act on behalf of the Saskatchewan Government in conjunction with the Manitoba Government, in the railway rates case which those provinces are interested in.

Mrs. W. R. MacInnes, wife of the Vice President in charge of traffic, C.P.R., will leave Montreal shortly for France, where one of her daughters is at school.

Sir Geo. McLaren Brown, General European Manager, C.P.R., and Lady Brown, sailed from New York, Feb. 1, on their return to England.

M. H. MacLeod, Vice President in charge of construction, Canadian National Rys., left Toronto, Feb. 26, with E. Langham, formerly Purchasing Agent, C.N.R., to sail from Halifax, N.S., on Mar. 2, on Canadian Government Merchant Marine's s.s. Canadian Forester, for a trip to the West Indies, and British Honduras.

Lt. Col. C. N. Monsarrat, Consulting Engineer, Railways Department, Ottawa, has been elected a director of Canada Foundries & Forgings Ltd., Brockville, Ont.

Frank Moore, Travelling Passenger Agent, Canadian National Rys., Moncton, N.B., was presented with some silver cutlery recently on behalf of the British journalists who were touring in Canada recently.

W. J. Moule, Assistant Comptroller, C.P.R., Montreal, died at Montreal West, Jan. 28, from a cerebral lesion. He entered C.P.R. service in 1891 as a clerk in the Accounting Department. In 1898 he was transferred to the Stores Department, and in 1900 to the Second Vice President and General Manager's office. He was subsequently transferred to the statistical branch of the Audit Department; in 1905 was appointed chief clerk there; in 1908 Assistant Auditor of Disbursements; in 1914 Auditor of Disbursements; and in 1918 Assistant Comptroller. The funeral at Mount Royal Cemetery Jan. 29 was attended by a large number of C.P.R. officials and employes, many of whom went by special train from Windsor St. station.

Sir Augustus Nanton, of Winnipeg, one of the C.P.R. directors, and President, Winnipeg Electric Ry., has been elected a director of the Royal Trust Company.

J. B. O'Brien, who died at Renfrew, Ont., Feb. 18, aged 67, was a brother of Senator M. J. O'Brien and was associated with him in railway construction in different parts of Ontario and also on the Grand Trunk Pacific Ry.

Alexander Peers, whose appointment as Master Mechanic, Moose Jaw Division, Saskatchewan District, C.P.R., Moose Jaw, was announced in our last issue, was born in Cheshire, Eng., in Aug. 1875, and entered C.P.R. service July 16, 1901, since when he has been, to June 1, 1906, machinist, Winnipeg; June 2 to June 12, 1906, draftsman, Winnipeg; June 13 to Aug. 6, 1906, relieving Locomotive Foreman, Winnipeg, Fort William, Ont., and Ignace, Ont.; Aug. 7, 1906, to Apr. 24, 1914, Locomotive Foreman, Souris, Man., Brandon, Man., and Winnipeg; Apr. 24, 1914 to Dec. 31, 1920, Division Master Mechanic, Winnipeg and Moose Jaw, Sask.

Patrick Philip, who has been appointed Chief Engineer, British Columbia Public Works Department, vice A. E. Foreman, who has resigned to go into private practice in Vancouver, was born at Londonderry, Ireland, in 1882. He took an engineering course at the Royal University of Ireland, and after serving an apprenticeship in civil engineering, he went to British Columbia in 1907, and entered Grand Trunk Pacific Ry. service on construction, near Prince Rupert, B. C. He entered the City Engineer's service at Vancouver, B.C., in 1910, and in 1917 entered the B.C. Public Works Department service.

F. B. Tapley,
Engineer, Maintenance of Way, Canadian National Railways, Toronto.

W. D. Robb, Vice President, Transportation, Construction and Maintenance, G. T.R., Montreal, has been elected a director of Canada Foundries & Forgings Ltd., Brockville, Ont.

Lord Shaughnessy, Chairman, C.P.R. Co., and C. R. Hosmer, another member of the directorate, visited Augusta, Ga., Washington, D.C., and other southern points, recently.

F. W. Sterling, heretofore District Freight Agent, C.P.R., Edmonton, Alta., has resigned, and has entered into partnership with Harry Quelch, of Shanghai, China, to carry on a merchandise brokerage business, Mr. Sterling taking charge of the firm's office at Vancouver. He was born at Thornbury, Ont., Sept. 13, 1879, and entered C. P.R. service in 1894, since when he has been, to 1903, messenger, local freight office, Vancouver, B.C.; 1903 to 1904, claims clerk, General Freight Department, Vancouver, B.C.; 1904 to 1906, chief clerk, General Freight Department, Vancouver, B.C.; 1906 to 1910, Contracting Freight Agent, Seattle, Wash.; 1910 to 1913, Travelling Freight Agent, Vancouver, B.C.; 1913 to May 1920, District Freight Agent, Nelson, B.C.; May 1920 to Feb. 1921, District Freight Agent, C.P.R., and Edmonton, Dunvegan & British Columbia Ry., Edmonton, Alta.

C. E. E. Ussher, Passenger Traffic Manager, C.P.R., Montreal, has been re-elected President, Canadian Forestry Association.

Lady and Miss Van Horne entertained at luncheon at Montreal recently, in honor of W. H. Taft, ex-President of the U.S.A., who is one of the arbitrators on the value of certain G.T.R. stocks to be taken over by the Dominion Government. H. G. Kelley, President, G.T.R., and Mrs. Kelley were among the guests.

Grand Trunk Railway Construction, Betterments, Etc.

Portland Freight Shed and Wharf.—We are officially advised that considerable repair work is in progress at the company's wharves at Portland, Me. The material for renewal of the wharves consists of approximately 75,000 lineal feet of creosoted piling in 45 ft. to 65 ft. lengths. The proposed freight shed will be of timber construction. Work was started early in October 1920, but was suspended in December. The old superstructure has been entirely removed and the piling has been driven for replacement by the new superstructure. Work will, it is expected, be restarted in the spring, so as to be completed by the end of August.

Somerset St. Bridge, Ottawa.—A proposal is under consideration at Ottawa for building a bridge over the Rideau Canal and the G.T.R. tracks at Somerset St., and the city's Board of Control is reported to have decided Feb. 11 to ask the G.T.R. to pay a part of the cost.

Ingersoll to Eastwood.—A press report states that 50 men are replacing the present rails between Ingersoll and Eastwood, Ont., with 100 lb. rails. The work is said to have been completed on the eastbound track between Hyde Park and Eastwood, and the work at present in hand is on the westbound track. It is also stated that it is expected to complete the relaying of the westbound track between Hyde Park and Eastwood with 100 lb. rails this year. (Feb., pg. 82.)

London, Huron & Bruce Branch. — A proposal for the electrification of the London, Huron & Bruce Branch is being put forward by residents of the district through which it runs. Several conferences of reeves and other officials have been held, which resulted in the calling of a meeting of representatives of the 24 municipalities at London on Feb. 22. The London Chamber of Commerce is co-operating in the matter.

Protection for Maintenance of Way Employes.—The Railway Association of Canada has been giving consideration to the possibility of providing further protection for maintenance of way department employes, against accidents resulting from being struck by trains, and has recommended to member lines, not equipped with whistle posts covering curves where view of track ahead is obscured, that the following instructions be issued to locomotive crews: "Engineers on all trains shall sound whistle signal 14 (L) when approaching curves where view of track ahead is obscured."

Traffic Orders by Board of Railway Commissioners.

Increases in Express Rates.

General order 327. Feb. 2.—Authorizing increases in express rates. This order is given in full, together with a portion of the judgment on which it was based, on another page of this issue, under "Increases Authorized in Express Rates."

C.P.R. Lake Service in British Columbia.

30,585. Jan. 25.—Re application of Slocan District Board of Trade for re-establishment of a daily lake service on the C.P.R. Slocan, Nelson & Nakusp lines. Upon hearing the application at Nelson, B.C., Oct. 18, 1920, the Boards of Trade of Slocan, Slocan District, and Nelson, the C.P.R., and certain lumber interests being represented, and what was alleged, the Board orders that the application be refused.

The Chief Commissioner, Hon. F. B. Carvell, gave the following judgment in this case:—At a sitting of the Board in Nelson, B.C., on Oct. 18, 1920, this matter came up for discussion, when it was simply alleged that, up to a comparatively recent date, the C.P.R. had maintained a daily lake service in connection with the Slocan, Nelson, and Nakusp lines. There was no difference as to the facts, and it became purely a question of law as to whether or not the Board had jurisdiction over a railway company as to service by sea or inland waters. The only authority which I can find on the subject is sec. 358 of the Railway Act, 1919. There is no doubt that all the conditions of ownership and operation as set forth in that section exist in the case under discussion. The C.P.R. carries on traffic by the various inland lakes in and around Nelson, including both the Kootenay and Arrow Lakes, in close connection with railway lines in that vicinity, and, moreover, the railway trains and lake vessels are not only owned by the same company but run on schedule time, the one with the other. The act, however, reads as follows:—

"358. The provisions of this act shall, in respect of tolls, tariffs and joint tariffs, so far as deemed applicable by the Board, extend and apply to the traffic carried by any railway company by sea or by inland water, between any ports or places in Canada," etc.

As I construe this, our jurisdiction extends only over tolls, tariffs, and joint tariffs, and give us no power whatever over service, or character of service, and, therefore, we would have no jurisdiction to order the re-establishment of the daily service. The application should, therefore, be dismissed.

Toronto Suburban Ry. Freight Mileage Tariff.

30,592. Jan. 27.—Re application of Toronto Suburban Ry., under sec. 330 of the Railway Act, 1919, for approval of its Standard Freight Mileage Tariff, C. R.C. 4, effective Feb. 6, 1921.—Upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the said tariff be approved; the said tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

Rate on Zinc Concentrates from New Hazelton, B.C.

30,605. Jan. 29.—Re complaint of Silver Standard Mining Co., of New Hazelton, B.C., that having received from the Grand Trunk Pacific Ry. a refund of excess charges on five carloads of zinc concentrates shipped from New Hazelton to Band Springs, Oklahoma, on the bills of lading for which the applicant company had limited the value to $50 a ton, it has been unable to obtain a similar refund on the remaining four carloads shipped between the same dates, because the applicant company had omitted the limitation of value on the bills of lading therefor. Upon hearing the complaint at Edmonton, Alta., Nov. 28, 1919, the complainant and the railway company being represented at the hearing, and what was alleged; and upon reading the submissions filed, the Board orders that the complaint be dismissed.

Unloading Charges at Halifax.

30,619. Feb. 2.—Re application of Dominion Atlantic Ry. for permission to file a tariff providing for unloading charges at the port of Halifax, N.S., on export freight. Upon hearing the matter at Ottawa, Dec. 21, 1920, the Canadian National Railways, the applicant company, and the Nova Scotia Shippers' Association being represented at the hearing, and what was alleged; and upon reading the submissions filed, the Board orders that the applicant company he permitted to file a tariff providing for unloading charges at Halifax, on export freight traffic, of 1½c. per 100 lb. on perishable freight, and 3c. per 100 lb. on other freight; the said tariff to be made effective on one day notice, but not earlier than Feb. 4, 1921.

The Chief Commissioner, Hon. F. B. Carvell, gave the following judgment, on which the above order was based:—On Dec. 3, 1920, application was made by the Dominion Atlantic Ry. through F. G. J. Comeau, General Freight Agent, asking this Board to approve the publication of a tariff by it authorizing a terminal charge at Halifax of 1½c. per 100 lb. on apples and potatoes, unloaded direct from cars to vessels, and 3c. per 100 lb. on other traffic. In its application it stated that it had received notification from Canadian National Rys., dated Nov. 27, 1920, providing for certain changes in the handling of export traffic in the port of Halifax as follows:—

"The management having decided that it is desirable that the conditions of handling export traffic in the port of Halifax should be uniform with other Canadian ports, the following changes are authorized, and will become effective Jan. 1, 1921. It has in the past been the custom of the port for steamship lines to take delivery of export freight from the cars, and under these conditions the railway has not collected side wharfage from vessels landing or receiving cargo on which the railway receives a road-haul. Effective Jan. 1, export freight will be discharged from cars and placed on wharf shed floors by the railway, except traffis handled under domestic, commodity, or mileage rates, also shipments of extraordinary dimensions, or packages exceeding 6,000 lb. each in weight, which will only be handled by special contract. Simultaneously, free side wharfage will be discontinued, and from that date side wharfage will be assessed in accordance with rates authorized in our current wharfage tariff, this to apply to all vessels, both sail and steam, regardless of the class of cargo they are receiving or discharging. It is hoped that under this arrangement the railway will benefit by obtaining more prompt release of cars at the seaboard than has been possible heretofore."

Exception was taken to the proposal almost immediately by the Nova Scotia Shippers' Association, and, as a result, notification was sent to practically all parties concerned that the application would be considered at a sitting of the Board in Ottawa on Dec. 21 last, at which the Canadian National Rys., the Dominion Atlantic Ry., and the Nova Scotia Shippers' Association were represented.

It seems that heretofore, at the deep water wharves in Halifax, no side wharfage has been charged a ship loading or unloading alongside thereof, and the Canadian National Rys. decided that in future side wharfage must be paid. It seems there has been an understanding between the railways and the ship owners that, because no side wharfage was charged, he ship stevedores would unload apples and potatoes direct from the cars to the vessel, and, as soon as the above order was issued, the ship owners refused to carry out this arrangement any longer, and decided that the railway companies must do the unloading themselves, placing the goods either in warehouses or on the wharf ready to be handled by the stevedores. The railways contend that the tariffs which they have filed as above stated would be a reasonable charge therefor. They also contend that heretofore the shipper has received the benefit of the above arrangement, stating that the export rate was from 15% to 25% lower than the domestic rate to Halifax, on perishables such as potatoes and apples. It, therefore, becomes a question as to whether the additional cost imposed upon this traffic should be absorbed by the railway company or borne by the shipper.

Shortly after the hearing, we were asked by the Shippers' Association to defer action, as they intended having a meeting with the interested parties early in January, for the purpose of settling the matter among themselves, alleging that it was almost absolutely necessary that these perishable commodities be unloaded direct from the cars into the ship. We, therefore, waited, and finally a meeting was held on Jan. 15. On Jan. 18, we received a letter from the railway company, through the C.P.R. at Montreal, enclosing copies of letters addressed to both the Shippers' Association and the Dominion Atlantic Ry. on Jan. 15 by Furness Withy & Co. Ltd., stating positively that, at a conference of all the shipping interests held in Halifax on the 15th ultimo, it was felt that the question of unloading cargoes ex cars for export was a matter to be dealt with by the railway, and notifying the Dominion Atlantic Ry. that, after Jan. 31, they would require all shipments of apples to be delivered to them ex cars.

We are in receipt of a telegram from Mr. Craze, representing the Shippers' Association, in which he states that, at a conference beween that Association and the General Manager of the Dominion Atlantic Ry. on Jan. 15, it was mutually agreed that the Shippers' Association should absolve the railway from all liability and expense for unloading charges at Halifax, and that the railway would withdraw the application for the tariff for unloading apples and potatoes. This information was immediately communicated to the railway company, which, while admitting that there was such a discussion, has denied that any such agreement was reached. Mr. Craze suggests that the matter be left in abeyance

until the Board could meet at Kentville and discuss the matter further. With this request I am unable to agree. The whole question is brought up by the fact that the Government Railways are demanding some rental or dues for the use of their wharves, the same as is demanded elsewhere in Canada. As a result, the Dominion Atlantic Ry. is compelled to pay a certain amount for unloading produce which it had not been paying in the past. If its tariff heretofore was just and reasonable, and no person has yet attacked it, and I can see no reason why it is not just and reasonable, then the extra burden should not be borne by the railway. Therefore, I think the tariff should be allowed.

I am afraid that nothing but trouble would result from leaving the matter in the unsatisfactory condition in which it would be placed were the railway company compelled to operate under agreements with the shippers, rather than under legal tariffs, because one can easily imagine a set of circumstances under which some fruit shipper might not be on hand to unload and take care of his shipments, and in case of damage by frost, as is very likely to occur in Halifax during the winter, trouble and litigation could not possibly be avoided, and, therefore, I feel that the only logical proceeding is to have a fixed tariff and once that has been settled, then the shippers and the railway company are at liberty to make any arrangements which to them may seem reasonable.

If the Shippers' Association wishes to argue that the rate of 1½c. per 100 lb. is not just and reasonable, this Board would willingly hear them and grant such relief as they are entitled thereto. The tariff as filed should be allowed, effective Feb. 4, 1921, and an order shoud go dismissing the complaint.

This judgment was concurred in by Assistant Chief Commissioner McLean, and Commissioners Boyce and Rutherford.

Express Classification Approved.

30,626. Re application of Express Traffic Association of Canada, on behalf of express companies subject to the Board's jurisdiction, for approval of Express Classification for Canada no. 5, C.R.C. no. A.T. 712, effective Feb. 9. Whereas the said Classification has been published and filed to give effect to the changes authorized by the Board's judgment of Feb. 2, 1921, and its general order 327, Feb. 2, 1921, the Board orders that the said classification be approved.

Quebec, Montreal & Southern Railway Freight Tariff.

30,688. Feb. 22.—Re application of Quebec, Montreal & Southern Ry., under Sec. 330 of the Railway Act, 1919, for approval of its Standard Freight Mileage Tariff, C.R.C. 738, effective Mar. 6. Upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the tariff be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazettte.

Freight Rates from Simcoe.

The Board's Chief Traffic Officer, Jas. Hardwell, made the following report Jan. 28:—This is an application that the Town of Simcoe be given the benefit of the so-called "town" tariff class rate scale, lower, as a whole, than the standard tariff; that is to say, the Ontario distributing scale referred to in order 3258, July 6, 1907 (International and Toronto Board of Trade Rates Case) as schedule A, which subject to the various horizontal increases since granted, is still in force. That order did not add to or subtract from the list of distributing points then existent; it only remodelled the rate schedule itself so as to remove anomalies complained against. It is true that other centers have since been given special class tariffs from time to time, but while "special" these are not on the "town" tariff or schedule A basis. For illustration, take Parry Sound, one of these added centers. Toronto is one of the originals, and as schedule A operates in both directions the rates from Toronto to Parry Sound are applied reversely from Parry Sound to Toronto as the starting point for the new tariff, and between Parry Sound and the intermediate stations the rates are proportionally scaled downward without regard to schedule A. In other words, without knowing the precise basis, if there really is one, these new tariffs may be regarded as a compromise between schedule A and the Standard Maximum Tariff. The following are the schedule A distributing points west of and including Toronto:—Aurora, Barrie, *Brantford, Bridgeburg, Chatham, Collingwood, Depot Harbor, Doon, Dundas, Elora, Fergus, *Galt, *Guelph, *Hamilton, Hespeler, Ingersoll, Kitchener, *London, Meaford, Merritton, Midland, Newmarket, Niagara Falls, Orillia, Owen Sound, *Paris, Petrolia, Point Edward, Port Dalhousie, Preston, St. Catharines, St. Marys, St. Thomas, *Sarnia, Stratford, Thorold, *Toronto terminal, Walkerville (group), Waterloo, Welland, Wiarton, Windsor, Wingham, Woodstock.

There can be no question that these so called "town" tariffs discriminate in favor of the centers which have them, and without a doubt they govern by far the greater bulk of the higher classes of freight moving within Ontario. They had their origin in the competition between the Grand Trunk and the Great Western of former days. So far back as 1874 the only places common to the Grand Trunk and Great Western which were favored with special distributing tariffs were those I have marked with an asterisk in the above list.

The strength of the Grand Trunk's objection to the application lies in the fact —or so it seems to me—that the real "town" tariff points are the same now as they were at the time of the International Rates Case, and it may be assumed with some certainty that an addition now of Simcoe, or any other place having at least equal claim, would open the door to other similar applications. Dominion Canners have a plant at Delhi. Given the "town" scale at Simcoe, a later application to include Delhi might not illogically be expected. Mr. Watson stated that Tillsonburg gave his company a greater tonnage than Simcoe. Tillsonburg is not a "town" tariff point, but the lower basis could not well be denied if it were given Simcoe. These places are in the same G.T.R. section as Simcoe. The discrimination might, of course, be rectified by abolishing the "town" tariffs, as such, in favor of a uniform class tariff everywhere within each territory of the various scales. There might be three ways of doing this: by raising the distributing scale to the level of the standard, a step which would undoubtedly be strenuously opposed by the manufacturing and jobbing interests; or by making the distributing scale the standard, thus reducing what is now the standard; or by a compromise between the two. Clearly, however, a system that in a lesser degree has been established for over half a century would demand very careful consideration.

It should be understood that the application of the town of Simcoe is by no means so far reaching of itself as might appear on its face. In the first place the "town" tariff and the standard are identical up to 35 miles. Secondly, to and from all points east of Toronto, Simcoe is already on the same footing as all other points west of Toronto, under the grouping system outlined in the International Rates Case. This was admitted by applicants. Further, since the rates of the "town" tariffs apply in both directions, that is to say, to as well as from the distributing centers, it follows that Simcoe has the advantage of those rates to all the points west of and including Toronto, enumerated in the list given above; also, under the long and short haul principle, to directly intermediate stations not in the list until the standard rates thereto become the lower. For example: he 1st class rate from Simcoe to Barrie, which has a "town" tariff, is 66c. The three next intermediate points are Thornton, Cookstown and Beeton, which are not "town" tariff points. The standard rate to Beeton is 70c., and to Cookstown and Thornton 73½c., but they get the benefit of the 66c. Barrie rate. The tariff is plain on this point, reading as follows:—"Rates to and from intermediate points: Shipments between points on the G.T.R. System . . . not specified herein will be charged standard mileages rate . . . subject to rates shown (herein) as maximum between stations directly intermediate."

Mr. Hardwell's exhibit 2 gives other examples. Thus, the standard 1st class rate from Simcoe to Forest is 73½c. (distance 113 miles, not 110 as stated), but the actual rate is that of the Sarnia "town" tariff, viz., 63c. The standard rate to Belle River is 77½c., but the rate that would, or should, be paid is that to Windsor, viz., 70c. The only additional advantage that Simcoe would secure, if its application were granted, would be the substitution of the "town" scale for the standard tariff to and from other points west of Toronto over 35 miles distant which do not fall within this arrangement. It is my opinion that on the eve of a general enquiry into the entire rate structure of the Dominion, the time is not favorable for the introduction of any complications by interference with an arrangement that has obtained for so many years.

Commissioner Boyce on Feb. 5 gave the following judgment, which was concurred in by Assisant Chief Commissioner McLean:—This applicaion was heard before the late Mr. Commissioner Goodeve and myself at the sittings in Hamilton, and judgment was reserved. Shortly thereafter, and before the necessary enquiries could be made for the purposes of the judgment, my colleague was called by death. The Board's Chief Traffic Officer has made an exhaustive examination into all the questions raised, and his report thereupon deals with and disposes of all matters in controversy in this case. I would adopt the Chief Traffic Officers' report, attached hereto, as the judgment of the Board, and in accordance with his findings and conclusions so adopted as the judgment of this Board, an order should go dismissing the complaint.

The Canadian National Rys. have been directed by the Board of Railway Commissioners to stop trains 5 and 6, on flag, at Chaffeys Locks, Ont.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canada Steamship Lines Ltd.—F. T. CUTTLE, heretofore Assistant General Claims Agent, has been appointed Insurance Agent. Office, Montreal.

J. H. EDWARDS, heretofore Assistant Freight Claims Agent, has been appointed Freight Claims Agent. Office, Montreal.

R. V. ROBINSON, General Claims Agent, in charge of freight claims and insurance, Montreal, has resigned, effective March 31, and his position has been abolished.

Canadian Pacific Ocean Services Ltd.—H. H. BORTHWICK has been appointed Passenger Agent, Dundee, Scotland, vice R. Ferguson.

W. H. POWELL, heretofore Passenger Agent, Southampton, Eng., has been anpointed General Agent, Passenger Department, London, Eng., vice G. Gribbon, who has left the service.

A. A. WRAY has been appointed City Passenger Agent, London, Eng., vice C. E. V. Rutter, retired.

Canadian National Rys. — G. CANFIELD is reported to have been appointed Locomotive Foreman, Hornepayne, Ont.

D. H. CHIVERS, heretofore in Grand Trunk Pacific Ry. service, has been appointed Car Foreman, Regina, Sask., vice C. R. Stokes, transferred.

R. A. CLARK, heretofore Resident Engineer, Campbellton, N.B., has been appointed Division Engineer, Truro, N.S., vice R. H. Smith, Resident Engineer, transferred.

G. M. HEMSWORTH, heretofore City Passenger and Ticket Agent, Victoria, B.C., is reported to have been appointed Travelling Representative, Passenger Department, Vancouver, B.C., with territory covering C.N.R. lines west of Edmonton, Alta., Grand Trunk Pacific Ry. lines and Grand Trunk Pacific Coast Steamship Co.

J. M. HORN, heretofore General Freight Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, Man., has been appointed General Freight Agent, Canadian National-Grand Trunk Pacific Rys., including Grand Trunk Pacific Coast Steamship Co., with supervision of territory Lucerne, B.C., and west, vice A. BROSTEDT, temporarily assigned to other duties. Office, Vancouver, B.C.

E. M. JOHNSON, Special Engineer, Western Lines, Winnipeg, is now, since the return of J. W. Porter, Special Engineer, to his former position, devoting himself principally to the preparation of frog and rail standards.

W. T. McLAUGHLIN, Travelling Car Agent, Maritime Division, Moncton, N.B., is reported to have been transferred to Toronto, with territory extending from Montreal to the Pacific coast.

K. G. POLYBANK has been appointed Division Engineer, Hornepayne, Ont., vice E. R. Logie.

J. W. PORTER has returned to his position as Special Engineer, Western Lines, Winnipeg, Man.

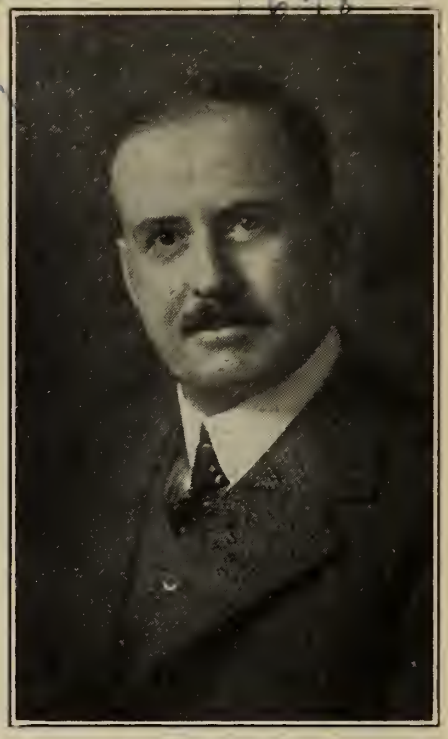
R. H. SMITH, heretofore Resident Engineer, Truro, N.S., has been appointed Division Engineer, Campbellton, N.B., vice R. A. Black, Resident Engineer, transferred.

J. F. SPIEGEL has been appointed Assistant Master Mechanic, Superior Division, Ontario District, vice R. J. Rheaume. Office, Hornepayne, Ont.

C. R. STOKES, heretofore Car Foreman, Regina, Sask., has been appointed Car Foreman, Hudson Bay Jct., Man.

Division Engineers.—The title of Resident Engineer, on Eastern Lines, has been changed to Division Engineer.

Land Surveys Department.—Lt. Col. F. F. CLARKE, who was appointed recently as Chief Land Surveyor, as mentioned previously in Canadian Railway and Marine World, has organized his department as follows:—Eastern Lines, JOHN CONGDON, Nova Scotia Land Surveyor, Dartmouth, N.S.; S. E. OLIVER, Quebec Land Surveyor, Montreal; E. G. FITZGERALD, Ontario Land Surveyor, Toronto. Western Lines, A. S. WEEKES, Chief Land Surveyor, Western Lines, Winnipeg; W. F. BEMISTER, Assistant Chief Land Surveyor, Western Lines, Winnipeg; G. B. BEMISTER, Manitoba Land Surveyor, Winnipeg; WM. McPHILLIPS, Assistant Manitoba Land Surveyor, Winnipeg; E. C. BROWN, Saskatchewan Land Surveyor, Grand Trunk Pacific Ry., Winnipeg; J. H. BURD, Saskatchewan and Alberta Land Surveyor, Edmonton, Alta.; J. E. GRAY, Alberta Land Surveyor (temporary), Edmonton; J. M. CHRISTIE, British Columbia Land Surveyor, Vancouver.



Ernest E. Lloyd,
Assistant Comptroller, Canadian Pacific Railway.

Canadian Pacific Ry.—B. ARNUM has been appointed Assistant Auditor of Agencies, Montreal, vice W. H. Blackaller, retired from the service.

A. B. CALDER, heretofore Assistant General Passenger Agent, Montreal, has been transferred to the executive staff.

H. J. DALTON, heretofore Assistant Auditor of Agencies, Montreal, has been appointed Auditor of Disbursements, vice E. E. Lloyd, promoted. Office, Montreal.

W. DIXON, heretofore Road Foreman of Locomotives, Trenton Division, Ontario District, Trenton, has been appointed Assistant Superintendent, Woodstock Division, New Brunswick District, with office at Woodstock, N.B., vice A. E. Stewart, resigned on account of ill health. We are officially advised that it is not the present intention to fill his former position.

J. H. FOX, heretofore City Freight Agent, Vancouver, B.C., has been appointed District Freight Agent, Edmonton, Alta., vice F. W. Sterling, resigned.

J. KEATING is reported to have been appointed chief steward, Chateau Frontenac, Quebec, Que., vice E. W. Tribe, promoted.

E. E. LLOYD, heretofore Auditor of Disbursements, Montreal, has been appointed Assistant Comptroller, vice W. J. Moule, deceased. Office, Montreal.

G. S. LYTLE, heretofore Car Service Agent, Saskatchewan District, Moose Jaw, has been appointed acting Trainmaster, Moose Jaw Division, Saskatchewan District, Moose Jaw.

A. E. McAMMOND has been appointed Chief Dispatcher, Kenora, Ont., vice W. E. Cline, whose appointment as Car Service Agent, Saskatchewan District, Moose Jaw, was announced in our last issue.

E. L. SCOTT is reported to have been appointed Superintendent of Telegraph Traffic, Western Lines, vice J. Fletcher, retired. Office, Winnipeg.

E. W. TRIBE, chief steward, Chateau Frontenac, Quebec, Que., is reported to have been appointed Inspecting Steward for the hotel system.

R. W. URWIN has been appointed Assistant Auditor of Agencies, Montreal, vice H. J. Dalton, promoted.

Delaware & Hudson Co.—H. M. GARGAN has been appointed Superintendent, Champlain Division, vice M. F. Leaney, transferred. Office, Plattsburg, N.Y.

M. F. LEANEY, heretofore Superintendent, Champlain Division, Plattsburg, N.Y., has been appointed Superintendent, Susquehanna Division, vice J. K. McNellie, transferred. Office, Oneonta, N.Y.

J. K. McNEILLIE, heretofore Superintendent, Susquehanna Division, Oneonto, N.Y., and formerly General Superintendent, Canadian Government Rys., Moncton, N.B., has been detailed to the General Manager's office, Albany, N.Y.

Edmonton, Dunvegan & British Columbia Ry.—J. H. FOX, heretofore City Freight Agent, C.P.R., Vancouver, B.C., has been appointed District Freight Agent, vice F. W. Sterling, resigned.

Grand Trunk Ry.—I. N. CLARK, heretofore Master Car Builder, Ontario Lines, Ont., has been appointed General Car Inspector, Ontario Lines. Office, London, Ont.

H. DEER, heretofore Assistant Secretary, has been appointed Secretary of the company, vice H. H. Norman, deceased. Office, London, Eng.

W. GILLESPIE, heretofore General Foreman, Scrap and Reclamation Yards, Montreal, has been appointed General Car Inspector, Eastern Lines. Office, Montreal.

H. HULATT, heretofore Consulting Manager of Telegraphs, has been appointed Manager of Telegraphs, Western Lines, and his former position has been abolished. Office, Montreal.

J. LIVINGSTON, heretofore Storekeeper, Stratford, Ont., has been appointed Storekeeper, London, Ont., vice A. Tory, retired from the service, as announced in our last issue.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, MARCH, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 134
Birthdays of Transportation Men 144
Board of Railway Commissioners,—
Orders by, Summaries of 141
Traffic orders 132
Canadian National Rys.—
Board of Conciliation re employes' political activities 137
Construction, etc. 128
Leaside Shops 113
Position and Construction and Operating Policy 126
Canadian Pacific Ry.—
Construction, etc. 123
St. John River cantilever bridge 118
Electric Railway Department ..... 148 to 160
Canadian Electric Railway Association—
Annual meeting 148
Publicity and Public Relations 153
Service at Cost Contract, Practical Operation 150
Finance, Meetings, etc. 158
Projects, Construction, etc. 158
Rate Increases 157
Statistics 156
Winnipeg Electric Ry. Annual Report and Meeting 160
Express Companies, Among the 147
Express Rates, Increases Authorized 129
Grand Trunk Ry.—
Construction, etc. 131
Stock Values Arbitration 136
Mainly About Railway People 130
Marine Department ..... 161 to 176
Canadian Government Merchant Marine, Shipbuilding, Operation, etc. 167, 168
Canadian Pacific Ocean Services' Management 175
Hudson Bay Co.'s s.s. Nascopie's Annual Voyage 173
Marine Engineers' Wage Scale on the Great Lakes 166
Shipbuilding in Canada in 1920 164
Shipbuilding, General, in Canada 169
Shipping Federation of Canada 161
Railway Development 142
Railway Earnings 136
Railway Finance, Meetings, etc. 143
Railway Mechanical Methods and Devices 121, 122
Railway Rolling Stock Orders and Deliveries 143
Railway Statistics 145
Telegraph, Telephone and Cable Matters 147
Train Schedules and Locomotive Fuel Consumption 124

J. B. MacGREGOR has been appointed Assistant Superintendent of Telegraphs, Western Lines. Office, Battle Creek, Mich.

W. A. PITT, heretofore General Master Car Builder, Montreal, has been appointed Master Car Builder, London shops, London, Ont., vice I. N. Clark, transferred, and his former position has been abolished. Officers heretofore reporting to him, now report to J. C. GARDEN, acting General Superintendent, Motive Power and Car Department, Montreal.

N. H. SEIGEL, heretofore leading electrician hand, has been appointed outside foreman, with jurisdiction over the electrical department, power house and outside gangs. Office, Stratford, Ont.

The position of General Travelling Car Inspector, Montreal, heretofore held by D. C. MESSERROLL, has been abolished.

Timiskaming & Northern Ontario Ry. G. W. LEE, Commissioner and General Agent, North Bay, Ont., having been appointed Chairman of the Commission, as announced in our last issue, the position of General Agent at North Bay has been abolished.

Wooden Packing for Frogs.

The Chief Railway Commissioner, Hon. F. B. Carvell, gave the following judgment Feb. 15:—In the matter of authorizing the use of the Hart type of wooden packing for frogs, wing rails, guard rails, and switches, under the Railway Act, 1919, sec. 282, sub sec. (4). So far as I can learn, this case originated by a letter from Frank Lee to the Board's Chief Engineer, dated April 2, 1919, suggesting that the use of the Hart blocking at frogs and guard rails be made permissive. Considerable correspondence took place and there were interviews between the Chief Engineer and representatives of railway men interested, and finally it was thought advisable that a public hearing be held at which all parties could be heard. This took place in Ottawa on Feb. 1, inst., at which the Canadian Pacific and the Canadian National Rys. and the New York Central and the Michigan Central Railroads were represented, as well as the Brotherhood of Locomotive Firemen and Enginemen. It was admitted by all parties, and strongly asserted by our own technical officials, that the Hart type of packing for frogs would be an advantage in many cases over that at present in use, and, therefore, while I do not feel we should make it compulsory, I think its use should be approved by this Board upon all railways under our control.

Following this judgment, the Board issued general order 329, Feb. 18, ordering that the use of the Hart type of wooden packing for frogs, wing rails, guard rails and switches on railways be authorized.

Surcharges on International Passenger Traffic.

An Ottawa press dispatch says that an application of the Railway Association of Canada, which has been set down for hearing before the Board of Railway Commissioners at Ottawa on Mar. 2, requests that surcharges on international passenger traffic be granted upon the following bases:—

(1) From all Canadian points along the International Boundary, 100% of the rate of exchange determined along the line adopted in regard to freight.

(2) A surcharge of 75% of the rate of exchange from points within about 50 to 60 miles from the boundary.

(3) A surcharge of 50% of the rate of exchange from points without about 80 to 90 miles from the boundary.

(4) A surcharge of 25% from all other points.

(5) No surcharge will be made on tickets via direct route to United States border points.

Canadian Railway Club's Annual Dinner.

The Canadian Railway Club's annual dinner at the Windsor Hotel, Montreal, Jan. 29, was very largely attended, and most successful in every way. The President, W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., occupied the chair, and among others at the head table were Hon. F. B. Carvell, Chairman, Board of Railway Commissioners; Professor Stephen Leacock, McGill University; Geo. Hodge, Assistant to Vice President, Eastern Lines, C.P.R.; Lt. Col. Wilgar, Queen's University, Kingston; several past Presidents of the club, viz., H. H. Vaughan, consulting engineer, Montreal; A. A. Goodchild, General Storekeeper, C.P.R.; W. McNab, Chairman, Valuation Committee, G.T.R.; R. M. Hannaford, Assistant Chief Engineer, Montreal Tramways Co.; T. C. Hudson, General Master Mechanic, Canadian National Rys.; J. Hendry; the club's Secretary, W. A. Booth; W. W. Butler, President, Canadian Car & Foundry Co., and Acton Burrows, Proprietor, Canadian Railway and Marine World.

The principal speakers, in addition to President Winterrowd, were Hon. F. B. Carvell, who responded to the toast of the railways; Professor Leacock, for the guests, and W. W. Butler, for the supply men.

C.P.R. Passenger Officials' Conference.

The principal passenger officials of the C.P.R. in Canada and the United States held their annual conference at Quebec during the last week in January, visiting Montreal on their way home. The attendance included representatives from Los Angeles, San Francisco, Seattle, Portland, Minneapolis, Chicago, St. Louis, Cincinnati, Pittsburg, Cleveland, Detroit, Buffalo, Boston, New York and Atlanta in the U.S., and from Victoria, Vancouver, Nelson, Calgary, Edmonton, Regina, Brandon, Winnipeg, Toronto, Montreal, Quebec and St. John, the conferences being held under the chairmanship of C. E. E. Usher, Passenger Traffic Manager. It is said that prospects of tourist business from the U.S. during this year are good, and that the business depression has already shown signs of passing off, so far as travel is concerned. During the evenings the delegates took an active part in the winter sports, which were at their height in Quebec. They had a snowshoe race, which A. O. Seymour, General Ticket Agent, won, and a curling match was won by the west over the east. The triple toboggan slide on Dufferin Terrace proved very popular, and the skating rink in the Chateau Frontenac courtyard was also frequented. On the last evening a number of new moving pictures, illustrating various phases of Canadian life, were shown at a social gathering at which several members of the Quebec Government were present.

Arbitration to Determine Value of Grand Trunk Railway Stocks.

The arbitration to determine the value of certain G.T.R. stocks, to be taken over by the Dominion Government, opened in the G.T.R. board room, in Montreal, Feb. 1, before the arbitrators, Sir Walter Cassels, Judge of the Exchequer Court, chairman; Sir Thos. White, representing the Dominion Government; and W. H. Taft, ex-President, United States, representing the G.T.R. Co.

The Government was represented by W. N. Tilley, K.C., Toronto; Pierce Butler, St. Paul, Minn.; H. A. Lovett, K.C., Montreal; Hector McInnes, K.C., Halifax; and E. L. Newcombe, Deputy Minister of Justice, Ottawa. The G.T.R. was represented by W. H. Biggar, K.C., Vice President and General Counsel; A. W. Atwater, K.C., and E. Lafleur, K.C., Montreal, and F. H. Phippen, K.C., Toronto.

Under the agreement between the Dominion Government and the G.T.R. Co., ratified by the Dominion Parliament at its 1920 session, the Government undertook to guarantee the payment half yearly of dividends at 4% a year on the company's guaranteed stock, and the interest on the debenture stocks as and when payable. It also undertook to buy the following stocks from the shareholders:—

First preference stock 5½	£3,420,000
Second preference stock 5%	2,530,000
Third preference stock 4½	7,168,055
Ordinary or common stock	23,955,437
	£37,073,492

The agreement provided that the value, if any, to the holders of the preference and common stocks should be determined by three arbitrators, the value, so determined, to be not greater than an amount on which the annual dividend at 4% on the aggregate face value of the then present guaranteed stock, and the new guaranteed stock taken together, would be $5,000,000, i.e., the value shall not exceed $64,166,666.66. The fixing of this limit is not to be taken by the arbitrators as any admission, or indication, that the value to be determined is the amount so fixed, or any other amount.

This means that the arbitrators cannot award a larger sum than is represented by $5,000,000 capitalized at 4%, and as out of this amount $2,432,500 has to be taken to fulfil the Government guarantee of $60,812,500 of present guaranteed stock, there remains $2,566,600, or $64,166,666 capitalized at 4% that may be awarded the holders of the preference and common stocks. As these amount to $180,362,000, at par of sterling exchange, the utmost the holders of these securities can obtain is a little more than one-third their face value. The arbitrators are also empowered and directed to determine in what proportion their award is to be distributed among the holders of the first, second and third preference, and the common stock.

The first witness called on the G.T.R.'s behalf was Howard G. Kelley, President, whose evidence as to the system generally, and whose cross examination, occupied the whole of the sittings on Feb. 1, 2 and 3.

H. H. Vaughan, consulting engineer, Montreal, formerly the C.P.R.'s chief mechanical official, was called on Feb. 5, to give evidence as to the physical value of G.T.R. properties. Counsel for the Government objected that such evidence was inadmissible, claiming that the arbitrators were not called upon to deal with the physical value of the property, but with its value as a going concern. Counsel's argument on this point occupied the whole of that day's sitting. When the proceedings were resumed on Feb. 7, Sir Walter Cassels said that he thought such evidence should not be received, as he considered it legally inadmissible, and did not see how it could have any bearing on the questions to be decided, and if it were taken he could not see how it could have any weight in regard to the value of the stock. He therefore decided against admitting Mr. Vaughan's evidence, or other evidence, along similar lines. Mr. Taft took the ground that, as a matter of fairness to the shareholders, the evidence should be allowed to be given, in order to show the physical value of the property. Sir Thos. White took very similar ground to Sir Walter Cassels, the result being a division of the arbitrators, two to one, against submitting evidence as to the physical value of the property or as to replacement costs. G.T.R. counsel took exception to the decision and asked for an adjournment, to enable them to consider the situation. On the arbitration resuming on Feb. 9, G.T.R. counsel again tendered evidence as to the physical value of the property, but were not allowed to put it in, and it is said that this tendering was done for the purpose of enabling an appeal to be made against the arbitrators' majority decision, the statute under which the arbitration is being held providing that should the award not be unanimous, either party may appeal therefrom, on any question of law, to the Supreme Court of Canada, and to the Judicial Committee of the Imperial Privy Council, if the committee grants leave.

T. H. Curtis, consulting engineer, Chicago, then testified for the G.T.R. as to the condition of rolling stock, shops, yards, etc., and H. H. Vaughan was then called again, dealing principally with similar questions.

J. B. Berry, consulting engineer, Chicago, who made a complete examination of the whole G.T.R. system, gave evidence at great length, his testimony, which started on Feb. 10, and cross examination occupying 8 days.

F. R. McQueen, of Minneapolis, Minn., gave evidence, on Feb. 19, as to his inspection of G.T.R. elevators over the whole system.

On Feb. 22, G.T.R. counsel again brought up the question of the exclusion of evidence as to physical value of the properties, when Sir Thos. White stated that he considered that the company's net earnings, and what they would be in future as far as could be ascertained, should form the basis of the value of the stocks. Sir Walter Cassels said he wanted to know the earning power of the system as a going concern, and Mr. Taft stated that even under the majority's ruling he thought the value of the Chateau Laurier, for instance, might be given, it not being part of the actual railway. Mr. Lafleur, of the G.T.R. counsel, then said they were seriously considering whether they could go on with the presentation of their case. After the adjournment of the sitting a conference of G.T.R. counsel was held, and a cablegram was sent to the company's Chairman in England, Sir Alfred Smithers, explaining their dilemma, and it was decided to mark time at the arbitration as much as possible till he replied.

Walter S. Kelley, brother of H. G. Kelley, President, G.T.R., gave evidence on Feb. 23, as to the Rail & River Coal Co., of which he is Manager, and the property of which in Ohio is owned by the G.T.R. T. P. Williams, Deputy Mine Inspector of Ohio; W. R. Woodford, President of the Rail & River Coal Co., and F. H. Ray, a coal mining expert of Columbus, Ohio, also testified, etc., to the value of the property.

Jno. Pullen, President, Canadian Express Co., gave evidence on Feb. 23, as to that company's business, and W. W. Williamson, General Auditor, Canadian Express Co., also gave evidence.

W. D. Robb, Vice President in charge of transportation, construction and maintenance, G.T.R., gave evidence on Feb. 24 and 25, dealing particularly with the company's motive power, shops, etc.

Major F. L. C. Bond, Chief Engineer, G.T.R., gave evidence, Feb. 25, as to the condition of track, bridges, etc.

Canadian National Railways Earnings.

The following figures show the gross earnings for the system, monthly during 1921, compared with those of the same months in 1920:—

	1921	1920
January . .	$8,781,839	$7,267,562

Approximate earnings for two weeks ended Feb. 14, $4,295,879, against $3,218,520 for Jan. 1920.

Canadian Northern Railway System.

	1920	1919
January . .	$4,200,700	$4,026,000
February . .	3,862,300	3,863,800
March . .	4,587,700	3,554,350
April . .	4,732,623	3,878,149
May . .	4,863,500	4,337,750
June . .	4,364,600	3,131,000
July . .	5,168,500	4,347,300
August . .	5,900,700	4,901,150
September . .	6,140,500	5,260,500
October . .	7,620,000	5,799,400
November . .	7,602,700	5,393,000
	$59,043,823	$47,992,399

Canadian Pacific Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net	Increases or decreases
Jan.	$13,914,569	$13,328,628	$ 585,941	*967,571
Feb.	13,557,104	12,843,231	713,873	*267,242
Mar.	15,715,937	13,758,171	1,957,766	418,721
Apr.	15,929,416	13,587,570	2,341,846	253,222
May	16,459,986	13,262,044	3,197,942	164,182
June	16,480,574	13,849,757	2,630,817	*359,604
July	17,375,761	15,756,275	1,619,486	*1,377,218
Aug.	17,994,769	15,793,956	2,200,813	*1,577,355
Sept.	20,009,287	16,100,632	3,908,655	*183,265
Oct.	24,800,632	17,099,810	7,700,822	2,353,040
Nov.	23,799,146	19,726,136	4,073,010	1,223,201
Dec.	20,604,168	18,382,095	2,222,073	539,896
	$216,641,349	$183,488,305	$33,153,044	$220,008
Incr.	39,712,289	39,492,281	220,088	.....

Approximate earnings for January, $14,208,000, and for two weeks ended Feb. 14, $6,414,000, against $13,669,000, and $6,853,000 for same periods 1920.

Russian Locomotive Repairs.—A contract is reported to have been signed between the Russian Government and Sir W. G. Armstrong Whitworth & Co., Newcastle-upon-Tyne, Eng., for the overhauling and repairing of practically all Russian locomotives, but its carrying out depends upon the signing of a trade agreement between Great Britain and Russia. The number to be repaired is not stated, but it is expected that the contract will extend over a number of years.

Board of Conciliation re Canadian National Railways Employes' Political Activities.

Canadian Railway and Marine World for February gave very full particulars of the dispute between the Canadian National Rys. and its employes, respecting President D. B. Hanna's order that employes becoming candidates for the Dominion Parliament or a provincial legislature could not remain in the railways' employ. As therein stated, the employes applied to the Labor Department for a board of conciliation for investigation under the Industrial Disputes Investigation Act, 1907, and named D. Campbell, barrister, Regina, as their representative. The C.N.R. management having declined to nominate a representative, the Minister of Labor named F. H. McGuigan, of Toronto, to represent the C. N.R. and appointed J. M. Godfrey, Toronto, as chairman of the Board, which opened its sittings in Toronto Jan. 17, and presented a report dated Jan. 29, signed by its three members, as follows:

The board of conciliation established by you under date of Dec. 10, 1920, to enquire into the dispute between the management of the Canadian National Rys. and their employes, being members of the various railway employes' organizations, beg to report as follows:—Upon the board being completed, it was ascertained that its hearings could be conveniently held at Toronto, and Jan. 17 was fixed for the commencement of its proceedings.

The board proceeded on that date and the employes were represented by H. E. Barker, Canadian National Western Lines, Order of Railway Conductors, Winpeg; S. M. Berry, Senior Vice President, Order of Railway Conductors; J. M. Main, Deputy President, Order of Railroad Telegraphers; E. A. Ball, Assistant Vice President, Brotherhood of Locomotive Firemen and Enginemen; A. Johnston, Assistant Grand Chief, Brotherhood of Locomotive Engineers; A. R. Mosher, President, Canadian Brotherhood of Rail-Employes; H. W. Harper, representing machinists; R. J. Tallon, President, Division 4, Railway Employes Department, American Federation of Labor; W. B. Turnbull, Grand Vice President, United Brotherhood of Maintenance of Way Employes and Railroad Shop Laborers; A. Hay, Vice President, Brotherhood Railway and Steamship Clerks; A. J. Ryall, General Chairman, Canadian National Rys. Western Lines, Brotherhood of Railroad Trainmen; R. A. MacDonald, General Chairman, Canadian National Eastern Lines, Order of Railway Conductors; Jas. Murdock, Vice President, Brotherhood of Railroad Trainmen; G. K. Wark, Vice President, Brotherhood of Locomotive Firemen and Enginemen; J. P. Merrigan, representing boiler makers and helpers; J. W. Bruce, representing plumbers, steamfitters and helpers; John Noble, representing International Brotherhood fo Electrical Workers; J. W. J. Smith, General Chairman, Brotherhood of Railway Carmen of America; P. Woods, representing United Brotherhood of Maintenance of Way Employes; G. A. Stone, General Chairman, Canadian Government Railways, Brotherhood of Locomotive Engineers; L. Beuloin, representing Brotherhood of Railway Carmen of America; T. M. Spooner, General Chairman, Canadian Northern System, Brotherhood of Locomotive Firemen and Engineers; W. G. Atkinson, General Chairman, Canadian Government Railways, Brotherhood of Locomotive Firemen and Enginemen; J. J. Trainor, representing Order of Railway Telegraphers, Eastern Lines, C.N. R.; W. H. Phillips, General Chairman, Order of Railroad Telegraphers, Western Lines, C.N.R.; W. G. Powlesland, General Vice President, International Brotherhood of Blacksmiths and Helpers.

A. J. Hills, Assistant to President, Canadian National Rys., attended, unofficially, on behalf of the management. At a later date President Hanna also attended, on invitation by the Board.

Upon opening up the matters in dispute it was found that practically all of the employes of the railways, to the number of upwards of 58,000, were directly concerned. The locality of the dispute is the various railways throughout Canada now operated under what is generally known as the Canadian National Rys. The dispute arose as the result of a telegram sent on Sept. 23, 1920, to D. B. Hanna, President, Canadian National Rys., by J. A. Robinson, an official of the Independent Labor Party in New Brunswick, as follows:—

"Have you any objection to any C.N.R. employes becoming candidates for the New Brunswick Legislature, and if so could you give reasons? Please wire reply immediately.."

To this telegram Mr. Hanna replied on Sept. 25, 1920:—

"Your message yesterday. Under no circumstances can an employe continue as such with the Canadian National Rys. and become a candidate for legislature, provincial or Dominion. The moment he does so he automatically severs his connection with the railway. The reasons are too obvious for discussion."

While these telegrams appeared in the press, and were given considerably publicity, no formal order was issued in writing to the employes and bulletined according to regular railway practice. In fact, up to the present, the order has not been promulgated in accordance with the procedure usually recognized in connection with the operation of railways. The representatives of the employes' organizations took no steps in connection with the so-called order, as they claimed it was not an order or rule binding on them until issued in the regular way in writing and properly bulletined. The order came up for specific application in connection with the three employes whose cases are referred to us for report.

In June, 1920, G. H. Palmer was elected, as a candidate of the labor party, to the Manitoba Legislature for Dauphin constituency. At the time of his election he was a train dispatcher at Dauphin in the Canadian National Rys. employ. Before the road had been taken over by the Government he had been an employe of the Canadian Northern Ry. for many years.

A. E. Moore, who was returned at the same election as the labor representative for Springfield, was a painter in the Canadian National Rys. shops in Winnipeg. He had also been a Canadian Northern employe.

Jas. Higgins, a boiler maker in the Canadian National shops at Leaside, near Toronto, early in Sept. 1920, accepted the nomination of the labor party to contest a bye election in Northeast Toronto for the Ontario Legislature. This election was held on Nov. 7, 1920, and he was defeated. These shops were owned and operated by the Canadian Northern before Government ownership.

It was admitted that these three men were employes, not of the Government, but of a company whose capital stock is owned by the Government. Mr. Hanna and his associate directors are still, in fact and in law, directors of the Canadian Northern Ry. Co.

Messrs. Palmer and Moore had applied for and received leave of absence to contest their constituencies. It was not shown that at the time the leave was requested their purpose was to take part in the election. It was, however, stated, and not denied, that their candidatures were a matter of public notoriety and well known to the officials of their respective divisions. After the election, both men returned to their duties and continued in the employ of the company until Nov. 1920. There is no evidence or suggestion that after the election they failed in any way to faithfully and efficiently perform their duties or that their positions as members elect of the Manitoba Legislature had in any way injuriously affected the railway or interfered with the proper performance of their duties. Early in Nov. 1920, Messrs. Palmer and Moore were called before their superintendents, and notified that unless they agreed to resign as members of the Legislature they would be dismissed from the company's service. They refused to do so and were forthwith dismissed.

Mr. Higgins did not quit work after accepting the nomination, but continued to perform his duties until about 10 days before the election, when he applied to his foreman and was granted leave of absence to conduct his campaign. A few days later he was surprised, when notified by his foreman, that his acceptance of the nomination had resulted in his automatic dismissal from the company's service. Immediately after the election he reported for work and was refused.

These dismissals resulted in a combined protest against President Hanna's order, by the various railway employes' organizations, followed by a request for a conference with him. This was arranged and was held in Toronto Dec. 3, 1920. After a lengthy discussion, Mr. Hanna refused to recede from his position or modify the order. The employes then applied for a board under the Industrial Disputes Act and the board was established.

The board is of the opinion that the cases of Messrs. Palmer, Moore and Higgins can be dealt with apart from the determination of the principal question in issue. In fact, the management made little effort to justify these dismissals, and intimated that if the question of principle were conceded, these cases could be satisfactorily adjusted. It would seem that when President Hanna sent the telegram replying to Mr. Robinson on Sept. 25, 1920, he believed that all employes of the Canadian National Rys. were civil servants, or, in any event, subject to the same restrictions as civil servants. It is difficult to believe that at the time he sent this telegram he could have known, or if he knew could have fully considered the legislation of Parliament dealing with this question enacted in the session of 1919. All civil servants are under what is known as the Civil Service Act of 1918. This act contains the following provisions in sec. 32:

"(1) No deputy head, officer, clerk or employe in the civil service shall be debarred from voting at any Dominion or provincial election if, under the laws governing the said election, he has the right to vote; but no such deputy head, officer, clerk or employe shall engage in partisan work in connection with any such election, or contribute, receive or in any way deal with any money for any party funds."

The following amendment to that act was passed in 1919, as sec. 38a:—

"The provisions of this act shall not apply to positions in connection with the Government railways, or any railway owned or controlled by His Majesty."

The effect of this legislation is that Messrs. Palmer, Moore and Higgins were not civil servants, and were in exactly the same position, so far as the law is concerned, as the employes of a privately owned railway.

Mr. Hanna further claimed that in sending his telegram of Sept. 25 he was simply repeating a long established rule of the Canadian Northern Ry. The employes on the other hand emphatically stated that they were never given notice of any such rule and Mr. Hanna admitted that the rule had never been issued in regular form. As evidence that there was no such rule on the Canadian Northern, it was shown that Mr. Casey, a locomotive engineer, was twice given leave of absence to contest Saskatoon constituency in elections for the Saskatchewan Legislature. It was also shown that, before the telegram of Sept. 25, 1920, there was no intimation of any such rule on the Canadian National Rys. This is evidenced by the fact that in the Ontario general elections of Oct. 1919, Mr. Sweezey, a yardman at Capreol, was given leave of absence to contest the Sudbury constituency. It fact Mr. Hanna admitted that no employe of the Canadian Northern had ever been refused leave of absence to offer himself as a parliamentary candidate.

Applying these facts to the cases of Messrs. Palmer and Moore, we find that these men had the legal right to stand as candidates for the Manitoba Legislature. There was also no rule of the railway in June 1920, which prohibited them from doing so. They applied for leave of absence in the regular way, and this leave was granted by duly authorized officials of the company. After the election, they returned to their employment with the company, and no suggestion has been made that they did not, up to the time of their dismissal, perform their duties faithfully and efficiently. It is admitted by the management that under the agreement between the company and its employes no employe can be summarily dismissed without cause.

The facts in connection with Mr. Higgins' case are slightly different. It is clear, however, that at the time he became a candidate in Northeast Toronto there was no rule prohibiting him from accepting the nomination. He also received leave of absence in the regular way, and at no time did any act which could result in his automatic dismissal from the company's service.

It seems also to the two members of the board who have had practical experience in railroading, that the whole proceeding with regard to the so-called order is irregular. Such an order could only be made a rule of the road by promulgation to the employes in writing and by being bulletined in the regular way. This has never been done and it is doubtful if even now the order has any binding effect on the employes. The board therefore, in view of all the facts, recommends that Messrs. Palmer, Moore and Higgins should be reinstated without loss of seniority, and be paid for time actually lost by reason of their dismissal. With regard to the fourth question in dispute, viz., the employes' request for the withdrawal of the order, Mr. McGuigan, representing the employers, holds somewhat different views from the other members of the board and will make a separate report on this point.

Majority Report by J. M. Godfrey and D. Campbell.

The following report to the Minister of Labor was made on the same date by J. M. Godfrey, chairman of the board, and D. Campbell, representing the employes:—In the consideration of the fourth question submitted to them, viz., the request of the employes for the withdrawal of the order, the board has heard much evidence and the able and exhaustive argument of both sides. They feel that no good purpose can be served by a minute analysis of the evidence and the argument, or by an expression of an opinion in a detailed way as to the various matters submitted to them. They have been influenced in coming to this conclusion by the practical solution offered as a settlement of the dispute, and in their opinion a full discussion would consequently be largely of an academic character. It appeared early in the proceedings that in reality there was little difference between the position taken by the management and the employes. Mr. Hanna based his position on the following pronouncement made by Sir Robert Borden in Parliament, at the time the railways were being taken over by the Government:—

"As to the immediate future, I have already said that we do not intend to operate the Canadian Northern Ry. system directly under a Department of the Government; it is our intention to operate it for the present through the corporate machinery by which it has been operated in the past. There will be a reconstituted board of directors. We shall endeavor to get the best men we can and we shall not interfere with them. We shall leave the administration and operation of that road to be carried on absolutely under that board of directors, and we shall use every means available to the Government (and if necessary we shall come to Parliament for that purpose) in order that anything like political influence, political patronage or political interference (I am using the word political in its narrower sense) shall be absolutely eliminated from the administration of that road."

Mr. Hanna stated that at the time he and his associates took office it was understood that this was to be the policy of the management and that it was only on this condition that they accepted office. The employes stated that they agree absolutely with this policy, and are prepared to co-operate to the utmost with the management to prevent poliical interference or the exploitation of the railways for political purposes. The employes regard this policy to preclude such matters as appointing friends of the party in power to positions on the road, the establishment of a political patronage list in connection with the purchase of supplies, the influencing of employes in elections by officials, superintendents, etc., and also as a prohibition against the exercise by the management of its powers in favor of, or against, any political party. But they maintain that this policy does not involve the prohibition of any employe under any circumstance offering himself as a candidate in parliamentary elections. They further maintain that the Government and Parliament could not have intended any such prohibition inasmuch as when the matter was considered by Parliament in the session of 1919 they were specially excluded from the disabilities of the Civil Service Act and were in fact confirmed in all the civil rights which they had enjoyed as employes of a privately owned railroad.

The employes agree that there is no rule which entitles them to leave of absence as a matter of right and that the management may refuse leave of absence for proper cause, if in its opinion it would be against the interest of the railways to grant such leave of absence. They claim, however, that leave of absence has practically always been granted except for three reasons: (1) When there is a shortage of men. (2) When the applicant desires to enter the service of another road. (3) When the applicant desires to engage in the liquor business. They agree that in some cases an employe could not efficiently perform his duties with the company and at the same time pursue a parliamentary career. In these cases the management would be quite within its rights to refuse leave of absence. But they also state that there are many classes of employes whose occupations are of such a character that this disqualification would not apply. They give as illustrations of this the cases of Messrs. Palmer, Moore and Higgins. If leave of absence were granted to these men, their positions could have been filled by others, and on their return they could have resumed their duties without detriment to the company. They do not believe any evil results have been occasioned to the Canadian Pacific Ry. Co. because four of its employes have been permitted to engage in parliamentary careers. Of these, two have attained cabinet rank, the Minister of Labor in the Dominion Government, and the Minister of Mines in the Ontario Government.

In view of the really insignificant difference between the management and the employes, and their sincere agreement on the principle that there should be no exploitation of the company for political purposes, the board believed that some working arrangement was possible which would solve the difficulty. It seemed obvious that the common purpose could best be attained if the irritation caused by the order were eliminated and the two parties vitally interested in the successful operation of the roads were brought together in hearty and sympathetic co-operation. The board accordingly spent several days in an effort to bring about, by conciliation and reasonable compromise, a practical working arrangement which would secure the maintenance of the policy agreed upon and yet recognize that which the employes regard as their basic and legitimate rights. The employes finally made the following proposal on Jan. 20: "Memo suggested by the employes after having received and considered the memo said to have been issued by the company and handed to the chairman on Jan. 19, 1921: The representatives of the organizations concede, without reservation, that the first essential requisite for service with the Canadian National Rys. is unstinted and continuous loyalty in such service and that this must be evidenced to continue in the service. Loyalty being the first requisite for employment, it should be held that an employe cannot continue in service while undertaking to exploit for political purposes the operation of the railways, but to accept nomination in the ordinary way, or to be elected to a public office, should not be regarded in itself as prima facie evidence of disloyalty. It is claimed that no posted or written rule was violated by the two members of the Manitoba Legislature who ran for and were elected to such positions while in the employ of the Canadian National Rys., and that they should, therefore, now be reinstated and reimbursed for such time as they may have lost as employes of the railways, on account of the order of dismissal issued in their cases. The same principle should be recognized in the case of the employe who ran for the Ontario Legislature and was defeated in Northeast Toronto. If an employe is re-

quested by his fellow citizens to become a candidate for, or is elected as, a member of Parliament, it must be understood that the service of the railway must not be embarrassed by his aspirations for political preferment, and that only in such cases where this may be shown to be the case can he, with the sanction of the company's officials, and the committee of his fellow employes, be given leave of absence."

It should be noted that this proposal recognizes the principle that in the consideration of applications for leave of absence, the interests of the company must be regarded as paramount. The company being fully safeguarded, it is the board's opinion that this solution of the dispute can be accepted by the management, without abandoning the principle enunciated by the Government. It should at least be given an honest and sincere trial. We therefore recommend the acceptance of the employes' proposal.

F. H. McGuigan's Report.

F. H. McGuigan, who was appointed by the Minister of Labor to represent the C.N.R. management on the board of conciliation, the management having refused to nominate anyone, reported to the Minister as follows:—While earnestly desiring agreement with my colleagues and a unanimous report, it seems to me advisable to say that I am decidedly of the opinion that it would be most unwise to dispose of question 4, as proposed by the employes on Jan. 20, as shown in the appendix to the board's report, which is so ingeniously vague as to be susceptible of as many different interpretations as interested political aspirants have capacity to devise, and, if adopted as a rule of the railways, would result in impairment of discipline, and become a source of frequent and endless disputes. In addition, it would be most unfair to the great majority of honest and efficient officials, and other employes having no desire for parliamentary honors or other Government positions, who, continuously, year after year, conscientiously perform their daily duties. Any general rule, providing equal rights in promotion to the very few employes politically inclined, and serving the railway only at such times periodically as best suited their own personal interests, and who, if elected to Parliament, might advocate policies and support measures in direct opposition to the interests and views held by the great majority who devote their entire time and energies to the service and interests of the railway alone, would be manifestly unfair.

On the important question of political control, influence or interference in the operations or management of the Canadian National Rys., leading representatives of the employes emphatically proclaimed their earnest and hearty approval, and pledged President Hanna their support against any efforts in that direction, admittedly agreeing with the decided opinion of a vast majority of the thinking people of the Dominion, that political domination or interference in the management or operations would result in laxity of discipline, and general demoralization of the service, to an extent which would eventually reduce earnings and correspondingly increase the already heavy tax burdens of the Canadian people, who own these railways. Unfortunately, despite this seeming unity of opinion on the main proposition, the employes made vigorous protest against President Hanna's declaration of policy, as outlined in his telegram of Sept. 25, 1920, to J. A. Robinson, of Moncton, which is quoted in the board's unanimous report. Representatives of the employes contend that if this policy were enforced it would restrict their political freedom, and deprive them of their right of representation in the Dominion and provincial parliaments, which they hold to be the inalienable right of all citizens. This contention was clearly shown to be without foundation, as they were unable to sustain this by any rule or schedule, or to establish that their rights as citizens were in the slightest degree affected by President Hanna's declaration of policy. While some three or four individual cases were cited of railway employes being elected to Parliament, also filling other important Government positions, and still holding their seniority rights in railway service, it was shown in each case to be by special arrangement, unsupported by any rule or schedule obligations on the part of the railway.

President Hanna's telegram of Sept. 25, 1920, simply outlined what he understood to have been the Government's policy, as several times declared and elaborated by Premier Borden in speeches before Parliament during 1918, when consideration was being given by that body to taking over and operating these lines. On the other hand, leading representatives of the employes positively and emphatically stated that within the same period, Premier Borden granted them an interview, during which he gave them absolute assurance of an entirely different nature.

Careful consideration, during and since the hearings, of all evidence and other matter submitted to the board, coupled with many years experience in the operation of railways, and familiarity with operating rules, including also the schedules of employes' organizations in all branches of the service, leads me to the conclusion that President Hanna was clearly within his rights in his declaration of policy; and also that it would be a commendable act of justice to reinstate the three men dismissed, as their offence was evidently due to the fact that this policy had not been brought to the employes' attention in the usual manner, by general circular or bulletin notice posted on the bulletin boards, or in the books provided at terminals, shops, stations and offices for such purposes.

If the railway management accepts the recommendation of the board regarding the reinstatement of these three men, it should remove the real grievance, leaving open only the question of interpretation of President Hanna's declaration of policy, a question of outstanding importance which, I understand, Parliament alone has the power to decide. Therefore, believing that satisfactory adjustment ensuring continuance of the cordial relations and co-operation, which has always existed between the officers and employes of these railways, must certainly be in the best interests of all concerned, I earnestly recommend that the matter be given the most serious consideration and, if deemed necessary, be finally disposed of by special legislation.

The Canadian National Railways Management's Action.

The arbitrators' reports given above were, on their receipt by the Labor Department at Ottawa, sent to D. B. Hanna, President, Canadian National Rys., who acknowledged them on Feb. 4. The C. N.R. directors considered them at their meeting on Feb. 10, and on Feb. 11, Mr. Hanna wrote the Labor Department respecting them as follows:—"Summarized these reports are:—"Unanimous report, reviewing the case in considerable detail, and recommending the reinstatement of the three men directly affected, on the ground that they were not fully informed as to the policy of the mangement in respect to political candidatures.

"Majority report, recommending the proposal made by the employes that an employe be given leave of absence to become a political candidate, with the sanction of the company's officials and the committee of his fellow employes, only in such cases where it can be shown that the service of the railway would not be embarrassed by his aspirations for political preferment.

"Minority report, sustaining the right of the railways to declare the policy in question and recommending that the matter be decided by Parliament, and if necessary finally disposed of by special legislation.

"The board of directors, at its meeting yesterday, gave careful consideration to these reports, and while not accepting any one of them, desires to point out that both the majority and minority reports find that the granting of leave of absence for political purposes is a question that rests with the management, the majority report stating 'the management may refuse leave of absence for proper cause if in its opinion it would be against the interest of the railroad,' and the minority report (referring to cases on other railways) states that 'it was shown in each case that it was by special arrangement, unsupported by any rule or schedule obligations on the part of the railway.'

"The board of directors has felt all along that it was quite within its rights in deciding to withhold leave of absence to enable employes to become candidates for election or to serve as members of Parliament. Its position is now supported by findings of fact by both the majority and minority reports. In view of the above the acceptance of the men's proposal would be merely agreement on the part of the management that cases might arise where the policy laid down could be departed from. This would be leaving open the very door it is desired to keep shut.

"The board of directors, with a desire to do justice to the individual employes affected, is prepared to reinstate in the service with wages for lost time the two employes, Messrs. Palmer and Moore, who were elected to the Manitoba Legislature, and Mr. Higgins, the employe from Leaside shops. It will require investigation to see just what actual loss has been sustained. The directors will also authorize the management to grant leave of absence, without pay, to the two first mentioned employes to attend their parliamentary duties during the life of the present Legislature. The management is prepared to take this step, in view of the contention made by the men that the individual employes concerned had acted in ignorance of the views of the management on this question, and that a semblance of official approval had been given to their political candidature by the fact that they had been granted leave of absence, with the knowledge of officers that they were to be candidates in the elections. The management, however, is only prepared to take this action upon the distinct understanding that the question of policy involved is not in any way affected. The management merely withdraws its retroactive effect in so far as these three men are concerned. That there may be no misunderstanding, let me again re-affirm our position that no employe can continue in the service and

accept nomination from any political party, Federal or provincial. This is the policy laid down by the directors in this matter, and our officers will be advised accordingly."

An Employes' Representative Heard From.

H. E. Barker, Winnipeg, telegraphed the Deputy Minister of Labor Feb. 12 as follows:—"Your wire date re C.N.R. dispute. Owing to fact that employes representatives scattered over such a wide territory, considerable delay experienced in ascertaining their attitude on findings of board of conciliation, but, as the unanimous finding on questions 1, 2 and 3 recommends reinstatement of the three men involved, without loss of seniority, and with pay for time lost by reason of their dismissal, and as the majority report recommends the acceptance of proposal made to board by the employes committee in connection with question 4, I will take responsibility for stating that the unanimous findings on questions 1, 2 and 3 and the majority finding on question 4 are acceptable to the employes. This has the approval of such representatives as I have been able to get in touch with. We will be glad to receive advice as soon as possible concerning attitude of C.N.R. management, so that arrangements can be made if necessary to get employes committee together for purpose of taking further definite action."

Sizes of Signaling Flags.—The Railway Association of Canada has issued the following circular:—Replies to the Association's letter of Dec. 18, 1920, being favorable to the adoption of bunting signalling flags 18 x 18 in. in size, it is recommended to member railways that flags of these dimensions be adopted as standard for use as combined white and green flags for flag stations, classification, marker, caution, and hand-stop signals. Flags for car inspectors are required to be 22 x 28 in. in size, under Board of Railway Commissioners' general order 258. The advisability of seeking amendment of this order to permit use of flags 10 x 14 in., is under consideration.

Coal vs. Oil for Locomotives.—At the International Railway Fuel Association's last annual meeting at Chicago, figures were presented relating to comparisons made on the Santa Fe System where one half of the locomotives have been constructed or converted to burn oil. It was stated that the life of a boiler fired with coal is about 10% greater than one fired with oil, and that the life of the tubes is about 40% higher in the coal burners.

Pacific Type Locomotives for Reid Newfoundland Co.

The Reid Newfoundland Co.'s main line extends from St. John's to Port aux Basques, 546 miles, and the various branches bring the company's total mileage up to 903. The gauge is 3½ ft. and most of the track is laid with 50 lb. rails. The character of much of the country is extremely hilly and the motive power used in passenger and freight service is designed to operate on grades of 2% and curves of 14 degrees. Much of the passenger traffic is handled by Baldwin engines of the 10-wheel (4-6-0) type, the most recent of which were built in 1917. The company has had built recently by the Baldwin Locomotive Works 6 Pacific (4-6-2) type locomotives, which are designed to meet the requirements of heavier traffic. Following is a brief comparison between the 10-wheels and the Pacifics:—

	Ten-wheel type.	Pacific type.
Cylinders	17 x 22 in.	17 x 24 in.
Valves	balanced slide	Piston, 8 in. diam.
Boiler type	straight top	Straight top Belpaire
Diameter	56 in.	56 in.
Working pressure	160 lbs.	170 lbs.
Firebox, length	89⅝ in.	66 3/16 in.

Pacific type (4-6-2) Locomotive, Reid Newfoundland Co.

Firebox, width	29 in. / 60⅛ in.
Tubes, diameter	2 in. / 5⅜ and 2 in.
Tubes, number	184 / 5⅜ in., 18; 2 in., 111
Tubes, length	12 ft. / 16 ft.
Heating surface, firebox	106 sq. ft. / 93 sq. ft.
Heating surface, tubes	1,148 sq. ft. / 1,358 sq. ft.
Heating surface, firebrick tubes	/ 12 sq. ft.
Heating surface, total	1,254 sq. ft. / 1,463 sq ft.
Heating surface, superheater	/ 343 sq. ft.
Grate area	18 sq. ft. / 27.6 sq. ft.
Driving wheels, diam.	50 in. / 52 in.
Driving journals, main	7 x 8 in. / 7½ x 8 in.
Driving journals, others	7 x 8 in. / 7 x 8 in.
Engine truck front, diameter	26 in. / 30 in.
Engine truck, back, diameter	/ 30 in.
Wheel base, driving	11 ft. 0 in. / 10 ft. 0 in.
Wheel base, total, engine	20 ft. 5 in. / 27 ft. 3 in.
Wheel base, total, engine and tender	47 ft. 9 in. / 50 ft. 8 in.
Weight, on driving wheels	72,700 lb. / 78,000 lb.
Weight, total, engine	92,100 lb. / 115,000 lb.
Weight, total, engine and tender	148,000 lb. / 199,000 lb.
Tender, tank capacity	2,800 U.S. gall. / 3,600 U.S. gall.
Tender, fuel capacity	5 tons / 9 tons
Tractive force	17,300 lb. / 19,250 lb.

The Pacific type locomotive boilers are of the straight top type, with Belpaire fireboxes, and are equipped with superheaters. The boilers are designed to carry a pressure of 200 lb., although the working pressure used in service is 170 lb. The machinery is designed for a boiler pressure of 190 lb., should it be found desirable subsequently to raise the pressure. Brick arches are installed and are supported on tubes. The front of the firebox crown is supported on two rows of expansion stays and the tubes are welded into the back tube sheet. The sylinders are 17 in. in diameter with a 24 in. stroke and the steam distribution is controlled by 8 in. piston valves, operated by Walschaert valve motion. The cylinders are fitted with cast iron bushings.

The frame have single front rails, with extra heavy bumpers designed to resist snow bucking. The equipment includes M.C.B. couplers, Westinghouse air brakes, electric headlights, air sanders and steam heat.

The extreme height of the locomotives is 12½ ft. and the width 9¼ ft. The tenders are of the 8-wheel type, having a capacity of 3,600 U.S. gall. of water and 9 tons of coal. The frames are made of steel channels, with steel plate bumpers. The trucks are of the arch-bar type, with cast steel bumpers and chilled cast iron wheels.

The Pacific type locomotives embody many features which make for economy and efficiency in operation, and which were lacking in the 10-wheelers. High pressure replaces low pressure, the wide firebox replaces the narrow, superheated steam replaces saturated steam, the brick arch is introduced, and piston valves replace the D slide valves. Being representative of the refinements which are recognized as indispensable in modern design, and which make for a degree of economy in operation otherwise unobtainable, it is considered desirable to specially point out these features as demonstrating what the Reid Newfoundland Co. is doing in the way of having its power up to date.

C.P.R. Toronto Freight Offices. — A press report stated recently that the C. P.R. had practically closed its Parkdale freight station and offices, and placed the same under the direction of Superintendent W. Coulter, with headquarters at the C.P.R. freight offices at King and Simcoe Streets. We are officially advised that the freight facilities at Parkdale have not been closed, and that, as far as the public is concerned, the business will be carried on there just the same as heretofore. A re-arrangement of the freight office work has been effected temporarily whereby some of the clerical positions have been abolished, and the work is being taken care of at the main office at King and Simcoe Streets. A similar arrangement has been put into effect at the West Toronto freight station.

Freight Rates Investigation. — The Board of Railway Commissioners will, it is said, commence at Vancouver, about April 1, the hearing of the case relating to the differentials in freight rates, as between the east and the west.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board fo Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 327. Feb. 2.—Authorizing changes in tariffs of express companies providing for increases of 35, 25 and 20% in tolls at present in effect.

General order 328. Feb. 12.—Rescinding general order 301 prohibiting exportation of coal from Atlantic, St. Lawrence River and Gulf ports of Canada, except to U.S. or to Newfoundland, unless otherwise permitted by Board; also general order 312, amending general order 301.

General order 329. Feb. 17.—Authorizing use of Hart type of wooden packing for frogs, wing rails, guard rails, and switches on railways.

General order 330. Feb. 16.—Ordering that railways put in force, by June 1, certain regulations regarding the inspection of railway steam boilers, other than locomotive boilers.

30,565. Jan. 17.—Approving location of Canadian Niagara Bridge Co.'s railway from Michigan Central Rd., 3.15 miles east of Welland, Ont., to International boundary, in Niagara River, opposite Grand Island, mile 0 to 8.833.

30,566. Jan. 18.—Amending order 29,995 re G.T.R. crossing in lots 120 and 121, St. Cecile Jct., Que., to provide that building and maintenance be done by G.T.R., Beauharnois municipality to reimburse company.

30,567. Jan. 18.—Amending order 29,954 (amended by order 30,162) re St. Lawrence & Adirondack Ry. crossings in Ste. Cecile, Que., by providing that construction and maintenance be done by company, Beauharnois municipality to reimburse company.

30,568. Jan. 18.—Ordering Canadian National Rys. forthwith to appoint caretaker at Chip Lake station, Alta.

30,569, 30,570. Jan. 17, 19.—Declaring that for present C.P.R. crossings 335 ft. south of Spencerville station, Ont., and at mile 59 Three Rivers Subdivision, Que., are protected to Board's satisfaction.

30,571. Jan. 19.—Dismissing application of Village of Belle River, Ont., for order directing G.T.R. to provide crossing where Church St. intersects company's lands.

30,572. Jan. 19.—Extending to July 1 time within which Canadian National Rys. may extend passing and elevator tracks at Craik, Sask.

30,573. Jan. 19.—Authorizing Lake Erie & Northern Ry. to build spur for Slingsby Mfg. Co., Brantford, Ont.

30,574. Jan. 19.—Authorizing City of Ottawa to build highway crossing over C.P.R. at Forest Ave., Ottawa.

30,575. Jan. 19.—Authorizing removal by G. T.R. of south siding serving Imperial Steel & Wire Co., Nottawasaga Tp., Ont.

30,576. Jan. 19.—Authorizing G.T.R. to build spur for A. J. McEwen, Maxville, Ont.

30,577. Jan. 22.—Ordering C.P.R. to put back switch point and frog to connect spur at mile 123 west of Port Arthur, Ont.

30,578. Jan. 15.—Amending order 30,476, re Ontario Public Highways Department's bridge over G.T.R. on Lot 13, Con. 1, East Flamboro Tp., by substituting plan 717, Dec. 23, 1920, for plan 713, Nov. 25, 1920.

30,579. Jan. 19.—Dismissing Hamilon Radial Electric Ry. application to build temporary deviation of its main line in Saltfleet Tp., Ont.

30,580. Jan. 21.—Ordering Canadian National Rys. to pay to Hy Grade Coal Co. $3,895.35 compensation on account of spur line for Newcastle Junior Mining Co., Drumheller, Alta.

30,581. Jan. 20.—Authorizing C.P.R. to build spur for Alberta Government Telephones, in Lot 8, Block E, Calgary, Alta.

30,582. Jan. 25.—Ordering that cost of building and maintaining crossing over Toronto, Hamilton & Buffalo Ry. on Emerson St., West Hamilton, Ont., be paid by Ancaster Tp., Ont.

30,583. Jan. 21.—Extending to May 31 time within which G.T.R. may build spur for Crane Limited, Toronto.

30,584. Jan. 24.—Authorizing Esquesing Tp., Ont., to extend Cameron St. over Toronto Suburban Ry.

30,585. Jan. 25.—Dismissing application by Slocan, B.C., District Board of Trade, for re-establishment by C.P.R. of daily lake service on the Slocan, Nelson and Nakusp routes.

30,586. Jan. 25.—Authorizing Hamilton St. Ry. to use bridge over Toronto, Hamilton & Buffalo Ry. and C.P.R. on King St., Hamilton, Ont.

30,587. Jan. 26.—Authorizing the Public Highways Department of Ontario to cross G.T.R. with overhead bridge, in Lot 13, Con. 1, Flamboro East Tp.

30,588. Jan. 26.—Authorizing C.P.R. to build spur, and subspur therefrom, for Blairmore Coal Co., Blairmore, Alta.

30,589. Jan. 26.—Authorizing C.P.R. to build spur for Harris Abattoir Co., Toronto.

30,590. Jan. 26.—Ordering C.P.R. to build farm crossing for L. Provencher, Magog, Que.

30,591. Jan. 26.—Ordering Canadian National Rys. to stop trains 5 and 6 on flag, at Cbaffeys Locks, Ont.

30,592. Jan. 27.—Approving Toronto Suburban Ry. standard mileage tariff C.R.C. 4, effective Feb. 6.

30,593. Jan. 26.—Declaring that for present, G.T.R. crossing of Hartzell Road, one mile northwest of Merritton, Ont., is protected to Board's satisfaction.

30,594. Jan. 26.—Approving agreement between Bell Telephone Co. and Fenella Rural Telephone Co., Northumberland County, Ont., and rescinding order 11,973, Oct. 15, 1910.

30,595, 30,596.. Jan. 26.—Authorizing Canadian National Rys. to make highway crossings at Railway Ave. and Third St. North, Pollockville, Alta.

30,597. Jan. 27.—Ordering Canadian National Rys. to build standard cattle pass 5 ft. wide and 6 ft. high for M. L. Leglet, Rosebud Creek, Alta.

30,598. Jan. 26.—Approving agreement between Bell Telephone Co. and Peoples Telephone Co. of Forest, Ltd., Lambton County, Ont., and rescinding order 24,622.

30,599. Jan. 29.—Authorizing G.T.R. to build spur for Machinery & Foundries, Ltd., Brockville, Ont.

30,600. Jan. 29.—Authorizing Canadian National Rys. to build across and divert highway in n.w. ¼ Sec. 26, Tp. 11, Range 27, west 2nd meridian, Sask.

30,601. Jan. 26.—Ordering Canadian National Rys. to build siding at mile 193, Drumheller Subdivision, Alta., for farmers and other residents of Rosebud Creek, Alta.

30,602. Jan. 28.—Ordering C.P.R. to install automatic bell and wigwag at crossing of Dundas St. in Etobicoke Tp., at mile 7.7 Galt Subdivision, by May 31.

30,603. Jan. 27.—Authorizing Canadian National Rys. to close station at Washago, Ont.

30,604. Jan. 29.—Declaring that for present, G.T.R. crossing near St. Jacobs, Ont., is protected to Board's satisfaction.

30,605. Dismissing complaint of Silver Standard Mining Co., New Hazelton, B.C., that having received from Grand Trunk Pacific Ry. a refund of excess charges on 5 carloads of zinc concentrates shipped from New Hazelton to Sands Springs, Okla., on bills of lading showing value of $50 a ton, it has been unable to obtain similar refund on remaining 4 carloads shipped between same dates, because it omitted the limitation value on the bills of lading therefor.

30,606. Jan. 31.—Declaring that for the present Toronto, Hamilton & Buffalo Ry. crossing 1.48 miles east of Summit station, Ont., is protected to Board's satisfaction.

30,607. Jan. 31.—Declaring that for the present Canadian National Rys. crossing, south of Kelwood, Man., is protected to Board's satisfaction.

30,608. Feb. 1.—Authorizing Grand River Ry. to open for traffic portion of its west or southbound track between Kerr St. and where it rejoins the line near junction of Macadamized Road and Hespeler Road at west city limit, 1.5 miles, and to operate over track connecting its main line with C.P.R. siding near Bond St., Galt, Ont.

30,609. Jan. 27.—Authorizing Canadian National Rys. to cross and divert highway in n.w. ¼ Sec. 9, Tp. 11, Range 26, west 2nd meridian, Sask.

30,610. Feb. 1.—Declaring that for the present C.P.R. crossing 2.3 miles east of Winnipeg, mile 63.93, Lac du Bonnet Subdivision, is protected to Board's satisfaction.

30,611. Feb. 1.—Approving location of Canadian National Rys. station at Duagh, Alta.

30,612. Feb. 1.—Rescinding order 29,800, June 25, 1920, authorizing C.P.R. to divert road allowance across its tracks at mile 36.8 Wynyard Subdivision, Sask.

30,613. Feb. 1.—Approving agreement between Bell Telephone Co. and Aldborough Farmers Telephone Association, Elgin and Middlesex Counties, Ont.

30,614. Feb. 1.—Authorizing C.P.R. to cross at grade new road in s.w. ¼ Sec. 11, Tp. 39, Range 18, west 3rd meridian, Sask.

30,615 to 30,618. Feb. 1.—Approving Bell Telephone Co.'s agreements with Tilbury East Tp., Ont., and rescinding order 26,946; Melancthon Telephone Co., Dufferin County, Ont.; Hawley Telephone Co., Lennox and Addington Counties, Ont., and rescinding order 25,087; and Camperdown Telephone Co., Grey County, Ont.

30,619. Feb. 2.—Authorizing Dominion Atlantic Ry. to file tariff providing for unloading charges at Halifax, N.S., on export freight traffic, of 1½c. per 100 lb. on perishable freight and 3c. per 100 lb. on other freight, effective on one day notice, but not before Feb. 4.

30,620. Feb. 2.—Authorizing Canadian Northern Western Ry. to build spur for Harlech Coal Co., in Tp. 41, Range 14, west 5th meridian, Alta.

30,621. Feb. 1.—Recommending to Governor in Council for sanction agreement between Quebec, Montreal & Southern Ry. and Napierville Jct. Ry. by which certain Q.M. & S.R. lands and property were sold to N.J.R.

30,622. Feb. 2.—Authorizing Kettle Valley Ry. to build two spurs for Nicola Pine Mills, near Merritt, B.C.

30,623. Feb. 2.—Ordering C.P.R. to appoint station agent at Nevis, Alta., by Feb. 15.

30,624. Feb. 3.—Declaring that for present G. T.R. crossing near St. Jacobs, Ont., is protected to Board's satisfaction.

30,625. Feb. 3.—Authorizing C.P.R. to build spur for Pembroke Shook Mills, Pembroke, Ont.

30,626. Feb. 8.—Approving Express Classification for Canada no. 5, C.R.C. no. E.T. 712, effective Feb. 9.

30,267. Feb. 9.—Authorizing Toronto, Hamilton & Buffalo Ry. and G.T.R. to build joint spur for Grasselli Chemical Co., Hamilton, Ont.

30,628. Feb. 9.—Declaring that for the present C.P.R. crossing east of Verner station, Ont., is protected to Board's satisfaction.

30,629. Feb. 8.—Rescinding order 30,577 directing C.P.R. to connect to its main line, existing spur at mile 123 west of Port Arthur, Ont.

30,630. Feb. 9.—Ordering that speed of trains over crossings of Government, Ross and Griesbach Sts., Fort Saskatchewan, Alta., shall not exceed 6 miles an hour; and at crossings of Timm, Lang, Burleigh and Emma Sts., 10 miles an hour.

30,631. Feb. 9.—Ordering Canadian National Rys. to erect before Nov. 1 a third class station building at Sandy Lake, Man.

30,632. Feb. 10.—Declaring that for the present G.T.R. crossing near Ella, Ont., is protected to Board's satisfaction.

30,633. Feb. 9.—Authorizing C.P.R. to build interlocking plant at bridge 1.9 Prescott Subdivision, over Rideau Canal, Ottawa.

30,634. Feb. 9.—Approving C.P.R. plan no. X-2-361-2, Jan. 24, showing change in aspect of distant signals at bridge 58.42, at the Narrows, near Atherley Jct., Ont.

30,635. Feb. 2.—Declaring that for the present C.P.R. crossing near Thurlow, Ont., is protected to Board's satisfaction.

30,636. Feb. 4.—Authorizing C.P.R. to build spur for Northern Aluminum Co., Toronto.

30,637. Feb. 4.—Exending to May 31 time within which C.P.R. may install electric alarm bell and wigwag signal at crossing of highway near east switch at Darlington, Ont.

30,638 to 30,640. Feb. 2.—Authorizing Bell Telephone Co.'s agreements with Cramahe Tp., Ont., and rescinding order 25,163; Sebringville Telephone Co., Perth County, Ont., and Piopolis Telephone Co., Frontenac County, Que.

30,641. Feb. 2.—Declaring that for the present Canadian National Rys. crossing east of Barwick station, Ont., is protected to the Board's satisfaction.

30,642, 30,643. Feb. 2.—Approving Bell Telephone agreements with Garthby Local Telephone, Wolfe County, Que., and Kemble-Sarawak Telephone Co., Grey County, Ont., and rescinding order 24,948.

30,644. Feb. 3.—Ordering Canadian National Rys. to compensate Petrie Mfg. Co. for the use of its portion of spur no. 8, Winnipeg.

30,645. Feb. 8.—Authorizing Canadian National Rys. to cross and divert second class road, at mile 21, Okanagan Branch, in s.e. ¼ Sec. 24, Tp. 19, Range 15, west 6th meridian, B.C.

30,646. Feb. 8.—Authorizing G.T.R. to build spur for F. S. Chew, Sturgeon Bay, Ont.

30,647. Feb. 8.—Authorizing G.T.R. to rebuild bridge at mile 116.65, District 20, London Division, carrying its tracks over John St., Stratford, Ont.

30,648. Feb. 9.—Ordering that so long as the character of movements over crossing continues, C.P.R. and Ottawa & New York Ry. are relieved from maintaining signalman on Sundays at crossing at Finch, Ont.

30,649. Feb. 8.—Declaring that for the present Canadian National Rys. crossing, 1½ miles east of Hillier, Ont., is protected to Board's satisfaction.

30,650. Feb. 8.—Authorizing C.P.R. to build extension to passing siding at grade across Cecelia St. and roadway in Lot 29, Con. 2, Pembroke Tp., Ont.

30,651. Feb. 10.—Authorizing Saskatchewan Highways Department to build a crossing over Canadian National Rys. in Sec. 2, Tp. 41, Range 1, west 3rd meridian.

30,652. Feb. 10.—Authorizing Toronto, Hamilton & Buffalo Ry. to install interlocking signals at crossing of G.T.R. south of Burling St. and west of Birmingham St., Hamilton, Ont.

30,653. Feb. 9.—Authorizing Saskatchewan Highways Department to make highway over Grand Trunk Pacific Ry. in Sec. 16, Tp. 33, Range 27, west 2nd meridian.

30,654. Feb. 11.—Exempting Rutland Rd. from complying with general order 293, requiring that all locomotives be equipped with seat for brakemen.

30,655. Feb. 11.—Authorizing Canadian National Rys. to rebuild bridge 6.0 over Cauchon Creek, North Bay Subdivision, Ont.

30,656. Feb. 11.—Authorizing G.T.R. to build spurs for Waterville Veneer & Panel Co., Waterville, Que.

30,657. Feb. 14.—Authorizing Grand River Ry. to open for traffic revised portion of its line from King St., Waterloo Tp., south of Kitchener, Ont., 1.76 miles; speed of trains not to exceed 20 miles an hour.

30,658. Feb. 14.—Approving agreement between Bell Telephone Co. and South Bruce Telephone

Co., Bruce County, Ont., and rescinding orders 12,794 and 24,129.

30,659. Feb. 10.—Approving change in aspect of C.P.R. distant signals at Batiscan bridge, mile 102.5, Three Rivers Subdivision, Que.

30,660. Feb. 11.—Approving agreement between Bell Telephone Co. and Princeton & Drumbo Telephone Co., Oxford and Brant Counties, Ont.

30,661. Feb. 14.—Authorizing Grand River Ry. to open for traffic new second track from Preston to Hagyes, Ont., 1.3 miles.

30,662. Feb. 14.—Approving revised location of Canadian Northern Pacific Ry. Lumby Branch, mile 10 to 11.1, through Lots 23, 24 and 88, Secs. 20 and 21, Range O.Y.Y.D., B.C.

30,663. Feb. 15.—Authorizing G.T.R. to use bridge carrying Henry St. over G.T.R., Whitby, Ont.

30,664. Authorizing G.T.R. to build spur for Ontario Cement Co., on Lot 23, Con. 1, North Oxford Tp., Ont.

30,665. Feb. 15.—Authorizing Saskatchewan Highways Department to build highway crossing over C.P.R. in n.w. ¼ Sec. 11, Tp. 41, Range 25, west 3rd meridian, Sask.

30,666. Feb. 14.—Approving location and details of C.P.R. station at Dill Pit, Sudbury Division, Ont.

30,667. Feb. 15.—Extending for 30 days time within which agreement may be entered into between Vancouver Harbor Commissioners, Great Northern Ry. and C.P.R. for occupation of lands and building at tracks in Vancouver, B.C., as required under order 30,430.

30,668. Feb. 16.—Authorizing C.P.R. to build spur for Standard Paint Co. of Canada, LaSalle, Que.

30,669. Feb. 17.—Authorizing Canadian Northern Quebec Ry. to build Y at mile 44.61, Montfort Subdivision, Arundel Parish, Que.

30,670. Feb. 18.—Approving Supplement 15 to Canadian Freight Classification 16, showing revised and increased ratings on liquors, except native Ontario wines, and eliminating clause respecting owner's risk of breakage; and dismissing protests.

30,671. Feb. 17.—Extending to July 1, time within which G.T.R. may build spur for Windsor Petroleum & Refining Co., Tecumseh, Ont.

30,672. Feb. 16.—Authorizing G.T.R. to build branch from south of Francis St., across Francis St., on its line north of Francis St., London, Ont.

30,673. Feb. 10.—Declaring that G.T.R. crossing at Erie St., Stratford, Ont., is protected to Board's satisfaction.

30,674. Feb. 17.—Ordering Canadian National Rys. to clean out and lower ditch on west side of Letellier, Man., instal 12 in. corrugated pipe at 2 points, as well as a plank bridge; and install a 24 in. corrugated pipe under tracks at north end of station grounds.

30,675. Feb. 16.—Declaring that G.T.R. crossing over Stone Road, east of Niagara, St. Catharines & Toronto Ry. crossing, Niagara Falls, Ont., is protected to Board's satisfaction.

30,676. Feb. 16.—Declaring that Canadian National Rys. crossing west of west switch, Martinville, Man., is protected to Board's satisfaction.

30,677. Feb. 17.—Ordering that gates installed and operated between 6.30 a.m. and 6.30 p.m., daily at G.T.R. Lottridge St. crossing, Hamilton, Ont., be now operated for the full 24 hours; watchmen to be appointed by G.T.R., City of Hamilton to pay half the cost to G.T.R. monthly.

30,678. Feb. 17.—Ordering C.P.R. to rearrange station building at Papineauville, Que.

30,679. Feb. 14.—Declaring that C.P.R. crossing at east end of yard, Coleman, Alta., is protected to Board's satisfaction.

30,680. Feb. 17.—Authorizing G.T.R. to build spur for Ontario Public Highways Department on Lot 75, Con. 1, Whitchurch Tp., Ont.

30,681. Feb. 18.—Extending to July 1, time within which C.P.R. may build spur for Western School Supply Co., Regina, Sask., under order 30,288.

30,682. Feb. 18.—Approving plans showing location and details of Great Northern Ry. station buildings at Crescent, B.C.

30,683. Feb. 18.—Approving location of Canadian National Rys. 3rd class station building at Lake Lenore, Sask.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Burrard Inlet Tunnel & Bridge Co.—The North Vancouver Board of Trade is reported to have passed a resolution asking the company to have prepared plans and estimates of the cost of a bridge across the Second Narrows of Burrard Inlet, Vancouver, as a basis for negotiations with the Dominion and British Columbia Governments for the erection of the bridge. It is desired that the plans provide for a double track railway on the level of the C.P.R., and an upper deck for general traffic purposes. (July, 1919, pg. 381.)

Esquimalt & Nanaimo Ry. — H. E. Beasley, General Superintendent, is reported to have stated that during 1920, $90,000 was expended in filling two big trestles on the Alberni line, and $55,000 in filling four trestles on other parts of the line; eight miles of light track between Victoria and Wellington were relaid with 80 lb. rails; a new station was built at Nanaimo at a cost of $30,000, and additional facilities at the wharf there had cost $20,000. The 10 mile extension to the Great Central Lake was completely graded, and the concrete footings for the bridge across the Stamp River are ready for the steel work. A number of commercial sidings and spurs were put in during the year at various points.

With regard to work for this year, Mr. Beasley is also reported to have said while estimates of the cost of work proposed to be done had not been approved, the work would probably include the laying of track on the 10 mile extension to Great Central Lake, and a good deal of filling of temporary trestle work on the whole line. A number of other betterments would probably be put in hand, but no plans for the further expansion of the line were under consideration. The revival of the lumber industry might make it desirable, however, that some expansion might be considered late on in the year.

Piles are reported to have been delivered at the site of the Johnson St. bridge, Victoria. The Dominion Government has started some blasting work near the site of the bridge, and will do some dredging nearby, but the City Engineer expects to be able to proceed with the concrete work for the bridge at the beginning of March. (Feb., pg. 82.)

Flinflon Mining District. — The construction of a railway into the district in which the Flinflon mine is situated is one of the questions before the Manitoba Legislature this session. The proposed railway would not only give access to the Flinflon mine, which, it is claimed, has been proved to be rich in copper, gold and silver, but would pass through a district believed to be rich in minerals. Authority for the making of a survey has been given by the Legislature, and $15,000 has been appropriated therefor. As previously stated in Canadian Railway and Marine World, a survey is now being made by Canadian National Rys. engineers, and the line if built will be operated by the C.N.R.

The Flinflon mine is 68 miles from Pas by airline, and a railway by the most feasible route would be approximately 85 miles long, and would, it is said, involve a construction expenditure of about $2,500,000. A trial line is now being run from mile 7 on the Hudson Bay Ry., the route following a gravel ridge to Lake Athapapuskow, and then running through a greensand belt, in which discoveries of minerals have been made. We are officially advised, in connection with the survey now being made, that there will be a deviation in the northern part of the route from that mentioned in Canadian Railway and Marine World for February.

A report on the mining prospects of the area is said to have been prepared by R. C. Wallace, Commissioner for Northern Manitoba, for presentation to the Legislature in connection with the discussion on the building of the railway. Feb., pg. 82.)

Fort Fraser to Ocean Falls, B.C.—A press report states that the Ocean Falls Pulp & Paper Co. proposes to start construction, at an early date, of a railway from the pulp mills at Ocean Falls, to a junction with the Grand Trunk Pacific Ry. at Fort Fraser, B.C.

Fort Smith Ry. Co.—Griesbach, O'Connor & O'Connor, and Griesbach, Cameron & Ogilvie, solicitors, Edmonton, Alta., gave notice recently that application would be made to the Dominion Parliament to incorporate a company with this title to build a railway and pipe line from Smiths Landing, on Slave River, Alta., to Fort Smith, also on Slave River. We are advised that the project has been abandoned.

Hudson's Bay Co.—An Edmonton press report states that the H.B. Co. is looking into the question of building a light railway across the portage between Smith Landing (Fort Fitzgerald) and Fort Smith, both on Slave River, Alta., and that A. Brabant, the company's Fur Commissioner, has stated that while no construction will be done this year, preliminary arrangements are being made and that work will be started next year.

Kettle Valley Ry.—A press report states that Grant Hall, Vice President, C.P.R., on a recent visit to Victoria, discussed with the British Columbia Government matters in connection with the projected line along the Okanagan valley from Penticton to the International Boundary. This is the line upon which a short section from Penticton to the north end of Dog Lake was graded during 1920.

The Dominion Parliament is being asked to increase the company's bonding powers for the branch line from Summer Creek or One Mile Creek to the Copper Mountain and Mount Voight mining claims, 15 miles southwest of Princeton, B.C. (Jan., pg. 16.)

The Magdalen River Ry. Co. is applying to the Quebec Legislature to strike out of its charter the following paragraph added to sec. 16 in 1908: "Provided that such company shall not construct any siding or branch line within the limits of the River Magdalen Seigniory upon land now owned by Frank Ross." The line authorized to be built was to start from the Roman Catholic Church in Magdalen River Seigniory, through certain specified lots and wild lands owned by Frank Ross, to the Little Falls, and then east of the Magdalen River to a junction with the proposed inland section of the Atlantic, Quebec & Western Ry. (Mar., 1919, ug. 135.)

Mayo Valley Ry. Ltd.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from the junction of the Mayo and Stewart Riverts, Yukon Territory, northerly, following the valley of the Mayo River to its junction with Duncan Creek, thence along Duncan Creek valley to its junction with Lightning Creek, thence via Lightning Creek and Crystal Creek valleys to the McQuesten River, thence to connect with and include McQuesten, Ladue and Beaver River valleys. An alternative route suggested is from Gordon's Landing on Stewart River via Janet Lake to the junction of the Mayo River and Duncan Creek, with authority to build and operate a branch line.

The Montreal Central Terminal Co. is

applying to the Dominion Parliament for an extension of time for the construction of its projected tunnel and bridge, to connect Montreal with the south shore, the connecting railways, and the railway terminals in Montreal. (June, 1920, pg. 297.)

Pacific Great Eastern Ry.—The British Columbia Railways Department's annual report was laid before the Legislature Feb. 8. A press summary of it says it deals with the question of alternative routes for the extension of this line from the present projected terminus at Prince George, northerly and easterly to the British Columbia-Alberta boundary, that the estimated length of the line from Prince George to Swan Lake, via the Pine River, is 316 miles, and the estimated cost is $18,000,000. An alternative route of 426 miles would be as follows: Vanderhoof to Hudsons Hope, 296 miles; Hudsons Hope to Pine River, 48 miles; Pine River to Swan Lake, 82 miles. (Feb., pg. 83.)

Port Canada Docks Ry. Co.—The New Brunswick Legislature is being asked to extend, for three years, the time within which this company may build the railway authorized by the statutes of 1915, chap. 73, as amended by the statutes of 1918, chap. 92. The Canadian Terminal Ry. Co. was incorporated in 1907 to build a railway from L'Etang Harbor to St. Croix, N.B.; in 1915 its title was changed to Port Canada Docks Ry. Co., and in 1918 an extension of time for construction was granted. (July 1918, pg. 285.)

Quebec Central Ry. Co.—The Dominion Parliament is being asked to extend the time within which the following branch lines may be completed:—From Scotts station, Beauce County, Que., to the southern extremity of the Quebec Bridge and thence eastward along the south bank of the St. Lawrence River for 5 miles; from near Leeds station, through Thetford, Broughton, Leeds and the Counties of Lotbiniere and Levis, to a connection with the first mentioned line at St. Lambert, Levis County, 35 miles. The company is also applying for increased bonding powers in respect to these two lines. (Jan., pg. 16.)

Timiskaming & Northern Ontario Ry. In connection with the suggestion that the present divisional point to Englehart be abandoned, and a new one established at Liskeard, we are officially advised that the commissioners do not propose to take any action at present, but that it will be considered later on, when the question of the electrification of the line may come up. (Feb., pg. 83.)

Western Dominion Ry. Co.—The Dominion Parliament is being asked to extend the time within which he company may commence and complete its projected line from the International Boundary in Range, 23, west 4th Meridian, via Cardston and Pincher Creek to Lundbreck, on the C.P.R. Crowsnest line, thence to Calgary and Edmonton, Alta., and Fort St. John, B.C., with branch lines into the Southern Alberta coal fields. The company was granted a two years extension in 1919. (July 1919, pg. 382.)

Railway Lands Patented.—Letters patent were issued during January in respect of Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	2,558.46
Canadian Northern Western Ry.	18.90
Canadian Pacific Ry.	18,124
Grand Trunk Pacific Branch Lines Co.	.92
Kettle Valley Ry.	344.753
Total	2,941.157

Railway Rolling Stock Orders and Deliveries.

The C.P.R. has built recently at Angus shops, Montreal, five machinery flat cars, 41 ft. 8 in. long, with a limit load capacity of 165,800 lb.

The Lake Superior Paper Co. has received one 6-wheel switching locomotive, with cylinders 19 x 24 in., from Montreal Locomotive Works.

The C.P.R., between Jan. 14 and Feb. 10, received 10 steel dining cars, 162 refrigerator cars, and 5 machinery flat cars, 80 tons capacity, from its Angus shops, Montreal, and 568 steel hopper bottom box cars, 60 tons capacity, from Canadian Car & Foundry Co., Fort William, Ont.

The G.T.R., between Jan. 13 and Feb. 13, received 15 express refrigerator cars from Canadian Car & Foundry Co., 104 automobile cars, 80,000 lb. capacity, from American Car & Foundry Co., St. Louis, Mo., and 553 automobile cars, 80,000 lb. capacity, from American Car & Foundry Co., Madison, Ill.

The Canadian Car & Foundry Co., between Dec. 15, 1920 and Jan. 24, delivered the following rolling stock:—38 sleeping car frames, 591 box cars, 50 tons capacity, to C.P.R.; 198 refrigerator cars to Canadian National Rys.; 12 express refrigerator cars to G.T.R. and 159 bogies for Union of South Africa Railways. The sleeping car frames and express refrigerator cars were delivered from the Montreal plant, and the bogies, refrigerator cars and box cars from the Amherst, N.S., and Fort William, Ont., plants, respectively.

The Canadian National Rys., between Jan. 12 and Feb. 5, received the following additions to rolling stock:—6 Mikado (2-8-2) locomotives, out of an order of 15, from Canadian Locomotive Co., leaving 4 still to be delivered; 1,240 box cars, out of an order for 1,500, from National Steel Car Corporation, leaving 36 still to be delivered; 39 refrigerator cars, completing an order for 600, 135 stock cars, out of an order for 350, from Canadian Car & Foundry Co.; 86 box cars, completing an order for 500, from Eastern Car Co.

A London, Eng., paper stated recently that Canadian financiers had made a contract some time ago with the Roumanian Government for the supply of locomotives, and had these made in Germany at a price three times what the Roumanian Government could themselves have bought them in Germany. This contract, it was stated, was carried out under the terms of the credit guarantee, for the Roumanian Government by the Dominion of Canada after the signing of the armistice. The Minister of Finance has stated that the credit authorized by the Dominion Government to Roumania at the time of the armistice was for $25,000,000, and that under this credit no locomotives of any kind had been delivered.

Trotzky, a Former C.P.R. Employe.—In speaking at a recent Canadian Club dinner in New York, Hon. N. W. Rowell, M.P. for Durham, Ont., said:—"E. W. Beatty is the only young man of prominence Lord Shaughnessy has produced. Our guest may not be so proud of it, but when Trotzky lived in New York he also worked for the C.P.R. here." Lord Shaughnessy added:—"True, and we still owe him $40."

Railway Finance, Meetings, Etc.

The Canadian Pacific Ry. Co. is applying to the Dominion Parliament for authority to issue bonds, debentures or other securities collateral to, or in lieu of, its consolidated debenture stock.

The directors on Feb. 14 declared a dividend of 2% on preference stock for the half year ended Dec. 31, 1920; and 2½% on the common stock for the quarter ended Dec. 31, 1920, the latter being at the rate of 7% per annum from revenue and 3% per annum from special revenue account.

Central Ry. of Canada Fiasco.—The affairs of the unfortunate Central Ry. Co. of Canada figured in the Exchequer Court at Ottawa, Feb. 17, when C. N. Armstrong, of Montreal, appealed against the decision of the referee in the liquidation proceedings disallowing prior consideration for his claim of $109,941. Armstrong was appointed Manager of the railway when the company was being formed at $10,000 a year for 10 years, and his claim includes salary and other things. The referee refused to give prior consideration to the claim, and the Exchequer Court dismissed the appeal with costs, holding that a company would not be justified in paying a manager of a railway which does not operate and therefore has no revenue.

New York Central Rd.—There has been deposited with the Secretary of State at Ottawa an executed amendment (dated Aug. 12, 1920) to a lease dated June 15, 1917, between the Guaranty Trust Co. of New York, a trustee, and New York Central Rd. Co., being an amendment to second lease under the New York Central Rd. Equipment Trust of 1917.

The Thousand Islands Ry. Co. is applying to the Dominion Parliament for authority to change the date of its annual meeting of shareholders as fixed by its special act to such date as may be determined in a bylaw to be passed by the directors, and for other purposes. The company is controlled by the G.T.R. Co.

Timiskaming & Northern Ontario Ry. The Treasurer of Ontario is reported, in making a financial statement in the Legislature recently, to have said that during 1920 $100,000 had been received from T. & N.O.R. earnings, and that it was expected $500,000 would be received from that source during 1921.

Highest Railway Stations in the Provinces.

The highest railway stations in the several provinces, etc., with their elevations in feet above sea level, are stated by the Conservation Commission to be as follows:—

Mountain Park, Alta., G.T.P.R.	5,820
Stephen, B.C., C.P.R.	5,332
Senate, Sask., C.P.R.	3,171
Robinson, Yukon, W.P. & Y.R.	2,499
Erickson, Man., C.N.R.	2,053
Boundary, Que., C.P.R.	1,850
Dundalk, Ont., C.P.R.	1,705
Adams, N.B., I.R.C.	1,204
Folleigh, N.S., I.R.C.	612
North Wiltshire, P.E.I., P.E.I.R.	311

Canadian National Rys., a press report states, owing to the necessity of reducing operating expenses and because of decreased traffic, arranged recently for the reduction of the number of passenger trains being run on branch lines in Manitoba, Saskatchewan and Alberta. The new time schedules became operative Feb. 20.

Birthdays of Transportation Men in March.

Many happy returns of the day to:—

W. G. Annable, General Passenger Agent, Canadian Pacific Ocean Services, Ltd., Montreal, born at Ottawa, Mar. 3, 1875.

John Archibald, Locomotive Foreman, C.P.R., Coquitlam, B.C., born at Edinburgh, Scotland, Mar. 13, 1872.

G. M. Baillie, Assistant Superintendent, London Division, Ontario District, C.P.R., Windsor, Ont., born at West St. John, N.B., Mar. 31, 1879.

A. B. Buckworth, General Manager, Pacific Great Eastern Ry., Vancouver, B. C., born at Birmingham, Eng., Mar. 2, 1876.

Allan Cameron, Superintendent, Land Branch, Department of Natural Resources, C.P.R., Calgary, Alta., born near Owen Sound, Ont., Mar. 14, 1864.

H. S. Carmichael, ex Passenger and Freight Manager, Canadian Pacific Ocean Services, Ltd., London, Eng., born at Glasgow, Scotland, Mar. 7, 1874.

F. G. J. Comeau, District Freight Agent, C.P.R., Halifax, N.S., born at Meteghan River, N.S., Mar. 10, 1859.

W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Montreal, born there, Mar. 22, 1871.

A. E. Cox, General Storekeeper, Western Lines, Canadian National Rys., Winnipeg, born at Huddersfield, Eng., Mar. 12, 1863.

Senator N. Curry, Chairman, Canadian Car & Foundry Co., Montreal, born in King's County, N.S., Mar. 26, 1851.

C. C. Curtis, Manager, Cape Breton Electric Co., Sydney, N.S., born at Battle Creek, Mich., Mar. 27, 1883.

H. G. Dring, European Passenger Manager, Canadian Pacific Ry., London, Eng., born at Easton, Northamptonshire, Eng., Mar. 8, 1881.

Patrick Dubee, Secretary - Treasurer, Montreal Tramways Co., Montreal, born there, Mar. 4, 1876.

M. P. Fennell, Jr., Secretary-Treasurer and Comptroller, Montreal Harbor Commissioners, and Secretary, American Association of Port Authorities, Montreal, born there, Mar. 13, 1885.

W. R. Fitzmaurice, Superintendent, New Glasgow Division, Maritime District, Canadian National Rys., New Glasgow, N.S., born at Bedford, N.S., Mar. 19, 1870.

H. C. Grout, General Superintendent, Ontario District, C.P.R., Toronto, born at Wausau, Wis., Mar. 14, 1881.

J. Halstead, Division Freight Agent, C.P.R., Winnipeg, born at Bracebridge, Ont., Mar. 2, 1877.

R. M. Hannaford, Assistant Chief Engineer, Montreal Tramways Co., Montreal, born there, Mar. 22, 1865.

C. A. Hayes, Vice President, Traffic, Canadian National Rys., Toronto, born at West Springfield, Mass., Mar. 10, 1865.

H. T. Hazen, acting Chief Engineer, Eastern Lines, Canadian Northern Ry. System, Toronto, born at Truro, N.S., May 14, 1870.

J. I. Hobson, Treasurer, Canada Steamship Lines, Montreal, born at Guelph, Ont., Mar. 30, 1872.

N. J. Holden, President, The Holden Co., Montreal, born at Nobleton, Ont., Mar. 22, 1866.

A. R. Holtby, Master of Bridges and Buildings, Mountain Division, Grand Trunk Pacific Ry., Smithers, B.C., born at Rawdon, Que., Mar. 23, 1859.

Frank Lee, Engineer, Maintenance of Way, Western Lines, C.P.R., Winnipeg, born at Chicago, Ill., Mar. 7, 1873.

J. M. McKay, Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, born at Tiverton, Ont., Mar. 13, 1868.

J. B. McLaren, General Auditor, G.T. R., Montreal, born at Perth, Ont., Mar. 5, 1878.

M. Magiff, Superintendent of Car Service and Telegraphs, Central Vermont Ry., St. Albans, Vt., born at Planks Point, N.Y., Mar. 24, 1852.

H. H. Melanson, Passenger Traffic Manager, Canadian National - Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Toronto, born at Scadouc, N.B., Mar. 9, 1872.

W. T. Moodie, Superintendent, Division 3, Central District, Canadian National Rys., Port Arthur, Ont., born at Glasgow, Scotland, Mar. 10, 1882.

L. F. Muncey, Superintendent, Canadian National Rys., Kamloops, B.C., born at Kensington, P.E.I., Mar. 15, 1876.

Peter Paton, ex Purchasing Agent, Canada Steamship Lines, Ltd., Montreal, now President, Mackenzie, Milne & Co., Ltd., Sarnia, Ont., born at New Lovell, Ont., Mar. 13, 1868.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., Vancouver, born at St. John, N.B., Mar. 25, 1860.

J. W. Pugsley, Secretary, Department of Railways and Canals, Ottawa, Ont., born at Amherst, N.S., Mar. 12, 1861.

L. G. Roblin, Master Mechanic, Prairie District, Canadian National Rys., Saskatoon, Sask., born in Prince Edward Island, Mar. 24, 1864.

C. J. Smith, Manager and Secretary, Montreal Warehousing Co., Montreal, born at Hamilton, Ont., Mar. 10, 1862.

G. L. Snelling, Secretary - Treasurer, Ottawa Electric Ry., Ottawa, Ont., born there, Mar. 2, 1880.

W. Y. Soper, Vice President, Ottawa Electric Ry. Co., Ottawa, Ont., born at Oldtown, Me., Mar. 9, 1854.

E. F. L. Sturdee, General Agent, Passenger Department, C.P.R., Seattle, Wash., born at St. John, N.B., Mar. 29, 1876.

G. W. Vaux, General Agent, Passenger Department, Union Pacific Rd., Toronto, born at Montreal, Mar. 21, 1866.

A. Watt, Assistant Master Mechanic, Canadian National-Grand Trunk Pacific Rys., Smithers, B.C., born at St. Louis, Que., Mar. 5, 1874.

A. T. Weldon, Assistant Freight Traffic Manager, Eastern Lines, Canadian National Rys., Montreal, born at Dorchester, N.B., Mar. 6, 1876.

D. O. Wood, General Foreign Freight Agent, Canadian National-Grand Trunk Rys., Montreal, born at Kleinburg, Ont., Mar. 16, 1864.

Grain Inspected at Western Points.

The following figures, compiled by the Dominion Bureau of Statistics, Internal Trade Division, show the number of cars of grain inspected at Winnipeg and other points on the western division, during January, and for 5 months ended Jan. 31, 1921 and 1920:—

	Jan. 1921	5 mos. to Jan. 31, 1921	5 mos. to Jan. 31, 1920
Canadian National Rys.	8,027	41,125	30,781
Canadian Pacific Ry...	5,763	81,142	50,363
Grand Trunk Pacific Ry.	3,270	15,507	14,328
Great Northern Ry. (Duluth) . .	11	157	475
Total . .	17,071	137,931	95,947

Tractive Power of Cordoba Central Railway Locomotives.

Canadian Railway and Marine World for October 1920 gave particulars of 15 Mikado (2-8-2) locomotives, ordered by the Cordoba Central Ry., Argentine Republic, from Montreal Locomotive Works, of which the following were some of the principal details:—

Weight on drivers	121,500 lb.
Weight, total	163,000 lb.
Cylinders, diar. and stroke	21½ x 24 in.
Driving wheel, diar.	48 in.
Boiler, type	Straight top, Belpaire
Boiler, diar. inside first ring	65 in.
Boiler pressure	180 lb.
Firebox, length and width	81¼ x 63¼ in.
Heating surface, tubes	1,458 sq. ft
Heating surface, flues	661 sq. ft.
Heating surface, firebox	147 sq. ft.
Heating surface, total	2,266 sq. ft.
Superheating surface .	570 sq. ft.
Grate area	35.6 sq. ft.
Tractive power	27,730 lb.
Factor of adhesion	4.38

One of our subscribers in the Province of Quebec, wrote us recently as follows: "Referring to the details respecting locomotives for Cordoba Central Ry. given in your Oct. 1920 issues. Will you kindly inform me how the tractive power of 27,730 lb. is arrived at, with the size of cylinders, driving wheels, and boiler pressure as given by you, and also whether 85% of boiler pressure is used in figuring the tractive power of superheated steam as well as for saturated steam?"

We referred this inquiry to the Monreal Locomotive Works, which replied as follows:—"We are unable to give you any information, except that the Cordoba Central Ry. specified that the basis for figuring the tractive power should be 66 2/3% of the boiler pressure."

Canadian Railway and Marine World can advance no reason as to why the Cordoba Central Railway should base calculations for tractive power of its locomotives on 66 2/3% of boiler pressure, when 80% or 85% is practically always taken for this purpose. A. J. Wood, M.E., Associate Professor of Railroad Mechanical Engineering, Pennsylvania State College, in his book, "Locomotive Operation and Train Control," says:—"Instead of obtaining at the track 100% effective boiler pressure, there are losses in transmission of the steam to the cylinders, drop in pressure near the end of the stroke, and internal friction of the moving parts, which combine to reduce the effectiveness of the steam at boiler pressure by some 15 to 20%. To obtain the rated tractive force, the theoretical tractive force is therefore multiplied by a constant, usually 0.85, but 0.80 may be used as a more conservative value."

G. R. Henderson, M.E., in his book, "Cost of Locomotive Operation," in calculating the tractive force of a locomotive of stated dimensions and boiler pressure, says:—"When we allow for drop in steam pressure, and internal resistance, we find that the available tractive force at the circumference of the drivers is only 0.8 of the theoretical tractive force."

Theft Charges.—H. Avery, formerly station agent at Louvain, Sask., has been committed for trial by the Provincial Police Magistrate, on two charges, one of stealing $562.27 from the Grand Trunk Pacific Ry., and the other of stealing $607.41 from the Canadian Express Co.

Canadian Creosoted Ties for India.—A cargo of creosoted railway ties, consisting of approximately 3,800,000 ft., left Vancouver, B.C., recently, for Calcutta, India, on the Canadian Government Merchant Marine s.s. Canadian Inventor.

Steam Railway Operating Statistics for Year Ended June 30, 1919.

In the following table the column headed gross earnings includes passenger and freight earnings, as well as miscellaneous earnings from operation, the latter not being shown separately; the next four columns give the operating expenses classified under their various headings, while the last gives the net earnings, which are arrived at by deducting the totals of the four columns referred to from the figures in the gross earnings column. The minus (—) mark before figures in the net columns shows that there was a deficit in the operation of the line to the extent of the figures given. The cents have been omitted in all cases, and the figures in the totals show the aggregate earnings, etc., including the cents, omitted from the detailed items. The figures in the first column, "First track mileage," include the first track of main line, branches and spurs of lines represented by the respective companies' capital stock, the lines of proprietary companies, the lines operated under lease, and lines operated under contract, but not lines operated under trackage rights, the mileages of which are included in those for the respective owning companies. There were 23 companies operating under trackage rights over 1,073.89 miles of other companies' tracks, tthe principal being: Canadian Northern, 170.22 miles; Canadian Pacific, 93.90 miles; Grand Trunk Pacific, 122.09 miles; Midland of Manitoba, 69.02 miles; Pere Marquette, 137.84 miles; Vancouver, Victoria & Eastern, 92.13 miles; Wabash, which does not own any line in Canada, 245.40 miles. In addition to the 38,895.64 miles of first track operated, there were 2,543.17 miles of second track, details of which are given under "Notes to Steam Railway Statistics" on the following page. The figures, in brackets, after the names of railways in the following table refer to paragraphs in "Notes to Steam Railway Statistics, on the following page.

The figures in the last column of the table show the net earnings or loss from the operation of the various railways, and their necessary adjuncts. Many companies have income from other sources, and in some cases carry on busines apart from their railways; these revenues are brought together in the "Income account," and from them are deducted taxes, rents for lease of other lines, etc., interest or funded debts, sinking funds, etc., leaving, in the final analyses, the net corporate revenue available for dividend, or the gross deficit for the year. Another table, containing these figures, will be published in Canadian Railway and Marine World's next issue.

Name of Railway	First track mileage	Passenger earnings	Freight and switching earnings	Gross earnings from operations	Maintenance of way and structures	Maintenance of equipment	Traffic and transportation expenses, etc.	General expenses	Net operating earnings
Alberta & Great Waterways ..	113.20	$34,159	$87,362	$129,713	$22,367	$28,217	$82,624	$10,438	—$13,932
Algoma Central & Hudson Bay (13) .	347.80	95,635	1,985,159	2,283,860	400,893	337,465	960,610	75,379	509,754
Algoma Eastern .	89.45	58,840	1,003,472	1,125,409	134,520	183,524	430,500	27,238	349,626
Atlantic, Quebec & Western....	103.08	45,417	155,703	201,121	68,245	35,362	105,190	16,966	—24,643
Brandon, Sask. & Hudson Bay ....(13) . .	69.45	25,493	18,997	45,158	87,024	21,040	84,555	5,439	—152,846
British Yukon . .	101.12	43,578	106,192	168,993	32,424	10,233	42,988	18,952	64,396
Canada & Gulf Terminal.....	35.80	28,425	62,788	96,236	18,597	10,492	40,338	8,472	18,336
Canada Southern (13)	380.54	5,825,479	14,770,225	20,719,331	1,915,225	3,054,031	7,268,847	399,841	8,084,361
Canadian National:									
Canadian Northern	9,358.49	10,394,369	37,011,740	48,238,461	11,883,538	9,438,298	26,989,498	1,359,708	—1,477,582
Elgin & Havelock	26.27	5,137	12,500	17,637	37,087	3,653	20,877	772	—44,753
Intercolonial	1,592.72	9,471,890	16,538,634	26,977,807	6,168,722	5,136,362	18,065,804	449,687	—4,511,878
International of N.B.	109.72	49,351	180,830	232,460	166,800	84,393	226,653	8,530	—253,917
Moncton & Buctouche	30.18	18,533	25,468	44,319	40,860	7,287	39,173	1,094	—44,096
Prince Edward Island	278.87	281,304	475,899	786,621	514,099	232,451	862,895	19,994	—842,818
St. John & Quebec	120.35	38,080	98,824	138,985	91,474	12,987	101,535	3,842	—70,844
St. Martins	28.80	5,610	14,265	20,052	34,230	2,736	20,376	938	—38,229
Salisbury & Albert	44.93	12,554	48,893	62,364	68,767	11,946	54,256	2,110	—72,707
Transcontinental	2,001.15	2,139,933	8,131,804	10,395,243	1,772,065	2,675,643	6,106,586	226,600	—716,543
York & Carleton	6.25	2,495	6,589	9,106	6,666	3,388	17,803	405	—19,167
Canadian Pacific	13,294.60	48,607,778	108,812,316	162,846,470	24,048,256	31,520,093	68,533,752	3,314,892	32,429,475
Cape Breton	31.00	9,966	12,885	22,852	10,149	1,215	15,311	1,860	—5,685
Caraquet & Gulf Shore (1, 2)	84.78								
Central Canada	48.50	12,198	10,762	24,181	11,859	6,309	27,014	10,301	—31,032
Central Vermont	125.20	136,529	259,880	400,660	187,956	39,004	228,606	16,991	—71,898
Crows Nest Southern (13)	74.18	15,251	61,179	78,081	148,473	56,136	115,349	7,888	—249,670
Cumberland	32.00	20,920	129,037	158,207	32,839	30,757	62,656	7,234	24,720
Detroit River Tunnel (1, 3, 12)	2.72								
Dominion Atlantic	274.16	616,527	869,870	1,509,152	309,635	188,055	719,946	80,875	210,639
Eastern British Columbia	14.00	1,803	25,194	29,696	14,202	7,710	21,404	3,940	—17,560
Edmonton, Dunvegan & B.C...	406.80	299,666	521,257	840,387	192,386	118,467	401,379	51,478	59,896
Esquimalt & Nanaimo	199.20	299,673	735,934	1,062,046	204,662	142,548	389,444	14,053	311,337
Essex Terminal	21.00		132,108	161,471	26,226	15,175	47,295	28,755	44,018
Fredericton & Grand Lake Coal & Ry.	35.00	13,238	152,580	166,809	46,637	8,027	62,221	5,945	40,978
Grand Trunk (13)	3,567.07	16,072,728	48,953,703	66,429,147	8,617,520	15,980,680	30,329,910	2,078,575	9,423,819
Grand Trunk Pacific	1,679.49	1,931,710	5,481,972	7,562,314	3,144,848	3,576,479	4,675,066	318,841	—4,152,922
Grand Trunk Pacific Branch Lines	1,034.79	457,456	1,582,914	2,063,454	932,794	754,813	1,486,361	110,081	—1,220,596
Hereford	53.06	27,878	83,782	112,645	63,820	55,274	127,846	5,726	—140,057
Inverness Ry. & Coal Co. (1,4)	60.91								
Kent Northern (1)	27.00								
Kettle Valley	355.68	253,479.	406,235	672,467	365,520	104,598	344,301	15,571	—157,595
Klondyke Mines (1, 5)	31.80								
Lotbiniere & Megantic	30.00	5,904	44,128	50,047	15,610	3,614	18,170	7,276	5,395
Magnetawan (1, 6)	1.91								
Maine Central	5.10	10,440	9,545	28,986	4,891	5,206	16,959	922	1,404
Manitoba Great Northern (13)	91.77	6,824	19,694	27,404	86,766	16,693	61,361	4,325	—140,731
Maritime Coal, Ry. & Power Co.	12.00	8,851	113,992	122,916	27,590	10,503	47,084	4,657	33,081
Massawippi Valley	35.46	88,669	127,769	220,828	70,290	67,064	193,132	20,192	—129,852
Midland Ry. of Manitoba	6.40	180,960	116,248	317,518	50,547	89,001	257,139	17,865	—107,006
Montreal & Atlantic	184.40	298,262	1,240,510	1,593,406	370,966	236,319	852,922	54,495	78,701
Morrissey, Fernie & Michel	10.85	8,673	84,372	98,045	13,387	15,374	51,335	16,987	—4,039
Napierville Jct.	28.46	208,533	284,115	493,440	79,984	47,152	147,325	70,369	148,668
Nelson & Fort Sheppard (13)	55.42	24,056	29,253	55,676	69,784	15,849	59,772	5,842	—95,511
New Brunswick Coal & Ry.....	58.00	20,022	48,463	78,460	64,640	10,781	24,791	4,461	—26,014

(Continued on page 146.)

Steam Railway Operating Statistics for Year Ended June 30, 1919. (Continued from page 145.)

Name of Railway	First track mileage	Passenger earnings	Freight and switching earnings	Gross earnings from operations	Maintenance of way and structures	Maintenance of equipment	Traffic and transportation expenses, etc.	General expenses	Net operating earnings
New Westminster Southern ..	4.68	537	502	1,060	6,701	1,145	6,473	1,059	—14,320
Northern New Brunswick & Seaboard (1, 7)	19.80								
North Shore (1, 7)	8.63								
Nosbonsing & Nipissing (1, 9)	5.50								
Ottawa & New York	56.90	150,723	221,473	373,772	101,810	65,990	258,934	8,670	—61,633
Pacific Great Eastern	180.27	7,396	201,223	340,551	157,602	97,340	233,460	27,650	—175,503
Pere Marquette	109.13	167,177	4,451,888	4,650,713	507,036	402,631	1,663,426	131,110	1,945,699
Phillipsburg Ry. & Quarry Co. (1)	6.00								
Quebec Central	277.00	642,114	1,950,247	2,624,543	446,213	380,048	1,096,476	81,053	620,752
Quebec, Montreal & Southern	192.18	161,874	580,924	748,321	204,763	224,606	382,474	48,791	—112,313
Quebec Oriental	100.00	84,323	271,221	355,545	120,404	47,543	141,338	19,663	26,594
Quebec Ry., Light & Power Co.	30.97	4,292	161,670	166,182	26,860	38,997	66,602	14,170	19,551
Red Mountain (13)	9.47	2,951	7,315	10,599	16,753	2,035	18,400	888	—27,569
Roberval-Saguenay	37.00	28,385	224,056	271,763	42,169	27,471	110,903	16,908	74,310
Rutland & Noyan	3.39		10,040	10,040	6,903	1,062	3,316	664	—1,905
St. Clair Tunnel (1, 10, 12)	2.24								
St. Lawrence & Adirondack	46.14	295,655	874,207	1,188,981	204,944	61,402	651,035	11,581	260,018
Sydney & Louisburg	71.10	63,108	1,022,965	1,111,584	194,451	284,094	473,238	44,833	114,966
Temiscouata	113.00	64,926	288,217	361,171	79,693	54,588	150,263	21,992	54,632
Timiskaming & Northern Ontario (13)	328.50	846,765	1,963,104	2,915,073	557,678	591,344	1,501,774	123,216	142,406
Thousand Islands (1, 11)	6.33								
Toronto, Hamilton & Buffalo	99.95	578,924	2,185,230	2,819,503	404,036	512,253	961,856	130,246	811,110
Vancouver, Victoria & Eastern (13)	269.61	211,358	399,471	749,270	585,315	175,839	804,498	27,238	—843,195
Victoria & Sidney	15.97	11,000	12,830	24,000	4,788	2,321	22,736	2,944	—8,712
Victoria Terminal Ry. & Ferry Co.	0.99	867	739	1,662	255	150	1,866	211	—820
Wabash (in Canada) (13)		764,711	4,491,004	5,347,815	689,636	969,974	2,297,189	109,975	1,281,829
Totals	38,895.64	$102,380,357	$270,463,390	$382,976,901	$69,034,242	$78,397,270	$184,702,901	$9,739,448	$41,110,392
Less Nosbonsing & Nipissing (3)	5.50								
	38,890.14								

Notes referring to the figures in brackets in column one above, appear below under 'Notes to Steam Railway Statistics."

Notes to Steam Railway Statistics.

The following notes refer to the statistical table on this and the preceding pages:—

(1) The following companies have not reported, or their earnings, etc., are included in those of the operating companies, and some of the lines are not being operated. Caraquet & Gulf Shore Ry., Detroit River Tunnel, Inverness Ry. & Coal Co., Kent Northern Ry., Klondyke Mines Ry., Magnetawan Ry., Northern New Brunswick & Seaboard Ry., North Shore Ry., Nosbonsing & Nipissing Ry., Phillipsburg Ry. & Quarry Co., St. Clair Tunnel Co., Thousand Islands Ry.

(2) The Caraquet & Gulf Shore Ry. was taken over by the Dominion Government as from June 1, 1920, and is being operated as part of the Canadian National Rys.

(3) The Detroit River Tunnel is operated by the Michigan Central Rd., which controls the Canada Southern Ry.

(4) The Inverness Ry. & Coal Co.'s line was operated by a receiver up to the summer of 1920, when the property was taken over by a new company, and its title changed to Inverness Ry. & Collieries Ltd. No particulars except mileage are available.

(5) The Klondyke Mines Ry. is not being operated.

(6) The Magnetawan Ry. Co.'s earnings are included in those of the Grand Trunk Ry.

(7) The Northern New Brunswick & Seaboard Ry. has not been operated for some years, and in 1917 the New Brunswick Legislature authorized the purchase of the rails for use on the St. John & Quebec Ry., but we were advised in Nov. 1917 that the rails had not then been lifted.

(8) The rails of the North Shore Ry. were reported in Mar. 1919 to have been lifted and sold.

(9) The Nosbonsing & Nipissing Ry. is still retained in the track mileage shown, notwithstanding that the railway was abandoned and the track taken up in 1913. We have therefore deducted its mileage from the total mileage figures at the end of the table.

(10) The St. Clair Tunnel Co. is owned and operated by the Grand Trunk Ry.

(11) The Thousand Islands Ry. is operated by the Grand Trunk Ry.

(12) In the statistics for the year ended June 30, 1918, a table dealing with international lines was given, but is omitted in the statistics for the year ended June 30, 1919. This table gave details regarding the Detroit River Tunnel, International Bridge Co., St. Clair Tunnel, the Pullman Co., and for the year ended June 30, 1918, also included the Van Buren Bridge Co.

(13) In order to arrive at the net earnings from operations, the figures in a column headed "Transportation for investment," have been deducted from the total amount of the operating expenses as given in cols. 5, 6, 7 and 8 of the table, before the net operating earnings in col. 9 were arrived at. The following are the amounts to be deducted:—

Algoma Central & Hudson Bay	$ 242.82
Brandon, Sask., & Hudson Bay	52.53
Canada Southern	2,976.38
Crows Nest Southern	96.07
Grand Trunk System	1,358.94
Manitoba Great Northern	10.14
Nelson & Fort Sheppard	43.98
Red Mountain	9.44
Timiskaming & Northern Ontario	1,348.10
Vancouver, Victoria & Eastern	425.78
Wabash	789.42
Total	$7,353.60

Second Track:—Following are the particulars of second track, in addition to the first track mileage given in column 1 of the table on this and the preceding pages:—

	Miles.	Miles.
Canada Southern		243.04
Canadian National—		
Canadian Northern	1.23	
Intercolonial	74.85	
Transcontinental	5.31	
	—	81.39
Canadian Pacific		1.429.40
Grand Trunk		723.48
Grand Trunk Pacific		25.97
Montreal & Atlantic		6.50
Quebec Ry., Light & Power Co.		9.50
Sydney & Louisburg		1.00
Temiscouata		1.70
Toronto, Hamilton & Buffalo		14.07
Vancouver, Victoria & Eastern		7.12
Total		2,543.17

International Railways.—The following table gives particulars of operations of companies which are of an intednational character, operating across the International Boundary. The Detroit River Tunnel is owned by the Michigan Central Rd.; the International Bridge Co., and the St. Clair Tunnel are owned by the Grand Trunk Ry., and the Pullman Co., operates sleeping and parlor cars over some Canadian railways.

	Total revenue	Total operating expenses	Net operating revenue
Detroit River Tunnel	$1,050,000		$1,050,000
International Bridge Co.	431,332	$101,712	329,619
St. Clair Tunnel	312,095	226,845	85,249
Pullman Co.	788,299	674,281	114,017
Van Buren Bridge Co.	41,533	8,605	32,927
Total	$2,623,259	$1,011,445	$1,611,814

The C.P.R. Social and Athletic Club of Vancouver, held a concert and dance at the Hotel Vancouver, Feb. 2.

Proposed Electrification of Timiskaming & Northern Ontario Ry.

In a recent interview, G. W. Lee, the recently appointed Chairman of the Timiskaming & Northern Ontario Ry. Commission, is reported to have stated that the electrification of the entire line is under consideration. The electrification it is stated, is estimated to cost $9,000,000, and it is believed it would make the line entirely self sustaining, as the present heavy cost of coal would be done away with, the passenger and freight service made more efficient, and the cost of maintenance reduced.

We are officially advised that the question will be taken up by the Commission shortly, but that at present there is nothing definite to be said about it.

Among the Express Companies.

The Canadian National Ex. Co. has opened an office at Yorkton, Sask., in charge of W. M. Bowman. Deliveries are being made locally by motor truck.

The Board of Railway Commissions' order of Feb. 2, authorizing a general increase in express rates, is given in full, elsewhere in this issue, under "Increases authorized in express rates by Board of Railway Commissioners."

The Dominion Express Co. is applying to the Dominion Parliament for an extension of its powers, to include the carriage of goods outside of, as well as within, Canada, and for authority to increase its capital stock.

The Dominion Express Brotherhood of Employes local division 24 held a very successful dinner and smoker at their rooms in St. John, N.B., recently. There was a musical programme and speeches by the company's officials, and by Grand President Paton of Montreal.

The Dominion Express Co. announced recently that, in conjunction with Aircraft Transport & Travel Ltd., it has inaugurated aerial services twice daily between London, Eng., and Paris, France, and daily between London, Eng., and Amsterdam, Holland. The fare charged on both lines is £10 10s. single, £18 18s. return, including motor car service at both ends. Parcels are taken at 2s. a lb. up to 10 lb., over 10 lb. at 1s. 3d. a lb. The company has arranged a special life and accident insurance for this service to cover risks up to £5,000.

William Campbell Muir, whose appointment as General Manager, Canadian National Express Co., Winnipeg, was announced in a recent issue, and whose portrait appeared in our last issue, was born at Clinton, Ont., Apr. 3, 1866, and entered express service in Nov. 1884, since when he has been, to 1886, clerk, American Ex. Co., Toronto; Apr. 1887 to Feb. 1897, clerk, Dominion Ex. Co., Winnipeg; Feb. 1891 to Oct. 1901, agent, same company, Winnipeg; Apr. 1902 to Jan. 1903, Superintendent, Canadian Northern Ex. Co., Winnipeg; Jan. 1903 to Aug. 1907, Auditor, same company, Winnipeg; Aug. 1907 to July 1910, Superintendent, same company, Winnipeg; July 1910 to Oct. 1919, General Superintendent, same company, Winnipeg; Oct. 1919 to Dec. 1, 1920, General Superintendent, Canadian National Ex. Co., Winnipeg.

Blake Arthur Latta, whose appointment as Traffic Supervisor, Canadian National Express Co., Regina, Sask., was announced in a recent issue, was born at Latta Mills, Ont., Mar. 27, 1890, and entered transportation service in June 1905, since when he has been, to Sept. 1906, agent and operator, Central Ontario Ry., Trenton, Ont.; Oct. 1906 to July 1907, agent, Canadian Northern Ry., Piney, Man.; Aug. 1907 to July 1908, operator, Canadian Northern Telegraphs, Winnipeg, Man.; Aug. 1908 to Apr. 1909, agent, Grand Trunk Pacific Ry., Pope, Man.; Apr. 1909 to Apr. 1911, agent, Grand Trunk Pacific Ry., Edson, Alta.; July 1911 to Mar. 1919, agent, Canadian Northern Express Co., and local manager, Great North Western Express Co., Fort Frances, Ont.; Mar. 1919 to Dec. 1920, chief clerk to Superintendent, Canadian National Express Co., Winnipeg.

Telegraph, Telephone and Cable Matters.

The Marconi Wireless Telegraph Co. is reported to have bought 40 acres of land about 8 miles west of Winnipeg on which to erect a high-powered wireless telegraph station.

Canadian National Telegraphs have opened an office at Hughes, Ont., and closed offices at Carpenters, Winona and Willet, Ont., Burbank, Saunders and Stony Plain, Alta.

Following are recent appointments of chief operators, Canadian National Telegraphs:—W. J. Pitfield, Toronto; H. C. Milne, Winnipeg; R. Carmichael, Edmonton, Alta.; J. R. Rochon, Port Arthur, Ont.; S. A. Matthews, Capreol, Ont.

J. McMillan, Manager of Telegraphs, C.P.R., made a tour through the west during February studying existing facilities, with the view of improving and speeding up the service generally, as well as looking over the ground for extensions to the system.

The district traffic, commercial and plant superintendents, and superintendents of railway service, Canadian National Telegraphs, had a conference in Toronto recently, when the various features of the new management were outlined.

W. G. Barber, who was promoted recently from the position of District Commercial Superintendent to be General Commercial Superintendent, Canadian National Telegraphs, was given a gold watch and chain and gold penknife by the managers at the larger Ontario offices recently.

A. H. Morse, Managing Director, Marconi Wireless Co. of Canda, addressed the Engineering Institute of Canada's Montreal branch, Feb. 17, on radio telegraphy and telephony, giving an outline of fundamental principles and latest developments, with practical demonstrations.

Dominion Government radio telegraphers have asked for a board of conciliation to deal with requests which they will make in the near future. It is stated that the employes received certain increases under the recent civil service reclassification, but claim that their rates of pay are below those received by Marconi operators.

Napoleon Sauve, of Sarnia, Ont., retired Feb. 2 after 53 years service as lineman for the Great North Western Telegraph Co. He commenced service with the company at St. Anne de Bellevue, Que., in 1868, and assisted in building the first telegraph line between Dundas and Hamilton, removing to Point Edward in 1871 and living there until the completion of the Sarnia tunnel, when he removed to Sarnia.

The following service changes are reported from Canadian National Telegraphs, Montreal District:—D. McWilliams, appointed Manager at Quebec City, vice G. C. Vaudrin, transferred. Miss W. M. Whitman appointed Manager at Berlin, N.H., vice Miss D. J. Oleson, resigned. G. A. L. Wilkes, of Moncton, N.B., appointed Manager at Bathurst, N.B. Miss B. Morrin, Manager, Brockville, Ont., resumed charge after an absence of two months due to illness.

John Christie, who died at his home in Montreal recently, aged 84, was one of Canada's pioneer telegraphists. He was born in Scotland and when six years old was brought to Bowmanville, Ont., with his family, where they settled on a farm. In 1864 he entered the G.T.R. service and during the next nine years was agent at Cobourg and Bowmanville, Ont., and St. Lambert, Que. He then became Inspector, Great North Western Telegraph Co., at Montreal, in which position he remained until retired in 1905.

A. B. Smith, who died suddenly at Montreal, Feb. 6, aged 71, entered the Montreal Telegraph Co.'s employ in 1862. After spending a number of years in the Montreal office as an operator, he was moved to Hamilton, Ont., and in 1869 became chief operator there. He served as military operator on the occasion of the Fenian raid at Hemmingford, Que., and also at the time of the Fenian raid on the Niagara frontier, for which services he was given medals by the Militia Department. In 1872 he was appointed Telegraph Inspector, Great Northwestern Telegraph Co., and in a few years was appointed Superintendent of Construction. In 1903 he was appointed Manager of Telegraphs, Grand Trunk Pacific Ry. and built the company's telegraph lines from Winnipeg to Prince Rupert. Int 1912 he was appointed Manager of Telegraphs for the entire G.T.R. system with office in Montreal, retiring in 1915, owing to ill health. One of his sons is A. Dwight Smith, Sales Manager, Montreal District, Northern Electric Co.

The Canadian National Rys. have, during the past two years, made considerable advance in the use of train telephone dispatching equipment, and have equipped approximately 2,000 miles of main line with the most modern apparatus. The dispatching equipment was installed, and is used solely, for the handling of train movements, but a recent test made between Hornepayne and Montreal via Toronto, gave excellent results and the transmission over this distance, approximately 1,000 miles, was very good, considering that no expensive repeating apparatus was used. Tests have also been made between Montreal and Toronto, and it was stated by engineers of several telegraph and telephone companies, that this circuit is exceptionally quiet and the transmission exceedingly good, notwithstanding the fact that considerable cable forms part of the circuit and that it also parallels a number of high tension power lines. It is now possible for trains to keep in touch with the dispatcher at all times, by the use of portable telephone.

The Canadian National Rys. management is, a press report states, considering the possibility of running a train during the summer from Montreal to Vancouver in 92 hours, the same time as is taken by the C.P.R.'s fast train. The suggestion is also made that it might be possible for the C.N.R. to make the trip in 85 hours.

Electric Railway Department

Canadian Electric Railway Association's Annual Meeting at Ottawa.

The Canadian Electric Railway Association's annual meeting at Ottawa, Jan. 31 and Feb. 1, was most successful, and had the largest attendance of any in the Association's history. In addition to about the same number of officials of privately owned electric railways as usual, there was a representation of officials of municipally owned railways, and also a number of supply men, the Association's constitution having been changed at the previous annual meeting, so as to admit to membership electric railways owned by governments and by municipalities, and to associate membership representatives of supply houses, etc. The arrangements for the meeting were most carefully prepared and carried out by the President, A. Gaboury, Superintendent, Montreal Tramways Co.; the Vice President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.; the Honorary Secretary-Treasurer pro tem, A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry.; and Major F. D. Burpee, Manager, Ottawa Electric Ry. and a member of the executive committee, Messrs. Gale and Burpee having special charge of the local arrangements, the details of which were carried out remarkably well. The greater portion of the meetings were presided over by President Gaboury, Vice President Gale occupied the chair for a portion of the time.

First Day's Meeting.—At the opening of the morning session on Jan. 31, Mayor F. H. Plant, of Ottawa, welcomed the members, and the President replied. Routine business was then dealt with, after which the President gave his address, outlining changes made in the constitution and bylaws and mentioning the papers to be read, particularly referring to traffic regulations, for which he bespoke most careful consideration.

A. Eastman, Honorary Secretary-Treasurer, presented his report, in the course of which he said: "Those who are familiar with the history of the Association from its inception know that its life and the good work accomplished were due to the untiring efforts of our present Honorary Vice President, Acton Burrows, who was the Honorary Secretary-Treasurer for 14 years. During the year 1918-19 Mr. Burrows asked to be relieved of the work, but was prevailed upon to remain in harness until the end of 1919. Pending arrangements to appoint a permanent Secretary-Treasurer, I agreed to act temporarily. Conditions prevented the contemplated arrangements being carried out, and as no appointment was made I continued to act, but have been unable to give the Association's work the time it required and deserved." Mr. Eastman then tendered his resignation and assured the Association of his hearty support and co-operation for the future.

Amendments to the bylaws, prepared by the executive committee, were adopted, one of the principal changes being to separate the office of Secretary-Treasurer, and provide for the election of the Treasurer from among the officials of member railways, the Secretary to be appointed by the President to be paid.

A draft of rules respecting the installation and maintenance of electrical supply and signal lines, prepared by the Hydro Electric Power Commission of Ontario, was submitted, and the appointment of a committee to consider them was left to the incoming President.

Thomas Ahearn,
President, Ottawa Electric Ry., and Honorary President, Canadian Electric Railway Association.

George Kidd,
General Manager, British Columbia Electric Ry., and Honorary Vice President, Canadian Electric Railway Association.

It was announced that the Kitchener & Waterloo St. Ry., owned and operated by the City of Kitchener; the London & Port Stanley Ry., operated by the London Ry. Commission; and the Toronto Transportation Commission, which has been appointed to take over and operate the Toronto Ry. for the city, had applied for membership, also that a number of supply houses, etc., had applied for associate membership.

H. H. Couzens, General Manager, Toronto Transportation Commission, in response to a request from the President, expressed his pleasure at being present, and said that one of the things that had struck him particularly during the eight years he had been in Canada was the difference of opinion and bitterness between the publicly and privately owned interests. It had always been his endeavor that there should be no difference in opinion between men responsible for operating enterprises, whether publicly or privately owned. They had exactly the same problems and could help one another in their solution. Perhaps those under public ownership were a little apt to be judged, and possibly prejudiced, by the utterances of some people associated with public ownership, possibly from a political standpoint, but speaking for himself he said that anything he could do to help in solving common problems would be willingly done.

A. B. Ingram, Vice Chairman, Ontario Railway and Municipal Board, spoke of the Board's work generally, as relating to electric railways, and particularly referred to its management of the London St. Ry., to which he had devoted considerable time.

After the morning session a get-together luncheon was held at the Chateau Laurier.

At the afternoon session, Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., read a paper on "Practical operation of a service at cost contract," which is given in full farther on in this issue. The paper was very fully discussed, the principal speaker being Dr. L. A. Herdt, one of the members of the Montreal Tramways Commission, others being Major F. D. Burpee, A. B. Ingram, and C. L. Wilson. Lt. Col. Hutcheson answered a number of questions and gave considerable information in addition to that contained in his paper.

Other papers read during the afternoon were "The safety car," by J. C. McCune, District Engineer, Westinghouse Traction Brake Co., and "Adaptability of the safety car to Canadian snowy climate," by H. E. Weyman, Manager, Levis County Ry. These papers were discussed by D. M. Campbell, A. Eastman, H. L. Andrews, A. B. Ingram, and C. C. Curtis.

Dinner.—In the evening, those attending the annual meeting, and a number of guests, went, by special cars on the Hull Electric Co.'s line, to the Ottawa Golf Club, where they had a most enjoyable dinner, the Association's Honorary President, Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., presiding. The toasts were the

King, proposed by the chairman; the City of Ottawa, proposed by A. Gaboury, President of the Association, and responded to by Mayor Plant; the Canadian Electric Railway Association, proposed by T. Ahearn, President, Ottawa Electric Ry., and responded to by the Association's Vice President, G. Gordon Gale; the guests, proposed by the Association's Honorary Vice President, Acton Burrows, and responded to by H. H. Couzens, General Manager, Toronto Transportation Commission, O. C. Rehfuss, Canadian Car & Foundry Co., and Capt. E. Trudel, Chief of Police of the City of Quebec; the press, responded to by H. H. Norris, Managing Editor, Electric Railway Journal, C. Van Auhen, of Electric Traction, and E. W. Harrold, city editor, Ottawa Citizen; the Chairman, proposed by A. Gaboury and responded to by Lt. Col. Hutcheson. E. Hawken, acting Deputy Minister of Marine and Fisheries, and Mr. Underwood added much to the evening's enjoyment by singing several solos and duets.

Second Days' Meeting.—On Feb. 1 a paper on "Publicity and Public Relations," by A. W. McLimont, Vice President, Winnipeg Electric Ry., was read in his absence by A. Eastman. This paper is published in full farther on in this issue. It was very fully discussed, particularly by Major F. D. Burpee, whose remarks are also given in full, and by H. H. Couzens.

R. Mayne-Reade, Superintendent, Quebec Railway, Light & Power Co., read a paper on "Accident prevention, everybody's business," which was followed by a paper by R. B. Morley, General Manager, Ontario Safety League.

A. Gaboury, Superintendent, Montreal Tramways Co., submitted a paper, "Model of traffic ordinance adaptable to Canadian cities," which embodied the code of traffic priciples adopted by the American Electric Railway Transportation and Traffic Association, in which he suggested a few minor changes to render it adaptable to Canadian cities.

Warren Y. Soper, Vice President, Ottawa Electric Ry., expressed regret at not having been able to attend the Association's dinner, the previous evening, owing to detention in Toronto, and to give a exhibition of legerdemain which he had promised. He attributed the Ottawa Electric Ry.'s success largely to the courtesy shown by its employes to the public.

Officers, Etc.—The nomination committee, which was appointed the previous day by the President, consisting of J. M. Ahearn, Assistant Manager, and Purchasing Agent, Ottawa Electric Ry.; F. S. Livingston, Traffic Manager, Toronto & York Radial Ry.; W. J. Radford, Assistant Manager, Toronto Suburban Ry.; H. E. Weyman, Manager, Levis County Ry., and the President, ex-officio, reported suggesting the following persons for election as officers and members of the Executive Committee:—

Honorary President, Thos. Ahearn, President, Ottawa Electric Ry.; Honorary Vice President, Geo. Kidd, General Manager, British Columbia Electric Ry.; President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.; Vice President, Major F. D. Burpee, Manager, Ottawa Electric Ry.; Treasurer, A. Gaboury, Superintendent, Montreal Tramways Co.; Auditor, H. E. Weyman, Manager, Levis County Ry.

Executive Committee: E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electric Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

G. Gordon Gale,
Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association.

Major F. D. Burpee,
Manager, Ottawa Electric Ry., and Vice President, Canadian Electric Railway Association.

President-elect Gale, who was then installed in the chair, expressed thanks for his election and called on John Murphy, Electrical Engineer, Railways and Canals Department and Board of Railway Commissioners, who complimented the Association on its successful meeting and expressed his best wishes for its future.

The supply men had a luncheon at the Chateau Laurier after the adjournment of the meeting, at which a number of electric railway officials and others were also present. The supply men elected a committee of three, consisting of D. M. Campbell, Preston, Ont., as Chairman; H. T. Gibbs, Canadian Westinghouse Co., Toronto; and O. C. Rehfuss, Canadian Car & Foundry Co., Montreal, to cooperate with the Association in connection with its future annual meetings, etc.

During the afternoon a number of those who had been in attendance at the annual meeting were taken by the Ottawa Electric Ry. on special cars to its Rockcliffe car shed, to see a demonstration of the Lewis mechanical track switch, and they afterwards visited the Ottawa Car Manufacturing Co.'s plant, on the invitation of its General Manager, W. H. MacIntyre. Several also visited the new Parliament buildings.

The balance of the report of the meeting is given on pages 150 to 155.

Edmonton Radial Railway Operating Results.

Canadian Railway and Marine World for January contained some statistics of the Edmonton Radial Ry.'s operations for the 10 months ended Oct. 31, 1920, which were prepared from a local paper. We are officially advised that the figures given were not supplied by the city's street railway department, and that they were inaccurate as regards the expenditure "per car mile" figures. Following is a corrected statement:—

	1920.	1919.
Revenue, total	$607,042.00	$545,333.00
Revenue, per car mile	$3.65	$3.14
Expenditure, total	$549,441.37	$387,926.69
Expenditure, per car mile	$3.30	$2.23
Operating surplus, total	39,580.01	$167,407.17
Operating surplus, per car mile	0.35c.	0.91c.
Total car miles	166,081.7	173,421.5
Total car hours	19,327.8	19,805.2

Ottawa Traction Company's Annual Report and Meeting.

The Ottawa Traction Co.'s annual meeting was held in Ottawa Feb. 7. The report stated that the amount received from the Ottawa Electric Ry. Co. during 1920 was $279,060, with which was paid the usual quarterly dividends of 1%, and a bonus of 1%. The established record of the Ottawa Electric Ry. Co. was fully maintained during the year, and the receipts have again shown a steady and gratifying increase.

The directors and officers were re-elected as follows:—T. Ahearn, President; W. Y. Soper, Vice President; T. F. Ahearn, Geo. P. Murphy, E. N. Soper, J. F. Smellie, T. Workman, A. J. Dawes, G. F. Henderson, K.C. The Secretary-Treasurer is G. L. Snelling and the Manager Major F. D. Burpee.

London St. Ry. Wages and Operation. A press report says that it is likely that the company and its employes will compromise on the wages question, the men accepting an offer of 49c. an hour, instead of the 52c. for which they asked originally, and that this arrangement is being made.

Practical Operation of a Service at Cost Contract.

By Lt.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co.

When the contract between the City of Montreal and the Montreal Street Ry. Co. was made in 1892, the area of the city to be covered by the contract was nine square miles, and the population to be served 216,000. Contracts, dated 1891, with the municipalities of St. Cunegonde and St. Henry, for 50 years, were then in effect. Subsequently, from time to time, contracts were made between the Montreal St. Ry. Co., or other companies absorbed by it, and 27 other municipalities, 20 of which were terminable between 1920 and 1961 and seven interminable. Since 1892, fourteen of these municipalities have been annexed to the City of Montreal, making the area of the city, in 1917, 50.24 square miles, and the population to be served, 800,000.

In the outside municipalities zone fares were collected which would yield to the company from 5c. to 25c. a passenger. The maximum fare, under the city contract, was 5c., with reduced rates by tickets. Contracts made 25 or 30 years ago, when the industry was in the experimental stage, did not provide for conditions that were constantly changing, because of the rapid growth of the community, due to a large extent to the facilities for transportation given by electric railways. An indication of the growth of the street railway business in Montreal is shown in the statement of assets and liabilities of the company for 1892 and 1920 farther on in this paper.

The wonderful development of the city, between 1910 and 1917, brought many demands from the public for extensions and improved service. These were complied with by the company to a very reasonable degree and far beyond the contract requirements. However, satisfactory relief could not be given unless new extensions were made in annexed territory, and the city, not having a contract covering this territory, could not call upon the company to build. This led to negotiations between the city and the company and several conferences were held between 1910 and 1917, with the object of making a new contract to cover the entire system, but because of the hostile attitude of certain members of the civic government no progress was made. Many prominent citizens appealed to the Quebec Legislature to have the matter taken out of the hands of the civic authorities and placed with a commission of business men who would study conditions and prepare a contract that would safeguard the interests of the city and of the shareholders. In 1917, the Legislature appointed a commission of five, who immediately commenced study of the question, and after hearing the views of the municipalities interested and of public bodies of the city, such as the Board of Trade and the Chamber of Commerce, it was decided that a franchise on the service at cost plan was the most equitable basis upon which street railway contracts could be made. Up to this time the company had not felt the stress of the war, but because of the necessity for heavy financing to build and equip extensions, was agreeable to negotiate on this basis. The commission took several months to study the subject and visited many cities in Canada and the United States, during which time a valuation of the company's physical assets was made. A contract was finally entered into on Jan. 28, 1918, and was ratified by the Quebec Legislature and became effective on Feb. 9, 1918, for a period of 35 years, expiring Mar. 24, 1953. The important features of this contract provide:—

1. For the appointment of a commission of control by the Legislature (designated as the Montreal Tramways Commission), composed of three members, for the purpose of administering the affairs of the contract, and that an appeal can be taken from any decision of the Tramways Commission to the Quebec Public Service Commission, whose decision shall be final except on questions of law.

2. For the establishment of a guarantee fund, by the company, of $500,000.00, in amounts of not less than $100,000.00 a year, to be used to meet all liabilities incurred by the company, prior to the coming into force of this contract, and to provide for the payment in each year of any portion of excess expenditure

Lt. Col. J. E. Hutcheson,
General Manager, Montreal Tramways Co.

hereinafter referred to, also for the payment of any penalties imposed on the company, and to guarantee the fulfilment of all obligations assumed by it under this contract.

3. For the disposition of gross revenues in the following order:—(1) Operating expenses and taxes; (2) Maintenance and renewals fund; (3) Return upon capital value; (4) City rentals; (5) Contingent reserve fund; (6) Division of surplus on basis of 20% to the company; 50% to a tolls reduction fund, and 30% to the city. This disposition is illustrated by the accompanying diagram. It also provides that if at the end of any year, the amount in the tolls reduction fund shall exceed $1,000,000, the commission may, and whenever the amount in the said fund shall exceed $2,500,000, the Commission shall reduce the fares or tolls on the tramways system.

4. Operating Expenses and Taxes. — The Commission is required to fix each year an allowance per car mile to be used for the payment of all operating expenses (exclusive of maintenance, renewals and depreciation) and all taxes levied against the company or its property, and in so doing it shall base its action on the actual and necessary expenses incurred during the preceding year, with such adjustments as may be foreseen to be necessary on account of modifications of service, changing costs, or any circumstances tending either to increase or diminish the necessary expenses of operation.

5. Operating Profit.—If at the end of any year the Commission shall find that the company has kept within the operating allowance, or has not exceeded same by more than 2½% of its amount, it shall permit the company to take out of gross revenues, as a charge prior to all other charges (except operating expenses and taxes) a sum equal to ⅛ of 1% of the total average capital value, for that year, which shall belong to the company. Should the company's expenditures exceed the operating allowance, plus the above mentioned 2½% during any year, the excess over such allowance and percentage shall be known as excess expenditure and shall be taken from gross revenues, up to an amount not exceeding ⅛ of 1% of the average capital value for such year, and the operating profit shall be reduced accordingly. If the excess expenditure exceeds the ⅛ of 1% mentioned above, the company shall receive no operating profit, but shall pay out of the guarantee fund the amount by which the excess expenditure exceeds the ⅛ of 1%. The company has the right, however, in anticipation of such excess expenditure to submit to the Commission a detailed statement in explanation thereof, at any time during the year, or immediately upon the close of the year. If the Commission finds, within 60 days after the close of the year, that the excess expenditure, or any part thereof was necessary or unavoidable, it shall permit the company to take out of gross revenues the additional amount required to cover the excess expenditure, or any part thereof, and shall award the company the full amount of the operating profit.

6. Maintenance and Renewals Fund.—It is provided that the entire plant and property of the company, shall, at all times, be maintained at the highest standard of operating efficiency, and for the purpose of maintenance, renewals, replacements and substitutions made necessary by wear and tear, age, obsolescence, inadequacy, accident or other cause, a sum is set aside per revenue car mile and is known as the maintenance allowance. If at the end of any year it shall appear to the satisfaction of the Commission that such maintenance allowance is insufficient, it shall be increased for the ensuing year, and from year to year as may be necessary. If, on the other hand, the Commission shall find that the maintenance allowance is excessive, or that the maintenance and renewals fund is larger than prudent management requires, it may reduce such allowance to any extent it may see fit, provided it shall not be so reduced as to cause a reduction in the maintenance and renewals fund, except temporarily, below $500,000.00. Should the fund be so reduced below such sum, then the Commission shall increase the maintenance

allowance in an amount sufficient to restore the fund to at least $500,000.

7. Return Upon Capital Value.—The capital value of the company as on Dec. 31, 1917, was fixed at $36,286,295.00, and it is provided that the company shall receive in quarterly payments, a sum equal to 6% per annum on such value, as well as on all additional capital expenditures made from that date. It also provides that during the continuance of the war, or within two years after its close, the company shall receive an additional return of 1% per annum on additional capital expenditures, such return not to be paid for a period extending more than five years beyond the close of the war. On all moneys furnished by the company for working capital, it shall receive interest at the rate of 6% per annum. It shall also receive, for the purpose of covering the expenses to be incurred in procuring additional capital, $181,431.47 annually, which is the equivalent of ½ of 1% on $36,286,295.00. It is further provided that this sum shall be expended solely for the purpose of discounts and commissions, printing and engraving, exchange, legal and other expenses incidental thereto, when issuing bonds or debenture stock, when issuing stock, for printing, engraving, transfer and registration fees, and listing on stock exchanges. Any surplus in this account, as well as the interest on the income therefrom, shall belong to the company, but shall be kept in a special account and not distributed until the termination of the contract.

8. City Rentals.—It is provided that the city shall receive over and above all other amounts to which it may be entitled under the contract or otherwise, $500,000.00 a year, payable quarterly.

9. Contingent Reserve Fund.—It is provided that 1% of the gross revenues be paid annually into a contingent reserve fund, until it shall reach $500,000.00. Such fund shall be used whenever it may be necessary to make up any deficiency in the payments to be made under paragraphs 1 to 4 hereof, inclusive, in the order of priority herein established. The allowances provided for in such paragraphs and in this paragraph are to be cumulative in the order established.

10. Insufficient earnings.—If the gross earnings are insufficient in any year to provide the sums payable under accounts 1 to 5, inclusive, and if the amount in the contingent reserve fund is less than $300,000.00, it is provided that the Commission shall appropriate from the tolls reduction fund, the amount necessary to bring the contingent reserve fund up to $500,000.00, all deficits provided under accounts 1 to 4 inclusive being made up. In the event of there not being sufficient moneys available in the tolls reduction fund, then the Commission shall forthwith increase the tolls to the extent necessary to provide at least sufficient gross revenue to meet all the demands provided for under accounts 1 to 5 inclusive.

Results of Operation Under Contract. From the date of the coming into force of the contract, Feb. 9, 1918, to Oct. 3, 1918, the company continued to operate under the rates of fare in existence at the time the new contract was entered into, which were:—5c. cash; 6 tickets for 25c. (good 5 a.m. to midnight); 25 tickets for $1 (good 5 a.m. to midnight); 8 tickets for 25c. (good 5 a.m. to 8 a.m. and 5 p.m. to 7 p.m.); 10 tickets for 25c. (scholars every day, 5 a.m. to midnight); 10c. cash after midnight, with zone rates for outlying territory. The results obtained from the above rates of fare from Feb. 10 to Sept. 30, 1918 (7 2-3 months) were as follows:—

Passenger earnings	$4,771.662.34	
Miscellaneous earnings	102,269.12	
Gross earnings		$4,873,931.46
Operating expenses and taxes	2,800,810.66	
Maintenance and renewals	745,347.55	
Return on capital value	1,421,163.43	
Financing allowance	115,279.41	
City rentals	317,694.03	
Contingent reserve fund	48,739.31	
Total charges		$5,449,034.39
Shortage		$ 575,102.93
Revenue passengers carried		116,571,723
Car earnings per passenger		4.09c.

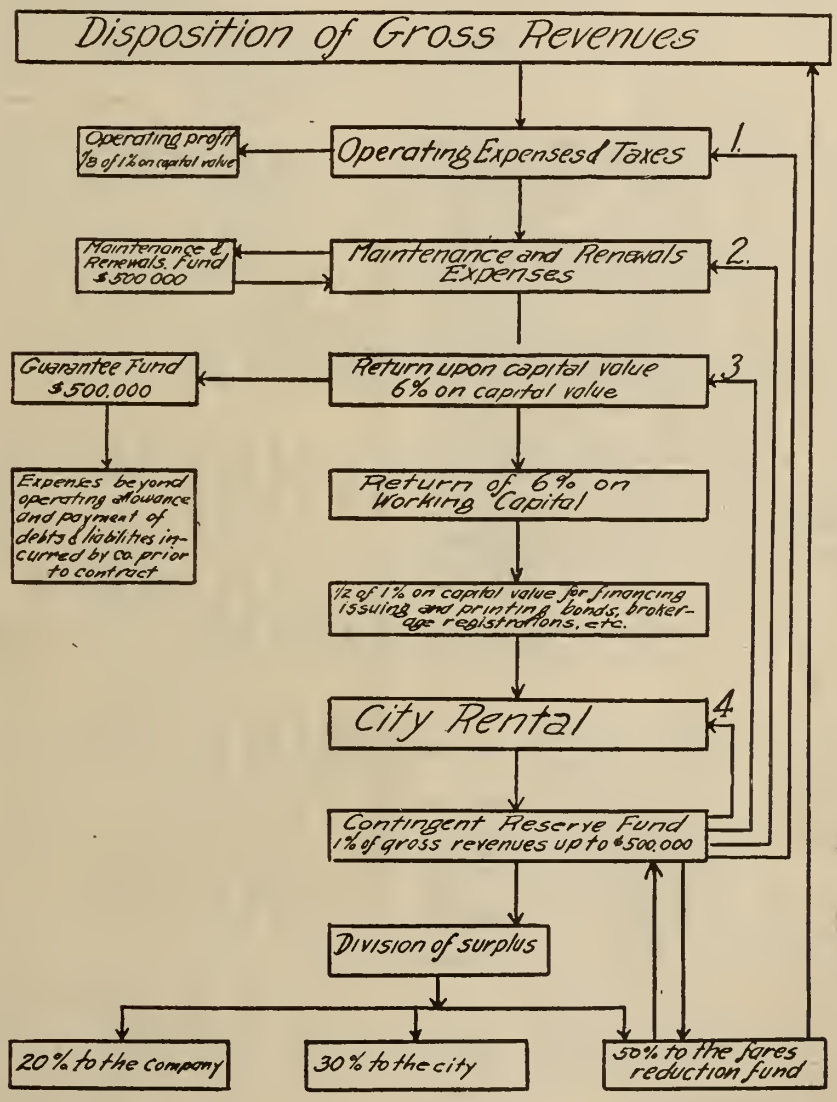
New rates of fare established on Oct. 3, 1918, and continued in force until Oct. 26, 1919, were as follows:—6c. cash; 5 tickets for 25c. (good 5 a.m. to midnight); 6 tickets for 25c. (good 5 a.m. to 8 a.m., good 5 p.m. to 7 p.m., Sundays excepted); 7 tickets for 25c. (good 8 a.m. to 6 p.m., Sundays excepted); 15c. cash or tickets after midnight, and other rates for outlying territory. The results obtained from these rates of fare from Oct. 1, 1918 to Oct. 31, 1919 (13 months) were as under:—

Passenger earnings	$9,706,967.77	
Miscellaneous earnings	185,557.70	
Gross revenue		$9,892,525.47
Operating expenses and taxes	5,699,287.01	
Maintenance and renewals	2,074,370.88	
Return on capital value	2,425,309.81	
Financing allowance	196,550.76	
City rentals	541,666.69	
Contingent reserve fund	98,925.26	
Total charges		11,036,110.41
Shortage		$1,143,584.94
Revenue passengers carried		201,919,820
Car earnings per passenger		4.80c.

On Oct. 26, 1919, the rates of fare established, which continued in force until Sept. 1, 1920, were as follows:—7c. cash; 5 tickets for 30c. (good 5 a.m. to midnight); 44 tickets (book) for $2.50 (good 5 a.m. to midnight). Book tickets cannot be purchased on cars, only at company offices; 7 tickets for 25c. (scholar) 8 a.m. to 6 p.m. (Sunday excepted); 15c. cash after midnight, and other rates for outlying territory. The results obtained from these rates of fare from Nov. 1, 1919, to Aug. 31, 1920 (10 months), were as under:—

Passenger earnings	$9,303,153.82	
Miscellaneous earnings	187,931.64	
Gross revenue		$9,491,085.46
Operating expenses and taxes	5,094,722.81	
Maintenance and renewals	1,878,112.24	
Return on capital value	1,895,672.42	
Financing allowance	151,192.89	
City rentals	416,666.66	
Contingent reserve fund	94,910.85	
Total charges		9,531,277.87
Shortage		$ 40,192.41
Revenue passengers carried		159,030,043
Car earnings per passenger		5.85c.

On Sept. 1, 1920, the rates of fare established and presently in force were as


Disposition of Gross Revenues
Operating profit ⅛ of 1% on capital value
Operating Expenses & Taxes
1.
Maintenance & Renewals. Fund $500 000
Maintenance and Renewals Expenses
2.
Guarantee Fund $500.000
Return upon capital value 6% on capital value
3
Expenses beyond operating allowance and payment of debts & liabilities incurred by Co. prior to contract
Return of 6% on Working Capital
½ of 1% on capital value for financing issuing and printing bonds, brokerage registrations, etc.
City Rental
4
Contingent Reserve Fund 1% of gross revenues up to $500,000
Division of surplus
20% to the company
30% to the city
50% to the fares reduction fund

under:—7c. cash; 4 tickets for 25c. (good 5 a.m. to midnight); 50 tickets for $3, (good 5 a.m. to midnight). Book tickets cannot be purchased on cars, only at company's offices; 7 tickets for 25c. (scholar) 8 a.m. to 6 p.m., Sunday excepted); 15c. cash after midnight, and other rates for outlying territory. The results obtained from these rates of fare from Sept. 1 to Nov. 30 (3 months) were as under:—

Passenger earnings	$2,907,094.70	
Miscellaneous earnings	81,764.55	
Gross earnings		$2,988,859.25
Operating expenses and taxes	1,537,878.07	
Maintenance and renewals	588,959.13	
Return on capital value	571,402.46	
Financing allowance	45,357.87	
City rentals	125,000.01	
Contingent reserve fund	29,888.60	
Total charges		2,898,486.14
Balance		$90,373.11
Revenue passengers carried		47,741,940
Car earnings per passenger		6.09c.

While substantial increases have been made in the company's gross revenues, the expenses have also increased. During the first period the charges to be met out of revenue amounted to a daily average of $23,386.41, against an average daily revenue of $20,918.16. During the second period the average daily charges were $27,868.96, an increase of 19% over the previous period and were in excess of the average daily revenue by $2,887.84 a day. During the third period, the average daily charges were $31,456.36, an increase over the previous period of 12%, and were in excess of the average daily revenue by the amount of $132.65 a day. During the fourth period ended Nov. 30, 1920, the average daily charges were $31,851.50, an increase over the previous period of 1.26%, and were less than the average daily revenue by $553.55 a day.

Increases in employes wages, which were to a large extent responsible for the increased charges, were granted as follows:—

Effective June 1, 1918—Approximate amount of increase for one year, 22%, or	$ 700,000.00
Effective July 1, 1919—Approximate amount of increase for one year, 28%, or	1,100,000.00
Effective July 1, 1920—Approximate amount of increase for one year, 17.4%, or	815,000.00

From the coming into force of the contract, Feb. 10, 1918, to June 30, 1920, the end of our last fiscal year, the results obtained are as follows:—

Gross earnings		$22,354,680.57
Operating expenses and taxes	12,583,161.61	
Maintenance and renewals	4,288,678.24	
Allowances to company	5,795,411.81	
Total		$22,667,251.66
Balance—Dr.		$ 312,571.09
Payable when earned:—		
City of Montreal rental	$1,192,694.05	
Contingent reserve	223,546.80	
		1,416,240.85
Shortage		$1,728,811.94

It will be seen that while the present rates of fare have produced a margin of revenue over expenses for the three months they have been in force, there is a considerable shortage resulting from the previous operations at the lower rates of fare to be made up. It is hoped, general conditions permitting, that this shortage can be gradually made up without the necessity of any radical increase in the present rates of fare.

Statement of Operations from July 1, 1919, to June 30, 1920.

Gross receipts	$10,782,470.09
Operating expenses and taxes	$5,849,911.89
Operating profit	46,606.68
Maintenance and renewals	2,190,557.43
Interest on capital value	2,177,177.70
Interest 7% on additions	69,827.46
Interest 6% on working capital	23,832.96
Financing expense	181,431.47
City's share	500,000.00
Contingent reserve fund	107,824.70
Total expenses	$11,147,170.29
Deficit	$ 364,700.20

Montreal Tramways Company. Comparative Traffic Statistics from 1910 to 1920.

Years July 1 to June 30	1910-1911	1911-1912 (9 months)	1912-1913	1913-1914	1914-1915	1915-1916	1916-1917	1917-1918	1918-1919	1919-1920
Gross receipts	$4,775,300.64	$4,355,403.57	$6,754,227.37	$7,142,804.19	$6,525,231.67	$6,609,765.15	$7,725,498.88	$7,579,410.28	$8,645,547.86	$10,782,470.09
Revenue passengers	118,268,080	104,458,960	159,892,021	168,472,952	153,576,271	156,408,303	178,267,232	182,173,701	183,350,923	191,941,835
Car miles	16,000,000	18,600,000	20,000,000	22,200,000	20,375,050	20,462,845	22,172,469	22,691,507	23,155,516	22,888,670
Total operating expenses	$2,679,805.82	$2,618,943.65	$4,032,664.37	$4,206,114.57	$3,713,996.44	$3,707,053.41	$4,601,771.84	$5,255,586.63	$6,669,340.68	$8,087,076.00
Net receipts available for payment of fixed charges and dividends	$2,095,494.82	$1,736,459.92	$2,721,562.80	$2,936,689.62	$2,811,235.23	$2,902,712.11	$3,123,727.04	$2,323,823.65	$1,876,207.18	$2,695,394.09
Gross receipts per revenue passenger, in cents	4.03	4.16	4.22	4.24	4.25	4.23	4.33	4.18	4.72	5.62
Gross receipts per car mile, in cents	29.8	23.4	33.7	32.2	32.05	32.26	34.90	33.40	37.40	47.11
Percentage of gross receipts devoted to total operating expenses	56.2%	60.2%	59.5%	58.9%	56.9%	56.1%	59.6%	69.4%	77.14%	75%
Total operating and maintenance expenses per car mile, in cents	16.7	14.08	20.1	18.9	18.3	18.1	20.8	23.2	28.8	35.33
Net earnings per car mile, in cents, for payment of fixed charges and dividends	13.0	9.33	13.6	13.2	13.8	14.2	14.1	10.3	8.52	11.78
Operating, maintenance and renewal expenses, in cents, per revenue passenger	2.2	2.5	2.5	2.5	2.42	2.37	2.58	2.88	3.64	4.21
Net earnings, in cents, per revenue passenger, for payment of fixed charges and dividends	1.76	1.66	1.70	1.74	1.83	1.86	1.75	1.26	1.08	1.40

After more than two years trial, it is my belief that the plan now in operation in Montreal is working out to the advantage of the citizens. It is true that the rates of fare have been increased, but had they not, the company would have been obliged to greatly curtail the service and defer maintenance in order to make the revenue pay operating expenses. Notwithstanding the deficits of 1918, 1919 and 1920, the company never for one day deprived the public of the customary good, clean and up to date service. In this way we held the good will of our patrons who are perfectly willing to pay whatever satisfactory transportation costs.

Street railways throughout the country, like steam railways, have been placed in a critical position over which the management had no control. The rates in effect, prior to the war, while sufficient to at least pay expenses, were found woefully inadequate, after 1916, to provide for the service the public demanded, and maintain their property in anything like proper condition. In this regard I would call attention to the Montreal Tramways Co.'s table of traffic statistics from 1910 to 1920, given herewith, which indicates operating and maintenance expenses increasing from 16.7c. in 1910, to 35.33c. a car mile for the year ended June 30, 1920. This will be further increased in 1921 to 40c. a car mile, due to an increase in wages made July 1, 1920.

It is true that relief has come to many companies by public utilities commissions granting increased fares, but action was so long delayed, due to hostile public sentiment, that many properties were forced to cease operating or to fall into the hands of receivers. During 1920, 450 miles of electric railways were dismantled and 308 miles abandoned. A report just completed shows that 548 cities in Canada and the United States, representing more than 90% of the riding population, are paying fares ranging from 5c., with 1c. for transfer, to a flat rate of 10c. The largest groups are:—

Cities paying 10c.	112
Cities paying 9c.	6
Cities paying 8c.	6
Cities paying 7c.	174
Cities paying 6c.	124

The conditions, which I have referred to, have tended to break down the credit and stability of the electric railway industry. Unless the confidence of investors in the securities of public utilities is restored, the public must, in some way, assume the responsibility and provide funds for the carrying on of an essential public service. Lack of confidence in public utilities investments, at the present time, is very serious, embarrassing the companies and depriving the public of adequate or satisfactory service. The question then is, whether the need for local transportation can best be met by public ownership and operation, or by private ownership and management with public control. If the public was convinced that municipal government is qualified to carry out the management of public utilities it would probably ask that this be done, and I would say that there should be no objection provided a

fair valuation of the property is allowed. It is my opinion, however, that the operation and development of a street railway property requires men trained in the arts and science of the business, and who are absolutely free from local political influence, to handle the many problems of the service.

Municipal ownership is urged by some as a panacea against increased fares. It does not matter by which plan the street railway is managed, the cost of the service must be found, either from those who use the cars or by taxation. For this reason I believe the public interests would be better served by private ownership and management with public control appointed by Dominion or provincial authority. Under this plan the public pays for the service it gets, the rates of fare to be automatically adjusted, up or down, to meet changing operating conditions. The principal features are: fair valuation of property; fair return on capital value; private ownership and management; public supervision and control; city's right to purchase at any time upon an agreed basis; the fundamental basis of a service at cost contract is a fair valuation of the physical assets of the company.

It is plainly evident that whether the public shall decide to operate its railways, whether it assumes greater control over them, or whether it allows them to remain in the hands of private individuals, the revenue must be such as to provide for the full cost of service. It costs a lot of money to run street cars under present conditions, and in my opinion the logical way to get it is from the fare boxes.

General Statement, Montreal Street Railway Co., 1892.

ASSETS—		
Construction of railway, etc., to Sept. 30, 1892		$571,765.71
Real estate and buildings		344,966.79
Rails, track materials, stores, etc.		16,389.82
City of Montreal and other open accounts		132,267.49
Equipment, cars, horses, sleighs, etc.		363,107.93
Cash on hand and in bank		23,136.49
		$1,451,634.23
LIABILITIES—		
Capital stock		$900,000.00
Bonded debt, 5%		292,000.00
Special loans for extensions, etc.		141,842.78
Unclaimed dividends		2,090.79
Bailleur-de-fond mortgages		5,221.51
Sundry creditors		28,683.28
Contingent account		45,795.87
Profit and loss account		36,000.00
		$1,451,634.23

Montreal Tramways Co.'s General Balance Sheet, 1920.

ASSETS—		
Cost of road and equipment to June 30, 1919		$41,980,353.58
New construction for the year	492,641.30	
Less value of discarded property	375,835.24	
		$42,097,159.64
Accounts receivable	491,250.00	
Stores	725,117.41	
Cash on hand and on loan	529,334.39	
Underlying securities redemption fund	3,550.24	
Guarantee fund	200,000.00	
Maintenance and renewals account	14,482.05	
Suspense account (interest)	121,591.03	
Balance due company on new contract	312,571.09	
		2,397,896.21
Investments		274,137.50
		$44,769,193.35
LIABILITIES—		
Capital stock (common) subscribed	$4,000,000.00	
Less unpaid and subject to call	119,760.00	
		$ 3,880,240.00
Debenture stock		17,000,000.00
First and refunding mortgage 5% gold bonds		16,335,000.00
Underlying bonds	$4,420,000.00	
Less redeemed and cancelled to date	1,146,846.56	
		3,273,153.44
Mortgages		843.00
		40,489,236.44
Accounts and wages payable		$1,069,461.28
Accrued interest		239,242.01
Employes securities		21,292.88
Unclaimed dividends		1,956.57
Unredeemed tickets		233,911.73
Suspense account		643,126.72
Financing allowance		432,784.48
Dividend payable Aug. 2, 1920		97,006.00
		2,738,781.67
Reserve account		600,000.00
Surplus		941,175.24
		1,541,175.24
		$44,769,193.35

Montreal Tramways Company Snow Expense, 1906 to 1920

Season	Amount	Snow fall, Inches	Per inch
1906-1907	$122,428.66	150.5	$ 813.48
1907-1908	178,824.40	151.9	1,177.25
1908-1909	175,083.35	138.8	1,261.41
1909-1910	157,187.30	97.2	1,617.15
1910-1911	135.164.01	119.9	1,127.31
1911-1912	176,796.30	107.5	1,644.62
1912-1913	157,989.89	102.5	1,541.37
1913-1914	168,885.18	105.9	1,594.76
1914-1915	160,394.23	86.6	1,852.13
1915-1916	171,420.28	103.2	1,661.05
1916-1917	205,349.39	105.3	1,950.14
1917-1918	211,172.61	129.6	1,629.42
1918-1919	243,188.10	104.6	2,324.93
1919-1920	263,790.92	109.2	2,415.67
Total	$2,527,674.62	1612.7	$22,610.69
Aver. per season	$180,548.19	115.2	$1,615.05
Maximum	$263,790.92	151.9	$2,415.67
Minimum	$122,428.66	68.6	$813.48

The above figures do not include the city's proportion of expense of snow removal, which is about 70% additional.

Publicity and Public Relations.

By A. W. McLimont, Vice President, Winnipeg Electric Railway.

Today the majority of Canadian street railway companies may be said to be standing at the crossroads. To the left a broad and easy way leads on to the graveyard, where obsolete and bankrupt transportation systems rust, while to the right a narrow and rugged path runs to a place where modern transportation systems operate on a financially sound basis, because the communities they serve are interested in their problems and will cooperate with them in mutual interests. There is no question which path we wish to take. We all want to continue to serve the public. How then shall we reach this Utopia of street railways? My answer is: I believe it is the duty of a street railway manager to let the public know the facts about any phase of the street railway business that concerns them. I believe we should lay our problems before our patrons, not as suppliants, but as one business man presents a mutual problem to another, with a view to securing assistance in solving it. I believe when we ask the public to pay the increased fares necessary to enable us to render adequate service we should tell the reasons why. We are vendors of transportation, a "place utility" as the economist would say, as important to society as any manufactured product and as the manufacturer sells his product so must we sell transportation. I believe the public is square, and that once we induce people to think and talk about street railway problems, public opinion in our favor will become such a powerful factor that the authorities will give the street railways a square deal.

Right Public Relations.—Let us first consider right public relations: To secure them it is essential that our equipment be clean. It is essential that we shall keep faith with our employes and treat them fairly. We must be truthful. We, and the members of our organization, must be good citizens of the community in which we live. We must "boost" when boosters are needed, and work for the public good whenever that is possible. And above all, we must make up our minds that it is our business to endeavor to determine how we can best serve the public.

Proper publicity requires:—That any statements we give to the press, or to the public, in any form shall be the truth. That we shall live up to what we have already stated we believe about right public relations, because proper publicity and right public relations go hand in hand. That we shall practice what we preach. We must lay our problems before everyone interested in them if we are eventually to secure a square deal for the properties we represent. When we tell people the physical property of the railway is run down, because revenues are inadequate or that the street railway is paying unfair and burdensome taxes, we are met with the question—"Who knows about it? How can you expect to get redress if you don't tell the public the facts?" Therefore we try to tell the public the facts and interest the public in us and our problems.

Means of Informing and Interesting the Public in Street Railway Problems. The Winnipeg Electric Railway Co. decided the best way to do this was:—Through a publicity agent, charged with the duty of establishing and maintaining friendly relations with newspaper men. Through briefs distributed to interested persons and organizations. Through poster announcements pasted on street car windows. Through an official publication distributed free in the street cars. Through paid advertisements in the newspapers. By means of large advertising cards in frames placed on the outside of our street cars.

Let me elaborate upon these various mediums a little. The Publicity Department of the Winnipeg Electric Ry. was established on Mar. 1, 1918, in charge of H. C. Howard, a young newspaper man. The then main duties which fell to this department were:—To establish good relations with the newspapers — largely through personal contact with the editors and reporters. To prepare every two weeks an issue of "The Public Service News," a pamphlet for free distribution through boxes in the street cars. To prepare advertising and all publicity matter pertaining to the company. Considerable progress has been made towards establishing better relations with

the newspapers. It is our policy to work closely with them and see that they are given accurate and reliable news. They appreciate this and generally treat the company fairly. "The Public Service News" is issued every two weeks and has now reached a circulation of 40,000 an issue. It has proved a powerful influence in the bettering of public relations. Generally speaking, it is the aim of the Publicity Department to keep the name of the company prominently before the public, to see that all new developments and items of general interest pertaining to the company are recorded in the local press, and through co-operation with organizations promoting worthy causes, to better public relations.

When we were asking the city to pass a bylaw eliminating the unfair jitney competition to our transportation service, we prepared a brief with reference to the question entitled "Statement of the Problems of Street Transportation as it affects the City of Winnipeg," and had a large number of copies distributed to those interested. This brief was widely read and quoted and no doubt was a factor in the final elimination on May 1, 1918, of jitney competition to our transportation service.

From time to time as various questions concerning the street railway arise, we print an official statement, bearing my signature as Vice President of the company, on large posters and paste them on the car windows, sometimes as many as four posters to a car. The Rolling Stock Department is responsible for placing the posters on the cars, and the work is done at night when the cars are in the barns. By this method we are able to reach all the car riders over night. We also use car window posters to announce charitable entertainments or special sporting or other events in which our organization is interested. A number of safety first drawings have appeared on window posters and have helped prevent accidents. I feel sure you will be interested in our "Jay Walker" series, samples of which accompany this paper.

Since the first copy of the Winnipeg Electric Public Service News was issued, 2,400,000 copies have been printed and distributed free, mostly through the "Take One" boxes in our cars. We also have a mailing list of about 1,000 names to which it goes each fortnight. In this official organ we endeavor to set our operating and other problems before the public. We never "knock." If we can't boost we try our best to keep still. Each new issue of the Public Service News is announced by a window poster in the cars, and our experience is that the available supply is soon exhausted.

The properly written and attractively set up paid newspaper advertisement is in my judgment one of the best, if not the best, medium for reaching the members of the community. This method of publicity is necessarily expensive and we only use it for special announcements. For instance, when the Manitoba Public Utilities Commission granted us an increase in fares last autumn, the city started an action in the courts to upset the increase and have the Public Utilities Act declared ultra vires. We desired to convince our patrons and the public generally that the verdict of the Commission was a fair one and that the city was not justified in opposing it. We therefore ran a series of full page advertisements in all the daily papers, and most of the weeklies in Winnipeg, explaining the whole matter. These advertisements, together with window posters in the cars on the same subject, and articles in our own Public Service News, threw much needed light on the situation, and we believe influenced local public opinion in our favor.

The Winnipeg Electric Ry. problem was one of the issues in the Winnipeg election this year. The Mayor for 1921 was elected by a large majority. His platform is that he favors a round table conference, rather than litigation, so far as the railway is concerned, and before he was elected he gave the voters clearly to understand that he favors granting the railway a fare that will ensure adequate wages and enable us to procure the necessary capital to carry on.

On the outside of each standard passenger car in Winnipeg we have placed five metal holders. Each holder takes an advertising card 22 x 26 in. The privilege of placing these cards on the street

A. W. McLimont,
Vice President, Winnipeg Electric Ry., and member Executive Committee, Canadian Electric Railway Association.

cars is leased to a local advertising company on a percentage basis; the railway retaining, of course, space for its own use. Only cards advertising traffic producing events are permitted to be thus displayed by the advertising company, but the railway displays such slogans as "Street Cars Can't Dodge," "Please Have the Exact Fare Ready," etc., which are printed on the backs of the regular advertising cards, and are used in the company's card space. Cards are placed in these frames on the outside of the street cars at night by the Rolling Stock Department, and it is possible to change all the cards over night. Photographs of sample of cars carrying these cards are submitted for your inspection.

Meetings of Heads of Departments.—I have confined my remarks up to this point to various means which our company is employing in informing and interesting the people of Winnipeg in the street railway problem there. The success which we have had in this direction is not, however, fully attributable to the means which I have thus far explained. Much of it is, I am sure, due to the results obtained indirectly from the attitude of the various members of my organization. I refer particularly to their apparent desire and aim to serve the public efficiently. As a means of getting my entire organization striving to serve the public well, weekly meetings of the heads of departments are held in the directors' room. At these meetings everybody is made to feel as free from restraint as possible in order that a frank discussion can be held of difficulties in each other's departments which may be overcome through consultation with the heads as a whole, and also that suggestions may be received by the organization from anyone upon any subject that is of interest to the company. I am sure every manager who holds periodical meetings of heads of departments along the lines I have suggested finds beneficial results. Better co-operation is obtained among the departments, through the men becoming better acquainted personally, and more or less familiar with the workings of each other's department. There is no amount of printed matter that can obtain the same co-operation and efficiency as can the personal contact of the members of an organization meeting in a free discussion of their many problems. At these meetings I have repeatedly impressed upon my organization the fact that they must work under the principle that we are like a factory producing things for the public to buy. We produce cubic feet of gas, kilowatt hours of electricity for light, heat and power purposes, and furnish car miles for transportation. I tell them that these services must be produced in the most efficient manner, and at the least possible cost, in order that they may be sold to the public at an acceptable figure. I point out that we must have our customers like our service and the things we sell, in order to obtain support and patronage, and that without satisfying customers we cannot expect to be successful any more than any other commercial enterprise.

I feel certain that it is largely through such means as I have related that the Winnipeg Electric Ry. has been successful in having its fares increased three times within the past two years, and that jitney competition, which for a time seriously threatened to upset the street railway service, has been abolished. Moreover, there has been no disagreement with the company's railway employes of sufficient importance to warrant the employes to strike, the only strikes which have occurred were sympathetic ones and were not entered into because of disagreements with the company.

In conclusion, I wish to reaffirm my faith in the statement that the public is square, and that eventually Canadian street railways will be given a square deal if the public is given the facts. I am not pessimistic in my view of what the future has in store for the street railway business, because I believe that proper publicity, coupled with a sincere desire to give efficient service will help our reaching the street railway's Utopia. At any rate it will prevent our business from going to the graveyard, where obsolete and bankrupt transportation systems rust.

Major F. D. Burpee's Views.

Major F. D. Burpee, Manager, Ottawa Electric Ry., said:—I have been very much interested in Mr. McLimont's paper, because we, in Ottawa, have been trying to win and hold the good will of our customers, in a somewhat similar

way. Aera for January contains two splendid articles on street railway publicity, one by M. B. Lambert, of the Westinghouse Co., and the other by B. J. Mullaney, of the Illinois Committee on Public Utility Information. Both of these should be read by anyone interested in this subject.

Speaking entirely without local application, the street railway industry has always experienced more or less marked hostility from the press, public officials and the public. It has become a popular pose to regard us with suspicion. There is always the feeling that in knocking us one is taking the side of the under-dog, the poor individual against a rich autocratic soulless corporation, sometimes termed "a malefactor of great wealth," a double barrelled insult to those of us who are trying to get along on a 5c. fare. That is the usual state of mind of juries when they listen to the arguments in a street railway damage case. And in the past we railway men have helped the growth of that unfriendliness by doing little to offset it. How many managers, when their companies have been attacked in the press, have dismissed the matter by saying "What's the use of getting into an argument? They have to ride anyway." Or, if they did reply, only made matters worse by sarcasm, or evasion. The public love a scrap, and the more bitter it is, the more news value it possesses. It amuses them for the time, but it does permanent harm to the railway company. We can't all be perfect. Let us admit that complaints are sometimes justified. Being reasonably sure of a certain revenue, have we always considered it necessary to work for the friendship of our customers?

Mr. Lambert, in his article, observes that the absence of public good will is the biggest obstacle in the path of the electric railway industry. He defines public good will as "confidence in the company, its officers and its employes; a desire to see it progress and prosper; and a willingness to co-operate with it in every possible way." The hostility we have experienced in the past is mainly due to lack of knowledge of our business, and the difficulties and problems we have to contend with. The attitude of the press and public officials exists because they think it is a reflection of the feelings of the people. There is no doubt we can remove that spirit of unfriendliness, and substitute for it good will and co-operation, if we go about it the right way, and keep everlastingly at it.

I will again quote from Mr. Lambert: "Good will is created and built up in innumerable ways. It is a continuous performance on the part of everyone associated in any way with the railway company. If every employe fully appreciated the importance and great value of maintaining and strengthening the good will of the public and kept this uppermost in their minds each day, the progress and prosperity of their company and themselves would be greatly enhanced."

There is a triangle of interest in every street railway. The public—our customers; the company, by which I mean those who direct the policy and operations of the railway; and the employes, those who carry out the policy and direction of the company. Good service is necessary for the welfare of the community. The most efficient service and the greatest prosperity for all can only be obtained with the full co-operation of these three.

Has it ever occurred to you that every company has, in its staff of employes, hundreds of excellently placed agents, that only need a little training to be a most effective force in winning and holding the friendship of our patrons? For every request for information received at the company's office, hundreds are being daily proferred to our conductors, and, to some extent, to our motormen. We can train our employes so that they will be thoroughly imbued with the importance of making friends, and that to have good will of their passengers will make their work much easier, and be a valuable asset to them as well as to their company. We have tried to impress on every member of our staff that discourtesy is the unforgiveable sin. Every request for information or assistance, every complaint, whether justified or unreasonable, is an opportunity to make a friend or to conciliate an enemy. It is most important to resist that human inclination to answer criticism with sarcasm or smartness, and if we do so, we play right into the hands of our enemies, and confirm them in their convictions.

To successfully educate our employes to win the good will of the public, we must first win the good will of the employes. We can teach them courtesy by receiving all complaints and suggestions from them in that spirit, and show them that their comfort and welfare is always being considered. We should give them all the information we can, and encourage them to keep informed of the details of our business and the local transportation problems, so that they can intelligently meet the public, as agents of the company. We should encourage them to take a pride in their work, so that they all will pull together to produce good service, which is, after all, the best means of winning the good will of the public. For some years back we have published a leaflet for our employes, called the "O.E.R. Bulletin." It was primarily intended to repeat in permanent form the important bulletins issued during the previous month, but to this has been added articles dealing with the most efficient methods of operation; the prevention of accidents; and the importance of handling our customers so as to win and retain their friendship. This publication goes to our men with their pay on the twentith of each month, and I am satisfied it is carefully read and appreciated. It is an excellent means of imparting to them our general policy, and enlisting their co-operation.

Mr. McLimont has described the various means used in Winnipeg to remove public hostility by educational propaganda. Many of us cannot afford so elaborate a programme, but we can all do something, and must suit the will to the purse. We must first recognize that the public is an interested party, and entitled to all the information we can give.

The public press forms an excellent medium of keeping in touch with the public. It brings us in close contact with the newspaper people, and gives us an opportunity to discuss their attitude and policy toward our business. Letters of complaint or criticism appearing in the press should always be answered. If the cause of complaint can be removed, so much the better, but from a publicity standpoint it is essential that an answer be published. The complainant may be voicing the sentiment of hundreds of others, and a good occasion is provided to reach all of them.

While on the subject of complaints, let me point out that while we don't like to receive them, they do afford chances that should not be overlooked for making friends. Every complaint by letter, telephone or verbally given, can often be handled so as to make a friend of the complainant. If the complaint is justified, it should be admitted and corrected. If it is unreasonable, it can be explained away. The important thing is to receive it politely and show that it is being promptly considered.

Whatever means of publicity are adopted, one that should not be overlooked is the publication of a small leaflet distributed directly to passengers on the cars, such as the Winnipeg Public Service News. It reaches the people we are most concerned with, the car riders. It gets into their hands at a time when they have nothing to do, and is doubly welcome because it provides them with some entertainment during that time. Such a publication must, above all, be truthful. It must be readable. The articles it contains must be written from the standpoint of the car rider. It must be entirely free from sarcasm, bitterness, or jokes at the expense of the public. There are plenty of subjects to write about: accident prevention; means by which the car rider can help to improve the service to his own advantage; facts about the industry in other places; local transportation problems and their solution; explanations of the technique of our business; and dozens of other topics.

Mr. Mullaney says in this connection that "Matter which utility managers think is 'great stuff' is probably poor stuff. The utility manager is seldom a good judge. He sees only one side of the case, and his judgment of the other side is obscured." Mr. Mullaney says: "To be effective, educational publicity must 'come clean,' both in methods and motives. Facts, not arguments, should be the foundation of all publicity effort."

We have been issuing a publication of this kind for the last 18 months. Copies of the last number greeted you on your arrival. We place 10,000 in our cars every Saturday morning, and they are all gone by noon. We do not use a box, but hang them in bundles, by string, from the strap rail and ventilator rods, where they can be easily seen. As an example of the utility of our little sheet, I will mention that last year we cut out 25% of our city stops. Before doing so, we announced the change in several issues of the O.E.R. News, and explained the improvement in the service that would result. There were no complaints, because our patrons knew why it was done, and therefore approved.

I am a firm believer in company publications for the public and our employes, but they should not be undertaken unless with the intention of making them permanent. If they are inaugurated to accomplish some definite object, and then dropped, it will only increase the suspicion and hostility that have in the past magnified our difficulties and hindered us in our operations. Nothing should at any time be published that we cannot stand behind. If our readers once get the idea that we are trying to "slip something over," all our work for good will and co-operation will be nullified.

Finally, let us realize that the friendship of those we serve is the most valuable asset we can possess. It is very susceptible to change, and will grow or decrease according as we, and our officials and employes, work to acquire and hold it. It can only be permanently retained by constant effort, but will repay us a hundred-fold for all the time and money we can devote to it.

Electric Railway Operating Statistics for Year Ended June 30, 1919.

The figures in the following table are reproduced from statistics issued by the Dominion Bureau of Statistics at Ottawa. The following abbreviations are used in the names of railways: E., electric; E.R., electric railway; E.S.R., electric street railway; S.R., street railway. The minus mark (—) in the column for the net income or deficit, shows that there was a deficit in the operation of the line to the extent of the figures given.

The figures in the first column of figures show the first main track mileage. In addition, the lines reported having 482.36 miles of second track, and 220.92 miles of sidings and turnouts.

Name of Railway	1st Main track mileage	Gross earnings from operation	Miscellaneous income	Operating expenses	Taxes funded debt, etc.	Net income or loss	Total car mileage	Fare passengers carried	Freight carried tons
Brandon Municipal Ry. (1)	10.31								
Brantford & Hamilton Ry.	23.19	$235,232		144,106	$ 95,836	$ —4,710	374,555	755,920	5,668
Brantford Municipal Ry.	14.61	131,798		94,882	21,387	15,528	403,275	2,084,099	
British Columbia E.R. (2)	245.25	3,936,351	$1,253,833	3,265,394	1,026,117	898,672	12,278,305	53,316,288	351,926
Calais S.R.	7.00	45,521		36,559	5,837	3,124	183,960	679,952	
Calgary Municipal Ry.	58.50	653,643	20,000	469,691	125,152	78,799	2,793,069	14,323,208	4,360
Canadian Resources Development	1.75	67		893		—826	6,388	1,342	
Cape Breton E.R. (3)	30.59	311,277	136,813	261,821	123,326	62,942	742,211	5,598,904	
Chatham, Wallaceburg & Lake Erie Ry.	38.05	184,470		152,971	42,563	—11,064	460,000	239,320	111,562
Cornwall E.R.	4.00	45,937	49	37,627	1,271	7,088	212,633	499,859	91,987
Edmonton Radial Ry.	31.31	551,510		421,515	276,114	—146,119	2,038,386	10,151,809	128
Fort William Municipal Ry. (1)	19.88								
Grand River Ry.	18.55	270,273	2,108	190,954	22,075	59,352	353,029	1,238,173	143,298
Guelph Radial Ry.	8.03								
Hamilton & Dundas E.R.	6.98	89,471		72,172	6,801	10,494	163,517	1,091,946	33
Hamilton, Grimsby & Beamsville E.R.	22.60	176,110		168,475	17,139	—9,504	419,907	888,406	37,415
Hamilton Radial E.R.	22.86	162,782		150,443	65,259	—52,920	411,848	1,185,989	25,500
Hamilton S.R.	17.40	835,715		657,700	104,362	73,652	2,758,783	19,514,447	
Hull Electric Co.	16.23	231,622	29,428	175,886	93,815	—8,650	861,844	3,006,273	10,487
International Transit Co.	4.30	95,392	4,460	67,484	8,648	23,720	260,911	2,094,270	
Kingston, Portsmouth & Cataraqui E.R.	7.00	56,529	765	51,455	40,868	—35,029	199,680	1,177,785	
Kitchener & Waterloo S.R.	3.28	67,489		45,730	7,442	14,315	199,334	1,531,843	
Lake Erie & Northern Ry.	51.00	253,938		182,379	96,974	—25,415	396,730	490,297	52,961
Lethbridge Municipal Ry.	7.00	51,887		55,734	27,432	—31,279	224,756	1,022,519	
Levis County Ry.	11.75	129,224		128,409	26,904	—26,090	465,248	1,852,866	2,500
London & Lake Erie Ry. & Trans. Co. (4)	29.75								
London & Port Stanley Ry.	24.50	499,656		350,740	117,862	31,053	860,142	958,587	440,285
London St. R.	27.48	474,499		393,297	37,946	43,255	1,806,019	12,740,715	
Moncton Tramways, E. & Gas Co.	2.72	20,030	122,700	18,005	16,890	107,835	81,281	423,855	
Montreal Tramways Co.	137.87	8,364,151		6,460,879	3,262,026	—1,077,358	22,315,599	183,350,023	300,640
Montreal & Southern Counties Ry.	52.20	645,547	46	339,952	83,196	—58,950	892,875	2,355,236	16,523
Moose Jaw Electric Ry.	9.00	103,329		99,329	3,363	635	423,957	2,247,226	
Nelson S.R.	2.13	15,180		14,767	4,050	3,636	591,000	390,201	
New Brunswick Power Co.	14.00	345.673	181,633	326,242	102,279	98,785	1,058,812	6,237,767	
Niagara Falls Park & River Ry.	11.91	131,435	7,967	101,036	35,830	2,536	276,340	1,296,560	
Niagara, St. Catharines & Toronto Ry.	61.70	892,732		743,000	98,457	51,254	1,462,373	6,460,695	356,400
Niagara, Welland & Lake Erie Ry.	1.87	31,352	648	20,188	3,499	8,312	89,534	679,021	
Nipissing Central Ry.	15.37	104,394	316	100,165	10,246	—5,700	271,956	1,160,135	
Nova Scotia Tramways & Power Co.	12.62	454,991	227,925	320,784	211,511	150,621	1,133,490	16,292,966	
Oshawa Ry.	9.00	172,316	4,466	101,745	14,571	60,465	83,347	347,884	173,406
Ottawa E.R.	26.81	1,489,526		931,648	110,970	446,907	5,127,367	31,247,917	
Peterborough Radial Ry.	6.91	76,398		75,230	12,218	—11,050	438,511	1,522,218	
Pictou County Electric Co. (1, 5)									
Port Arthur Civic Ry.	12.43	169,739		122,621	74,707	—27,588	655,784	3,904,985	
Quebec Ry., Light & Power Co.:									
Citadel Division	16.75	643,958		429,559		214,398	2,157,888	13,334,247	
Montmorency Division	28.60	235,415		204,731	4,570	26,113	434,550	1,834,112	
Regina Municipal Ry.	25.34	272,941		234,491	97,852	—59,402	951,399	5,227,487	34,005
Sandwich, Windsor & Amherstburg Ry.	35.13	315,082	20,160	236,132	62,885	72,225	1,079,194	7,001,984	
Sarnia S.R.	8.25	78,831		64,658	5,208	8,964	209,196	7,258,714	189,842
Saskatoon Municipal Ry.	12.63	209,556		171,021	30,972	—1,437	754,129	4,114,940	
Schomberg & Aurora Ry.	14.40	22,367		23,355	29,426	—30,414	49,483	35,626	22,336
Shawinigan Falls Terminal Ry.	3.75	69,003		78,347	13,811	—23,156			
Sherbrooke Ry. & Power Co.	9.00	65,273	75,585	75,268	70,716	—5,124	396,663	1,342,381	
St. Thomas S.R.	6.00	30,924		38,525		—7,601	211,275	477,225	
Suburban Rapid Transit Co.	17.25	99,163	21,114	109,705	39,955	—29,383	766,929	2,329,743	742
Sudbury-Copper Cliff Suburban E.R.	7.90	53,591		42,932	5,668	4,991	153,465	556,711	
Three Rivers Traction Co.	7.10	108,276		66,571	22,294	19,409	402,369	2,122,630	
Toronto Ry.	61.78	6,647,552	59,465	4,412,518	1,806,707	487,791	20,152.325	169,352,523	
Toronto Civic Ry.	10.26	375,234		341,799	99,910	—66,475	1,699,114	22,296,193	
Toronto Suburban Ry.	64.62	330,909		296,427	142,315	—107,834	759,776	4,074,821	11,477
Toronto & York Radial Ry.	72.17	796,168		577,422	192,057	26,688	1,602,170	7,547,949	47,342
Waterloo-Wellington Ry.	3.45	10,041		8,150	3,798	—1,909	35,800	201,794	

(Continued on page 157.)

Electric Railway Operating Statistics for Year Ended June 30, 1919. (Continued from page 156.)

Name of Railway	1st Main track mileage	Gross earnings from operation	Miscellaneous income	Operating expenses	Taxes funded debt, etc.	Net income or loss	Total car mileage	Fare passengers carried	Freight carried tons
Windsor, Essex & Lake Shore Rapid Ry. .	36.17	199,001	.....	154,231	59,742	—14,972	401,945	577,579	39,776
Winnipeg E.R.	64.84	2,364,030	527,185	1,782,051	914,425	195,038	9,347,196	52,978,858	.....
Winnipeg, Selkirk & L. Winnipeg Ry. .	38.48	152,358	26,624	105,406	46,893	26,682	411,761	711,930	4,293
Woodstock, Thames Valley & Ingersoll Ry.	10.00	23,421	.....	18,479	7,660	—2,718	103,280	81,285	.....
Yarmouth E.R.	3.00	50,221	208	15,349	13,871	21,209	104,544	260,166	.....
Total	1696.52	$35,696,532	$2,723,510	$26,839,070	$10,114,425	$3,352,871	106,961,607	686,124,263	2,474,892
Add Pictou County Electric Co. (5) . .	9,10					—1,886,336 $1,466,535			
	1705.62								
Less London & Lake Erie Ry. & T. Co. (4)	29.75								
	1675.87								

Notes to Electric Railway Operating Statistics.

The following notes refer to the statistics on this and the preceding page:—

(1) Brandon Municipal Ry., the Fort William Municipal Ry., and Pictou County-Electric Co. did not report.

(2) The British Columbia Electric Ry. reports that 150.67 miles of track operated is leased. This is principally from subsidiary companies and some from the C.P.R.

(3) The Cape Breton E.R. operates over 19.03 miles of leased track.

(4) The London & Lake Erie Ry. & Transportation Co. ceased operations Oct. 15, 1918, and we were officially advised in June 1919 that the whole of the rails had been taken up and sold. We have therefore deducted its mileage from the total given in the table.

(5) The Pictou County Electric Co. advised us in 1919 that it had 9.10 miles of first track, so we have added these figures to the total for other lines given in the table.

British Columbia Electric Railway Subsidiary Company's Application to Dominion Parliament.

As stated in Canadian Railway and Marine World for February, the Vancouver, Fraser Valley & Southern Ry. Co., a subsidiary of the British Columbia Electric Ry. Co., gave notice recently of its intention to apply to the Dominion Parliament for legislation to enable it, among other things, to take over the whole of the B.C. Electric Ry. Co.'s properties, consisting of city and interurban railways in Vancouver, North Vancouver, New Westminster and Victoria, and its light and power systems, with the exception of its power plants and gas properties. We are advised that it is proposed to change the name of the Vancouver, Fraser Valley & Southern Ry. back to the British Columbia Electric Ry. Co., or a similar name. The object is to place the company under the Dominion Board of Railway Commissioners' jurisdiction, and by that means obtain the stability as regards fares and rates which will enable the company to raise new capital. At present the company is temporarily under the Board of Railway Commissioners, having been placed under Dominion control in 1919 by an act of Parliament which was not intended to apply to electric railways. The Dominion Parliament, at its 1920 session, passed an amending act to return the B.C. Electric Ry. Co. to provincial jurisdiction in July 1921. Owing to the abolition of the B.C. Public Utilities Commission, this would thrust the company back on its original franchises, which provide for a 5c. fare, although a 6c. city fare and a 7c. suburban fare are now charged. The alternatives before the company are the negotiating of new franchise rates with half a dozen cities and municipalities, or obtaining authority from a commission. The latter course has taken the form of the application for a Dominion charter in the absence of a provincial commission. The company is pointing out that new capital will be urgently required during the next year or two, and that it will be impossible to obtain it if its fares are not on a stable basis.

The company's application to the Dominion Parliament has been considered by the Vancouver and Victoria city councils and a conference of representatives of all municipalities within which the company operates was held on Feb. 10, at which it was decided to oppose the company's bill, and to ask the B.C. Government to re-establish its Public Utilities Commission. Negotiations between the municipalities and the company's management followed and a Vancouver press dispatch of Feb. 20 says that as a result of a decision of officials of municipalities in which the company operates to take immediate steps to pass such bylaws as will maintain existing conditions under which the railway operates, including street railway fares, General Manager Kidd announced that the application to the Dominion Parliament referred to above would be withdrawn, and that present conditions will continue until June 30, 1922.

Increases in Electric Railway Freight and Passenger Rates

British Columbia Electric Ry.—In July 1918, under an agreement with the Vancouver City Council, the cash fare on the company's lines in Vancouver was increased from 5c. to 6c., and in 1919 the B.C. Legislature confirmed this fare until such time as the Public Utilities Commission, then appointed, would fix a fare. The Commissioner began his investigation, and before it had proceeded very far it was discovered that under an amendment to the Dominion Railway Act the company's lines had been placed under the Board of Railway Commissioners' jurisdiction. The B.C. Public Utilities Commission was abolished in 1920, and the question of the Board of Railway Commissioners' jurisdiction over the company is before the Supreme Court of Canada. A press dispatch states that an arrangement has been made with the Vancouver City Council under which the 6c. fare will continue in operation until July 1922.

Fort William Municipal Ry.-Port Arthur Civic Ry.—A bill was introduced in the Ontario Legislature recently to provide that notwithstanding any provisions to the contrary, in special or general acts, the cities of Fort William and Port Arthur may charge on their respective municipal railways such fares over and above 5c. as they may from time to time fix by bylaws.

A press report states that it is expected that the appeal against the Ontario Railway and Municipal Board's order restoring the 5c. fare on these lines will be held over pending the consideration of the bill introduced in the Ontario Legislature as stated above.

Guelph Radial Ry.—A bill was introduced in the Ontario Legislature recently to authorize the company (which is owned by the city) to charge cash fares up to but not exceeding 7c., to sell 4 tickets for 25c., and between 11 p.m. and 5 a.m. to charge double the maximum single fare.

London St. Ry.—The London, Ont., City Council's finance committee had before it on Feb. 16 a suggestion from the company for the operation of the railway on the service at cost plan. Alderman Watt is reported to have said that the company's Secretary had suggested the formation of a committee, consisting of the mayor and two aldermen, to have administrative control of the railway so far as expenditures are concerned, with power to revise fares every six months if necessary. The mayor suggested that before negotiations were entered into the company should reach an agreement with its employes.

Another report says that application is to be made to amend the Ontario Railway Act so that increased fares may be put in force, and that this, as well as the service at cost plan will be opposed by the labor party.

New Brunswick Power Co.—We are officially advised that on Jan. 10, the company put in operation a new schedule on its electric railway in St. John, increasing fares from 6c., cash or tickets, to a cash fare of 10c., three tickets for 25c. or 14 for $1. The company has no special school children's, workmen's or night rates.

Sherbrooke Ry. & Power Co.—We are officially advised that the Quebec Public Service Commission has given judgment on this company's application for authority to increase its passenger fares. It having been shown that the company had an operating deficit of $23,823.92 for the year ended Sept. 30, 1920, exclusive of interest, fixed charges, depreciation or return on the investment, the Commission authorized the following increases, to take effect Feb. 14: Cash fares, 6 a. m. to midnight, 10c., instead of 8c. as heretofore; tickets, 6 for 50c., instead of 4 for 25c. as heretofore. No changes were made in the following fares: Midnight to 6 a.m., 15c.; children under 14, cash 4c., or 8 tickets for 25c.; transfers free.

Toronto Suburban Ry.—The Board of Railway Commissioners has approved the company's standard freight mileage tariff C.R.C. 4, effective Feb. 6, 1921.

Waterloo-Wellington Ry. — We were officially advised recently that two trips a day—morning and evening—were being made on the line and that there might be some development in the situation shortly, as the people along the line are willing to pay a 7c. fare. In Dec. 1920 the company, with the consent of the municipalities, increased its fares, the increase to be operative until the end of April, and that, following an investigation, the Ontario Railway and Municipal Board issued an order Dec. 30, 1920, directing the company not to charge any fare in excess of those authorized under the Ontario Railway Act. The company restored the original fares, and reduced the service.

The London & Lake Erie Ry. & Transportation Co. is asking the Dominion Parliament to authorize it or the Fidelity Trusts Co. of Ontario, the bondholders trustee, to sell and dispose of the company's right of way, lands, buildings, property, terminals, gravel pits, works, rolling stock, equipment and other accessories thereof, and to confirm sales of the lands and property already made. The company ceased operating in Oct. 1918, and sales of rails, overhead wiring, rolling stock, etc., were made in 1919 and 1920.

Chatham, Wallaceburg & Lake Erie Ry.——The Chatham, Ont., Chamber of Commerce is reported to have appointed a committee to obtain signatures to petitions to the Ontario Government to take over the Chatham, Wallaceburg & Lake Erie Ry., and have it operated by the Hydro Electric Power Commission of Ontario.

Regina Municipal Ry. Wages.—A press report states that the Street Railwaymen's Union has presented a new wage schedule in two sections, one providing for an all round increase of 5c. an hour, bringing the maximum pay for motormen or conductors up to 60c. an hour, for two-man cars, and the other for a maximum of 72½c. an hour for joint operation under the one-man system.

London St. Ry. Co.—The following are the directors and officers elected recently:—President, C. Currie, Cleveland, Ohio; Vice President, C. H. Ivey, London, Ont.; Manager, C. B. King; other directors: R. R. Alexander, Cleveland; P. W. Broderick, Toronto; W. M. Spencer, and R. G. Ivey. The Secreary-Treasurer is L. Tait.

The Winnipeg City Council defeated recently, by 9 to 5, a motion to ask the Manitoba Government to abolish the Public Utilities Commission.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Nov. 1920	Nov. 1919	4 mos. to Nov. 30, 1920	4 mos. to Nov. 30, 1919
Gross	$805,633	$733,981	$3,841,032	$3,438,592
Expense	590,844	519,862	2,895,908	2,543,330
Net	214,789	214,119	945,124	895,262

Cape Breton Electric Co. and allied companies:—

	Dec. 1920.	Dec. 1919	12 mos to Dec. 31, 1920	12 mos to Dec. 31, 1919
Gross	$68,748	$54,327	$652,007	$583,043
Expenses	51,068	40,426	552,933	455,033
Net	17,080	13,901	99,074	128,010

Edmonton Interurban Ry.—The proposed purchase of the 1.5 mile section of the Edmonton Interurban Ry., which the city rents from the company, has been under consideration by the Edmonton, Alta., City Council. It appears that the Edmonton Interburban Ry. Co.'s track from Calder to St. Albert, about 8 miles, has been taken up, and that the section to Calder is the only part of the line remaining. Under agreement with the Edmonton City Council, the Edmonton Radial Ry. operates the line under rental, and the company now desires to terminate the arrangement by selling the line to the city. It was reported to the city's utilities committee, when the matter was under discussion recently, that since Sept. 1915, when the city took over the operation of the line, it had paid out about $6,000 in rental and maintenance. The city's officials and the company's representatives are reported to be negotiating as to terms, the company asking $14,500, and the city offering $13,000. (Feb., pg. 92.)

Moncton Tramways, Electricity & Gas Co.—The Eastern Trust Co. has received tenders from bondholders to sell bonds at not exceeding $105 and accrued interest to exhaust $17,800 at the credit of the sinking fund under the terms of the trust deed.

The Oshawa Ry. Co. is applying to the Dominion Parliament to authorize the directors to pass a bylaw fixing the date of the annual meeting of shareholders on some other day than that provided in the company's special act, and for other purposes. The company is controlled by the G.T.R. Co.

Port Arthur Civic Ry.—A press report states that the January receipts were $17,625.17 against $15,361 in Jan. 1920.

Regina Municipal Ry.—A press report says that at a meeting of the Regina, Sask., City Council, Feb. 1, it was reported that considerable track had been built at a cost of $127,605, which was not being operated, but on which debenture charges had to be met, and that the annual charge against the Regina Municipal Ry. for paving between the tracks was $14,435.39. The City Commissioner promised to report later more fully on these matters, and also as to rolling stock not in use. (Aug., 1920, pg. 450.)

Toronto Civic Railway:—

	Jan. 1921	Jan. 1920
Revenue . .	$50,392	$41,989
Passengers carried	3,025,700	2,493,296

Toronto Railway.—The Toronto Finance Commission received to Feb. 22, tenders for the purchase of $2,500,000 of serial 6% bonds of $1,000 each, to be issued for the acquisition and rehabilitation of the Toronto Ry. It is stated that the bonds will be for 20 years, and that no provision will be made for redemption until after the third year. The reason given for this is that it will relieve the burden on the railway during its rehabilitation and have a tendency to keep fares down.

The maturity dates of the bonds are annually on Dec. 1, from 1921, when $68,000 becomes due, to 1941, when a final payment of $205,000 will become due. The bonds were sold to a syndicate composed of A. E. Ames & Co., Aemilius Jarvis & Co., and Wood, Gundy & Co., Toronto, at 98.94, the cost of the money to the city being 6.10%.

Toronto Ry., Toronto & York Radial Ry. and allied companies:—

	Nov. 1920	Nov. 1919	11 mos. to Nov. 30, 1920	11 mos. to Nov. 30, 1919
Gross	$1,250,414	$1,111,177	$13,200,100	$11,553,436
Expenses	914,136	709,689	9,192,607	7,225,350
Net	336,278	401,488	4,007,493	4,328,086

Winnipeg Electric Ry. and allied companies:—

	Nov. 1920	Nov. 1919	11 mos. to Nov. 30, 1920	11 mos. to Nov. 30, 1919
Gross	$477,957	$461,449	$4,754,505	$3,836,848
Expenses	358,091	423,826	3,550,624	3,091,809
Net	119,866	37,623	1,203,881	745,039

	Dec. 1920
Gross . .	$541,484.84
Expenses . .	384,556.40
Net . .	156,928.54
Surplus after deducting fixed charges	76,616.42

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—It is reported that the company will not lay a second track on Cook St., Victoria, until the city council arranges to pave the street. The company is reported to be moving its tracks to the north side of a section of Esquimalt Road, preparatory ot the city paving the roadway. (Dec., 1920, pg. 672.)

Hamilton Cut-off. — N. Cauchon, consulting engineer, Ottawa, is reported to have advised the Hamilton City Council to request the Hydro Electric Power Commission of Ontario to undertake the construction of the Red Hill cut off, as proposed in the general railway plan for the city, and to provide work for the unemployed. The Ontario Legislature in 1919 authorized the building of a cut off from the Red Hill to Burlington Jct., as a special piece of work, the understanding being that it would be done by the Hydro Electric Power Commission of Ontario, and that it would ultimately form part of the Commission's system of electric railways converging on Hamilton. (April, 1919, pg. 190.)

Frontier Electric Ry.—A U.S. press report states that North Tonawanda, N. Y., aldermen have approved of the Frontier Electric Ry. Co.'s application for an extension of time for the construction of its proposed freight line between Buffalo and Niagara Falls. Under the new arrangement the railway will have to be started by Dec. 31, 1923, and completed by Aug. 1, 1927. The Pennsylvania Rd. and the Delaware, Lackawanna & Western Rd. are reported to be interested in the construction of the line, which will be used in the transportation of freight by electric locomotives between Buffalo and Niagara Falls.

Hamilton Radial Electric Ry.—In connection with the reconstruction by the Dominion Government of the general traffic bridge over Burlington channel, the Hamilton Radial Ry. Co. applied to the Board of Railway Commissioners for authority to build a temporary deviation of its line in Saltfleet Tp., Wentworth County. In refusing the application, the Chief Commissioner stated that the company desired to use the G.T.R. tracks, immediately alongside its line, for about a mile, during the rebuilding of the

bridge. After some negotiations the company withdrew its application, and on Dec. 16, the Burlington Town Council called the Board's attention to the fact that the company was stopping its cars about 150 yards from the bridge site and transferring the passengers to the opposite side of the channel, and asked that the diversion originally asked for be granted. The Board called on the H. R. Ry. Co. and the G.T.R. Co. to appear and show cause why the original application should not be renewed. Evidence put in showed that it would cost about $5,000 to make the connection between the two railways, and that the actual cost of maintenance, etc., to the H.R. Ry. Co. would be about $2.000 a month. It was further shown that the H.R. Ry. was being operated at a loss, the deficit for 1920 being $36,000. If the company was forced to carry through the diversion project the deficit would be greater than the company could bear, or should be called upon to. An order to compel the diversion of the tracks would be unjust and therefore would not be made.

Montreal Tramways Co.—The question of the construction of an electric railway on Montreal mountain is reported to have been again under consideration by the Montreal Tramways Commission and the Montreal Administrative Commission. The report states that the plan which finds favor is that of the Shakespeare Road route, running off Cote des Neiges road. This would involve building three-quarters of a mile of track, would link up with the cars running on Cote des Neiges road, and transfers would be given. This route is considered the most practicable from the engineering point of view, as it would require less time and money than alternative plans. The scheme to run a line along Mount Royal Ave. has been abandoned as too costly and too difficult, as it would require the construction of a short tunnel. The proposal that the Canadian National Rys. could run an incline railway from the station is also regarded as impracticable. (Feb., pg. 92.)

Niagara, St. Catharines & Toronto Ry. A large extension to the company's car barns at St. Catharines, Ont., is nearing completion. The main building is 188 x 103 ft., with a two story extension for offices, etc. The building is of brick, with wood columns and beams. It is exceptionally well lighted; the side walls having large metal frames and sash and the roof has long rows of sky lights. The four lines of tracks will accommodate 12 cars. There is a basement under a portion of the building, with boiler room and storage space. The plant is being equipped with the most up to date electric car barn appliances. This building was designed by Geo. C. Briggs, Supervisor of Buildings for the Canadian National Rys., and built by the C.N.R. Construction Department under his supervision.

Transcona.—The question of the provision of an electric railway service between Winnipeg and Transcona is reported to have been brought before the Transcona Town Council, Feb. 5, by Councillor Goodyear, who urged that immediate consideration be given to it.

Winnipeg Electric Ry.—A press report says that a conference has been arranged between members of the city council, and representatives of the Winnipeg Electric Ry. Co., and the Midland Ry. of Manitoba, with respect to the construction of a subway on Portage Ave. West, at St. James. (Nov., 1919, pg. 616.)

Mainly About Electric Railway People.

Thomas Ahearn, President, Ottawa Electric Ry. Co., Ottawa, who has been elected Honorary President, Canadian Electric Railway Association, was born at Ottawa, Ont., June 24, 1855, educated there, and was for some time a telegraph operator in Ottawa and in New York State. He became local manager, Bell Telephone Co., Ottawa, in 1880, and in 1882 formed a partnership with Warren Y. Soper, as Ahearn & Soper, electrical engineers and contractors. They built and equipped several large electrical works in Canada, including long distance telephone lines between Pembroke and Quebec, via Ottawa and Montreal, several land telegraph lines through Nova Scotia for the Commercial Cable Co., and telegraph lines for the C.P.R. across the Dominion. He was one of the founders of the Chaudiere Electric Light & Power Co. in 1886, which was merged into the Ottawa Electric Co. in 1895. He was also one of the founders of the Ottawa Electric Ry. Co., which, it is stated, solved the problem of operating an electric street car service on wheels throughout the winter. He is also President, Ottawa Car Manufacturing Co., Ottawa Traction Co., Ottawa Electric Co., Ottawa Gas Co., Ottawa Light, Heat & Power Co., Ottawa Investment Co., Ottawa Land Association, Capital Mica Co.; Vice President, Wallace Realty Co.; a director of Canadian Westinghouse Co., Bell Telephone Co., Ottawa Building Co., Merchants Bank, Northern Electric Co., Bankers Trust Co., and a member of the American Institute of Electrical Engineers, Old Time Telegraphers Association, Telephone Pioneers of America, and associated with numerous industrial organizations in and around Ottawa.

D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., read a paper on "Some engineering features of tramway operation" before the Canadian Railway Club in Montreal Feb. 8. It was very similar to his paper on the same subject which was published in Canadian Railway and Marine World for June 1920.

Major F. D. Burpee, Manager, Ottawa Electric Ry., Ottawa, Ont., who has been elected Vice President, Canadian Electric Railway Association, was born at Ottawa, Ont., Apr. 25, 1876, and commenced railway work in 1891 on District 4, Eastern Division, C.P.R., Ottawa, and transferred to Ottawa Electric Ry. service in 1893, since when he has been, to 1896, stenographer; 1896 to 1898, cashier and paymaster; 1898 to Aug. 1912, accountant, during which time he also acted as assistant to the Secretary-Treasurer, and to the Superintendent. In Aug. 1912, on the resignation of Lt. Col. J. E. Hutcheson, to become General Manager, Montreal Tramways Co., he was appointed Superintendent. He enlisted in the 207th Battalion, C.E.F., in Feb. 1916, assisted in recruiting the battalion, and sailed for England as second in command in May 1917, with the rank of Captain, where the battalion was eventually broken up. He then transferred to the Canadian Railway Troops, reverted to the rank of lieutenant and went to France July 7, 1917, and was engaged at points all over the British front, becoming Captain and then Major. He returned to Canada early in 1919, and resumed his duties as Superintendent, Ottawa Electric Ry., in March of that year, and in 1920 was appointed Manager.

Frank L. Butler, who recently retired as Manager, Winnipeg Electric Ry., to take charge of the Georgia Ry. & Power Co.'s railway department, was entertained at dinner at Winnipeg towards the end of January and presented with a gold watch fob by a number of friends, on leaving for Atlanta, Ga. Prior to leaving Winnipeg he was also presented with a Shriner's ring and a diamond brooch for Mrs. Butler, by Winnipeg Electric Ry. officials.

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co., who has not been very well recently, and Mrs. Dubee, left Montreal, Feb. 2, for California, expecting to be away for about two months.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., who has been elected President, Canadian Electric Railway Association, was born at Quebec, Que., Oct. 9, 1882, and prior to 1907 was Assistant Engineer, Canadian Rubber Co.'s electrical plant; 1907 to Nov. 1908, Superintendent of Power, Hull Electric Co.; Nov. 1908 to 1909, acting General Superintendent, same company; 1909 to June 1914, General Superintendent, same company; June 1914 to Jan. 1917, General Manager, same company; and from Jan. 1917, Vice President and General Manager, same company. He has been a member of the C.E.R.A. executive committee for several years and was Vice President of the Association for 1920. He is a member of the Engineering Institute of Canada's council.

George Kidd, General Manager, British Columbia Electric Ry., Vancouver, B.C., who has been elected Honorary Vice President, Canadian Electric Railway Association, entered B.C. Electric Ry. service in Jan. 1908, since when he has been, to Mar. 1911, Secretary of the company, London, Eng.; Mar. 1911 to May 6, 1914, Comptroller and Assistant to General Manager, Vancouver, B.C., and from May 6, 1914, General Manager, Vancouver, B.C.

Chas. Laurendeau, of Montreal, was elected a director of the Detroit United Ry. at the annual meeting Feb. 1.

D. K. Lewis, who has been appointed Electrical Engineer, Winnipeg Electric Ry., succeeding L. Trott, as stated in Canadian Railway and Marine World for January, graduated from Clemson College, South Carolina, in 1903, having specialized in electrical and mechanical engineering. He entered the General Electric Co.'s testing department at Schenectady, N.Y., and was transferred to the engineering department at the Chicago office, where for 12 years he was a construction foreman, installing apparatus in the Western States. He enlisted in the U.S. army in April 1917, and upon being discharged in Dec. 1918, was appointed electrical engineer, Fort Dodge, Des Moines, and Southern Rd., Boone, Iowa, which position he held until going to Winnipeg in Dec. 1920.

A. W. McLimont, Vice President, Winnipeg Electric Ry., and Mrs. and Miss Betty McLimont, returned to Winnipeg, early in February, after spending a short time at the Pacific Coast.

John A. Olive, heretofore Local Manager, St. John, N.B., office, Furness Withy & Co., ship owners, etc., has been appointed Secretary-Treasurer. New Brunswick Power Co., St. John, succeeding H. M. Hopper, resigned.

C. M. Smyth, heretofore in Nova Scotia Tramways & Power Co.'s service at Halifax, N.S., has been appointed Superin-

tendent of Light & Power, Cape Breton Electric Co., Sydney, N.S.

John Whitsell, heretofore General Superintendent, Chicago & Interurban Traction Co., Chicago, is reported to have been appointed Operating Manager, Winnipeg Electric Ry., vice F. L. Butler, resigned to enter the Georgia Railway & Power Co.'s service.

C. J. Yorath, City Commissioner of Saskatoon, Sask., is reported to have been appointed Commissioner of Utilities and Public Works and Joint Commissioner of Finance for Edmonton, Alta., at a salary of $9,000 a year.

Electric Railway Notes.

The Sherbrooke Ry. & Power Co. has ordered one Birney safety car from the United States.

Montreal Tramways Co.'s employes union is reported to have passed a resolution protesting against the city authorities enacting that daylight saving time be used during the ensuing summer.

The Board of Railway Commissioners' reference to the Supreme Court with respect to the Board's jurisdiction over the British Columbia Electric Ry. came before the court at Ottawa, Feb. 15, when judgment was reserved.

The British Columbia Electric Ry. is inaugurating the skip stop in Vancouver. It has already been placed in operation on the Kerrisdale line, and public opinion is being canvassed as regards its general adaption. Up to the date of our recent advice 95% of the communications have been favorable.

The Winnipeg City Council has authorized F. A. Cambridge, City Electrician, to visit New York to study the electrolysis problem for the purpose of determining what further steps the city should ask the Winnipeg Electric Ry. to take. It is reported that the company has done all that it agreed to do to eliminate the trouble.

A special commission is reported to have been appointed to enquire into the relations between the City of Halifax and the Nova Scotia Power & Tramways Co., its members being A. J. Campbell, K.C., Chairman; R. McColl, nominated by the City Council, and T. S. Rogers, K.C., nominated by the company.

The Hull Electric Co. is having one of its single truck cars overhauled and remodeled, by the Ottawa Car Manufacturing Co. When completed it will be about 31 ft. over all, it will weigh about 22,000 lb. and have two 40 h.p. motors. The single door entrance and exit will be of standard design. The car will be fitted with all the safety appliances and will be ready for service about the middle of March.

The Toronto Transportation Commission was reported to be about to place an order for 50 motor cars for use on the Toronto Ry., when it is acquired from the company on the expiry of the franchise in September. While local reports indicate that the necessary cars will be on hand, when required, we have been advised that the type and number to be ordered has still to be decided on by the Commission.

Winnipeg City Council's committee on public safety had under consideration, recently, the question of negotiating with the Winnipeg Electric Ry. for arbitration of the various differences between the city and the company. It was agreed, with one dissentient, to lay the question over until the Court of Appeal decides on the matter now before it relative to the Manitoba Public Utilities Commission's jurisdiction.

The Regina, Sask., Municipal Ry. management proposes to remodel its double truck cars to one-man cars of the McCauley type, at an estimated cost of $400 each. A royalty of $50 a car will be paid to T. H. McCauley. A seniority list of conductors and motormen is being prepared, and they will be given an opportunity of training in their spare time to take charge of the converted cars. It was expected that the first of the converted cars would be put in operation by the end of February.

An Ottawa alderman gave the following notice of motion recently:—"That in order to relieve the pressure during rush hours, the Board of Control be instructed to call for tenders for the construction of 25 large street cars, which may be handed over to the Ottawa Electric Ry. for use until the expiry of the franchise, at an annual rental sufficient to cover the interest and sinking fund on the cost of construction and depreciation of same."

The British Columbia Electric Ry., on its mainland lines, centering in Vancouver, carried 58,484,932 fare passengers in 1920, against 49,005,629 in 1919. Nearly 3,500,000 of the increase is accounted for by the general strike during June 1919, when most of the system was not operated for 25 days. The rest of the increase has been due to increase in population. In face of this increase in traffic, the company points out that its net earnings are now lower than at a corresponding time last year, owing to recent wage increases without corresponding increases in fares.

The Montreal Tramways Co. is reported to have notified the Montreal city officials and business men recently that it would cease to carry freight after Feb. 21. It is said that this decision was made by a director of the Montreal Administrative Commission. Subsequently the Montreal Tramways Commission directed the company to continue to carry freight, and took up the matter with the Montreal Administrative Commission, which authorized the continuance of the traffic subject to certain modifications. Lt. Col. J. E. Hutcheson, General Manager of the company, has pointed out in a letter that the company started to carry freight in 1907, and subsequently an understanding was arrived at by which the practice was continued. The company had neve rapplied for permission to carry freight under article 83 of its contract, but had carried it for the convenience of the public. As the Administrative Commission had taken a position that could not be accepted, the company had no other alternative but to stop carrying freight.

Winnipeg Electric Railways Annual Report and Meeting.

Following are extracts from the report presented at the annual meeting in Winnipeg, Feb. 9:—

The gross earnings for 1920 increased $949,221.54 over 1919. Notwithstanding the heavy increase in wages and other operating expenses, the net income increased $498,720.12.

The year 1920 began with prices of commodities and labor climbing upward at a rapid rate, and while it did not seem possible that this ascent could continue indefinitely, the first half of the year had elapsed before there appeared any sign of the peak having been reached. In July a board of arbitration awarded increased wages to the employes, such increase being made retroactive to May 1. As a result of the company's application to the Manitoba Public Utilities Commission, increased rates were granted and an appraisal of the physical value of the company's property was arrived at. The increased rates and fares authorized assisted in offsetting the increased operating expenses which had resulted from the rising costs of material and labor.

In April the company's South Main St. car barn, together with 21 cars and other equipment, were destroyed by fire. Something over $300,000 was recovered from insurance. A new fireproof, fully modern car house has been erected on the site of the old one and all rolling stock destroyed has been replaced. The company has continued making extensive improvements in all departments and in that connection expended during the year more than $900,000. This includes replacing property destroyed by fire.

The company's different utilities all show a satisfactory growth over 1919. The gross earnings exceeded those of 1919 by $949,221.54. After payment of all fixed charges, and making provision for depreciation, the company made a net profit of nearly $600,000, which is substantially the best showing of any year since 1914. For the purpose of retiring as far as possible the company's floating liabilities, a new issue of preferred and common shares was authorized, which are being placed on the market and it is expected will all be disposed of shortly.

The company has continued its policy of providing the public with adequate service, and seeks to establish and maintain good relations with the public, realizing that the welfare of its utilities is a matter of public consequence, which policy the directors believe has met with a marked degree of success.

Gross earnings from operations		$5,233,700.65
Operating expenses, before charging depreciation		3,428,897.43
Net operating revenue		1,804,803.22
Miscellaneous income		76,700.11
Income available to meet fixed charges, etc.		1,881,503.33
From which the following deductions are made:		
Interest charges on debenture stock, bonds, gold notes, etc.	$716,215.85	
Extinguishment of discount on securities	26,786.76	
City percentage and car license taxes	181,249.01	
Taxes	127,239.43	
Miscellaneous non-operating expenses	2,942.31	
Other income deductions	30,495.74	1,084,928.10
Net income as shown on accounts submitted, excluding depreciation		796,575.23
Deduct depreciation		201,050.00
Net income transferredto surplus		595,525.23
Surplus brought forward from 1919 as adjusted		1,314,420.29
Net income for year transferred		595,525.23
Dividend on 7% cumulative preferred stock		4,444.16
Sinking fund appropriation		60,000.00
Surplus carried forward		$1,845,501.36

The following were elected directors: Sir Augustus Nanton, President; A. W. McLimont, Vice President; Hugh Sutherland, G. V. Hastings, J. D. McArthur, G. W. Allan, K.C., M.P., A. J. Nesbitt, W. J. Bulman and W. R. Bawlf.

The other officers are: F. Morton Morse, Secretary; L. Palk, Assistant Secretary; J. S. Mackenzie, Treasurer.

Marine Department

The Shipping Federation of Canada's Annual Report and Meeting.

The Shipping Federation of Canada's annual meeting was held at Montreal Feb. 9, when the following officers were elected:—President, R. W. Reford; Treasurer, J. R. Binning; Assistant Treasurer, E. W. Foulds; Manager and Secretary, Thos. Robb.

Executive Council:—A. E. Cook, J. R. Binning, D. W. Campbell, A. M. Irvine, W. R. Eakin, R. W. Reford, A. Mackenzie, P. A. Curry, R. B. Teakle.

Sub-committees:—Bill of lading, W. I. Gear, P. A. Curry, and J. R. Binning. Harbor equipment, W. I. Gear and P. A. Curry.

The President, R. W. Reford, presented the following report for the calendar year 1920:—Navigation on the St. Lawrence officially opened on April 18; the first arrival from sea was on April 26, and the last departure for sea on December 11. The total number of sea going and coasting ships was 663, of 2,031,729 tons, compared with 786, of 2,179,280 tons in 1919, a decrease of 123 ships and 147,451 tons.

The season on the whole was satisfactory, the passenger traffic being exceptionally good, although a slight falling off was noticed during the autumn. The freight traffic, while good during the earlier part of the season, became erratic and uncertain towards the close, and at times cargo was scarce and difficult to procure. The failure of the British Government to acquire our grain crop led to a decrease in the number of tramp steamships which usually come to the port during the closing months of navigation.

There has been an outlet of Canadian wheat for United States milling, and for export via New York, Philadelphia and Baltimore for the European continent. The usual diversion of export wheat was caused principally by Duluth ore boats being unable to load ore, owing to it having been frozen, and the owners, rather than delay their ships, cut the rate on grain from Fort William to Buffalo, making the rate 2c. less than from Fort William to Georgian Bay ports. This, of course, made the through rate to New York 2c. below to St. John, Portland and Boston. Canadians were unable to take advantage of these ore ships on account of the Canadian coasting laws. These ships have now gone back to the ore trade and the lake rate has been raised a cent, and will be increased another cent, making the rate from Fort William to Buffalo the same as to Georgian Bay ports.

The St. Lawrence coal traffic still remains dormant, and very little was done during the season. The demand for coal at Cape Breton mines, and the decrease in production was principally the cause. Many of the colliers commandeered during the war have been released, and with additional tonnage coming on the market, it is anticipated that within the next year or two this trade should regain the position it held prior to the war.

Shipping conditions throughout the world at the opening of 1920 were fairly good, but as the year progressed, with extra tonnage coming on the market, competition for freight became very keen, and as a result freight rates began to tumble, and at the close of the year were at such low figures that many ship owners are face to face with the prospect of either laying up their ships or running them at a loss. British ship owners, through the short sighted policy taken by the Government during the war, are at a disadvantage compared with certain neutral ship owners, in so far as they were not given the opportunity of building up reserves to tide them over the present readjustment conditions. To illustrate the chaotic conditions prevailing in shipping today, I have only to point to the policy adopted by the United Sates Shipping Board, in laying up its ships rather than operate them at present rates at a loss. In U.S. ports alone, there is approximately 1,900,000 tons of shipping belonging to the U.S. Shipping Board lying idle, and it is expected that within the next two months, this will be added to by another 350,000 tons, while the British lines have, it is reported, laid up 4,500,000 tons. The cause of the present depressed conditions is due to the unsettled world wide trade conditions, the over surplus of tonnage, and the erratic conditions of foreign exchange. The latter item is causing importers and exporters to refrain from doing business, as a sudden change in the exchange market is liable to turn a profitable transaction into a serious financial loss.

As regards shipbuilding, the tonnage turned out from Canadian yards during the past year is estimated at approximately 200,000 tons deadweight. Lloyd's Register for the quarter ended Sept. 1920 placed Canada seventh among the nations, with 170,625 gross tons under construction. The lack of new orders caused shipbuilders to approach the Government to secure assistance for the industry. Parliament enacted legislation authorizing the granting of credits to the extent of $20,000,000 to enable shipbuilders to finance foreign orders. The erratic conditions of the foreign exchange market prevented foreign interests from placing orders in Canada and, therefore, none of the credits were used.

International Labor Conference.—During the course of the year, a very important conference was held at Genoa, Italy, to consider the draft recommendations made by the Washington conference of the International Labor Office respecting seamen. To this conference, your Manager and Secretary, Thos. Robb, had the honor of being appointed by the Canadian Government to represent Canadian shipowners' interests. In addition, Phillippe Roy, Agent General for Canada in France, and G. J. Desbarats, C.M.G., Deputy Minister of the Naval Service, were appointed to represent the Canadian Government, and J. C. Gauthier, President of the National Sailors and Firemen's Union of Canada, the seamen. The conference, which sat at Genoa from June 15 to July 10, approved of draft recommendations and conventions dealing with the unemployment of seamen; unemployment insurance; the establishment of an international seamen's code; the employment of children under 14 years of age; and also considered the question of the hours of labor on shipboard. The proposal of the seamen was to impose an 8-hour day or 48-hour week, which was strongly opposed by the ship owners. The British Government delegates issued the following declaration on their attitude:—

"In view of the difference of meaning which may be attached in different countries to the morning's second vote, the British Government delegates desire to place on record that while they accept fully the 8-hour day and the 48-hour week as the standard to be aimed at, and will give all possible help in this conference in the work of determining how far this standard can be attained by ships of all nations, they are not able to agree to the immediate application of a 48-hour week to British ships."

The British Government's delegates, through C. Hipwood, Assistant Secretary of the Board of Trade, then proposed the following draft convention as a basis for discussion:—

"1. That the principle of an 8-hour day or a 48-hour week as a standard to be aimed at be reaffirmed.

"2. That working hours on foreign going vessels of 2,000 tons gross and over at sea be: Firemen, 48 hours a week; deckhands, 56 hours; stewards, 70 hours. In port all hands shall not exceed 48 hours a week.

"3. Regulations for applying these principles to be made after consultation between organizations of ship owners and seamen. The rules for other vessels to be on the same principles.

"4. Hours of Lascars to be reduced proportionately when sailing within the present legal limits. If employed outside these limits they are to be subject to the same rules as laid down for white seamen.

"5. A statement of hours to be worked to be inserted in articles, so that seamen may sue the ship owner if the agreement is not carried out."

The opinion of the ship owners' group was divided upon these points. The British, Scandinavian, Canadian, German, Greek and Japanese representatives were in favor of giving no concessions beyond 56 hours for the stokehold, three watches and 64 hours for deck hands, and 70 hours for stewards. The Swedish representative was not prepared to give three watches on deck. The Dutch representative proposed the adoption of the hours named in Mr. Hipwood's draft convention with monetary compensation in the case of the stokehold for time worked in excess. The French ship owner was against the proposed draft as not going

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

as far as the French law has already gone, but, on the other hand, it would not allow of the evasions which the French law permits. After considerable discussion, the full Commission dealt with each point of the Hipwood draft, and, finally, by a majority vote recommended the following articles for acceptance by the conference: (Clauses 1 and 2 only are given herewith).

"Preamble: The principle laid down in the Treaty of Peace, viz., the adoption of an 8-hour day or a 48-hour week as the standard to be aimed at, where it has not already been attained, is reaffirmed.

"Article 1. The effective working hours of all persons of both sexes and of every age, without distinction of nationality or race, excluding masters and officers who do not keep watch, employed on board a vessel of whatever nature, public or private, including vessels used for the purposes of technical instructions, shall be limited either to eight hours in the day or to 48 hours in the week, or an equivalent limitation calculated over a period of time other than a week, subject to the following provisions and exceptions contained in the following article:

"Article 2. (1) On foreign going, mechanically propelled vessels of 2,000 tons gross and over, and within not more than one year after the ratification of the present convention, employment at sea shall, in the deck and engine room departments, be organized in three watches.

"(2) On these vessels the working hours at sea shall be 48 hours a week. Work on Sunday shall be continued by the crew, who will receive compensatory rest or payment, or by means of extra hands shipped for that purpose, which may provide for one day's rest in seven.

"(3) Overtime that might be ordered by the master, outside of circumstances provided for in article 6, shall not exceed 14 hours a week or 60 hours a month. These extra hours, if worked, shall be paid for or compensated by time off.

"(4) On these vessels, in port, the working hours for all ratings shall be 44 a week. Overtime, if any, shall be compensated or paid."

The Director of the International Labor Office, Albert Thomas, realizing that it was most doubtful that the draft convention would receive the necessary support for ratification, endeavored to have it referred back to the Commission with a view to effecting some sort of compromise. His move, however, was defeated, and the conference decided that the draft convention should go direct to the drafting committee and then back to the conference for the final vote. The final decision depended upon the attitude of certain government delegates who were known to be wavering. The Swedish Government delegates, at the last moment, received instructions to vote for the convention, and the Indian delegates, having used the ship owners' vote in support of article 5 referring to Indian seamen, refrained from voting one way or the other, as they considered they had received satisfactory terms for the Lascars and were afraid of losing this advantage by voting against the other articles and thus offending the seamen's delegates, who might have moved an amendment, which probably would have been carried, to put Lascars on a level with white seamen. The Indian ship owner delegate followed the lead of his Government delegates. The loss of these five votes, upon which the ship owners had been relying, rendered the position extremely critical, but owing to the Spanish and Portuguese Governments' delegates somewhat unexpectedly voting against, the convention failed by a fraction of a vote to secure the requisite two-thirds majority, the final voting being 48 for and 25 against. Had the conference adopted the proposal as a hard and fast principle, the results would have been disastrous to the shipping industry, as it would ultimately compel ship owners to carry extra crews, or as an alternative, the heavy payment of overtime.

Arising out of this conference, a Joint Maritime Commission was set up, consisting of five members each from the ship owners' and seamen's groups. Thos. Robb had the honor of being appointed on this Commission to represent Canadian ship owners. The object of this Commission is to act in an advistory capacity to the International Labor Office, and it held its first meeting at Geneva on Nov. 8, when matters arising out of the Genoa conference were considered. It also dealt with hours of labor on shipboard, and made a recommendation that this debatable question be reopened and that representatives from the International Shipping Federation be appointed to meet representatives from the seamen's organizaions during the third week in January at Brussels to further consider the subject, and, if possible, come to some mutual working agreement.

St. Lawrence Waterway's Project. — The International Joint Commission, during the past year, has been conducting a searching investigation throughout the United States and Canada into the benefits to be derived by both countries in constructing a deep waterway from Montreal to the head of the Great Lakes, sufficiently large to permit ocean going vessels proceeding inland west of Montreal. Your executive considered this project fully and went on record as being strongly opposed to it, as, in their opinion, the time will never come when ocean going vessels will proceed further inland than Montreal, as the delays occasioned travelling through locks, the high cost of operation, and the equally high cost of upkeep would make it anything but a profitable undertaking. If Canada must have deeper canals to accommodate her ever growing commerce, consideration should be given to the proposed Georgian Bay Canal scheme, which was before the public some years ago. The advantages of constructing this canal are many; the principal and foremost is that it would be entirely in Canadian territory and not subject to international control; its waterpowers would also be in Canadian territory, and the distance, compared with the present St. Lawrence canals, much shorter. Canada, in her present unsatisfactory financial condition is, in my opinion, not ready to spend large sums on canal construction. In comparing the advantages and disadvantages of the two canals, the Georgian Bay Canal, without doubt, would be the most profitable one for Canada to undertake.

Labor conditions on the docks were satisfactory, and the agreements entered into with our longshoremen, shipliners and checkers last spring were carried out. At St. John and Halifax, agreements have been renewed on practically the same terms and conditions as the previous agreements. The wages paid to wharf labor at our Canadian ports, in my opinion, have now reached their maximum, and with the low earnings of the steamship companies, wages and other operating costs must come down to a more moderate level, otherwise ship owners will have no alternative than to lay their ships up. I confidently expect that when the exact position of affairs is placed before the laboring classes, they will treat it in a broad minded manner and meet the situation.

Our labor bureau on the docks was of great assistance to masters in tracing desertions from ships, providing substitutes and looking after crews generally. A total of 105 men were apprehended for various breaches of dicsipline, and a total of 621 substitutes were supplied.

Harbor Matters.—Your executive has been considering the advisability of recommending to the harbor commissioners the re-adoption of the rules passed in 1912, for governing traffic within Montreal harbor, which for some reason or other were never enforced. I hope that with the co-operation of all interests concerned, a modern system of control will be established this coming season.

The new wharfage tariff put in force by the Montreal Harbor Commissioners during the early part of the year was severely criticized by the commercial and shipping interests, and a certain amount of ill feeling caused through the stand taken by the commissioners in declining to co-operate with the interests in having the tariff adjusted on a more equitable basis. Towards the close of the season, a slight modification was made, which although not entirely satisfactory, covered at least some of the items which the commercial interests took strong objection to. The interests concerned in developing trade appreciate that additional revenue is required to meet the heavy operating costs, and were not adverse to an increase in rates, provided it was fairly distributed over all commodities and not on a few to produce the increased revenue.

Sick Mariners' Dues.—The Government introduced legislation during the last session of Parliament, increasing the sick mariners' dues from 1½c. to 2c. a ton. Your executive strongly opposed, not only the increase, but also the principle of the act. For many years, we have been striving to have this tax removed, as it discriminates against ships trading to the provinces of Quebec, British Columbia and the Maritime Provinces. For example, a ship trading between Ontario and the U.S. is not compelled to pay sick mariners' dues, and is also exempt from paying U.S. tonnage dues, by reason of the reciprocal privileges extended to U.S. ships at Ontario ports. On the other hand, a ship trading between Quebec and ports in the United States is not only compelled to pay sick mariners' dues, but is also mulcted for the U.S. tonnage dues, owing to our Government levying dues against their ships arriving at ports in this province. We have repeatedly made it plain that by asking for the repeal of this tax, we are not in any way asking the Government to assume the responsibility of caring for our sick and injured seamen; all we ask is to be permitted to look after our own seamen as we are compelled to do by the Shipping Acts, and not tax the trade for looking after people in whom we have no interest.

United States Merchant Marine Act, 1920.—The Merchant Marine Act of 1920, which was passed by the U.S. Congress in June last, has been the subject of severe criticism, not alone from foreign interests, but also from certain U.S. interests as well. The objects of the act, as expounded by its author, Senator W. L. Jones, is to lay the foundation of a policy that will build up and maintain an adequate U.S. merchant marine in competition with the shipping of the world. In brief, the law ends government shipbuilding and directs the sale of the Shipping Board vessels to private U.S. operators on easy terms; authorizes the lending of public funds to private operators who wish to build new ships; exempts operators, under special circumstances, from payment of excess profits taxes; provides for discriminatory inland freight rates on goods which are transported in U.S. ships; authorizes the repeal of commercial treaties so that discriminatory tariff duties may be imposed in favor of goods imported in U.S. bottoms; closes U.S. ports to foreign ships which

discriminate against U.S. shipping; authorizes the Shipping Board to issue orders in council which will have the effect of law for protection of U.S. ships; grants modified mail subsidies; creates a strictly U.S. classification society; encourages U.S. insurance and standardizes ship mortgages in order to encourage the building up of a market for shipping securities. In a speech made recently by Senator W. L. Jones, before the Academy of Political Science, he is quoted as saying:—

"We do not seek to crush Britain's marine, but we do desire to build up a marine to do the major part of our sea carrying and that part of the world's peace and safety. If one nation wealth, power and standing among nations. This is necessary for our commercial growth, our national defence, our national independence and the world's peace and safety. If one nation dominates the shipping of the world, it holds the destinies of all peoples in its grasp."

One notural result of the building up of a mercantile fleet by the U. S. has been to create competition between the U.S. and British lines, as British steamships have always operated in U.S. overseas trade, and have, in fact, played an important part in building up her great export business. The British shipping interests have nothing but the most friendly feeling towards their U.S. friends, and ask nothing more than a fair fight for the inevitable competition which circumstances have forced upon them. In glancing through the clauses of the Jones Act, however, one cannot feel that the spirit of good will is reciprocated by the U.S., and if the discriminatory clauses in the act are enforced, it means that the British and other nations will have to protect their interests by adopting retaliatory measures. I believe there is room for all shipping, and if such is not the case at present, more would be gained by each nation co-operating with the other with a view to increasing the trade of the world until there is sufficient employment for all ships. The policy adopted by our U.S. friends is a dangerous one, and may spell ruin to their mercantile marine if persisted in. The U.S. as a shipping country is still in its infancy, and will find in due time that the long and varied experience of the British mercantile community, much of it gained in times of adversity, counts more than acts of Congress. The act, which was to come into operation within 90 days after its sanction, has, I understand, been postponed indefinitely, no doubt to give the Government an opportunity to further study the discriminatory clauses contained therein.

Pilotage.—The pilots in the Montreal and Quebec districts made demands for further increases in the tariffs of these districts which your executive refused to agree to. In order to relieve the pilots of a portion of their travelling expenses, which they have to bear out of their earnings, your executive agreed to grant them a bonus or travelling allowance of $10 a voyage on ocean going vessels in the Montreal district, and $17.50 a voyage on ocean going regular liners, and $10 on ocean going tramps in the Quebec district, it being understood that this bonus or travelling allowance would continue in force for one year only.

An important case dealing with the pooling of pilots earnings was decided by the British Privy Council during the year. One of the Quebec pilots was sued by the Corporation for moneys earned by him which they claimed was due them under the old Corporation law of 1862. The pilot contended that the old law of 1862 was repealed by the statute passed in 1914. The case was argued before the Superior Court of Quebec, when it was dismissed. It was then appealed to the Court of King's Bench, which rendered judgment in favor of the Corporation. As the action of the Corporation was questioning the legality of the Dominion statute, the Government took the case in hand and appealed it to the Privy Council, which has rendered judgment in favor of the pilot. The decision settles definitely the status of the 1914 statute, and gives the Quebec pilots the right to retain their own earnings should they desire, but whether they will make use of the opportunity is difficult to forecast.

Aids to Navigation.—The value of the radio direction finding stations established by the Canadian Government at Cape Canso, Chebucto Head and Cape Rase was so well spoken of by shipmasers that your executive requested the Government to establish additional stations at Belle Isle, Point Amour, Heath Point, Cape Ray, Fame Point, Grand Manan and Cape Sable. The Government has so far voted funds for the erection of a station outside of St. John harbor, and for one at Belle Isle, and I anticipate that further appropriations will be voted in the near future for the erection of the other stations mentioned. The opinions received from masters trading to the St. Lawrence are loud in praise of these stations as an aid to navigation, and their value cannot be over estimated.

Another aid to navigation which has come to the front recently is a system of sound signals from a cable laid at the bottom of the sea or river. This cable method of navigating was demonstrated recently at New York with good results. The device consists of a cable, 16 miles long, laid in the center of the channel, which is energized with an alternating current from shore. Ships taking advantage of it must be equipped with audiphones or listening devices attached to the hull. Approaching the channel, the sound waves emitted by the cable can be heard for some distance and the increasing or decreasing strength of the sound enables the ship to be steered until she is right over the source. It is then a simple matter to follow the course through the channel, despite storm or fog which would make the marking buoys invisible or would tend to confuse the warning notes of automatic bell and whistle markers. This device was demonstrated to the Canadian Government as far back as 1904, but no action was taken. It was used extensively by the British Admiralty during the war, and in view of it tending to further safeguard navigation, I think our Government should investigate it thoroughly with a view of adapting it for use at the entrance of our harbors.

Federation Tonnage.—The total tonnage (both regular and tramp) entered in the Federation for 1920 was 929,307 gross tons, compared with 900,882 gross tons for 1919. The regular line tonnage increased from 514,831 to 684,408 tons, and the tramp tonnage decreased from 386,051 in 1919 to 244,899 gross tons for this year. Of the total tonnage entered, 128,642 were of Canadian registry—116,124 being regular line tonnage and 12,518 tramp tonnage. The following table shows the tonnage entered for 1919 and 1920:—

	1919	1920
Regular tonnage	514,831	684,408
Tramp tonnage	386,051	244,899
	900,882	929,307

Conclusion.—As in years gone by, our relations with the respective government departments have been most cordial, and I wish to extend our thanks to Hon. C. C. Ballantyne, Minister of Marine and Fisheries; to A. Johnston, who I regret to say has resigned from the position of Deputy Minister of Marine; to G. J. Desbarats, C.M.G., Deputy Minister of the Naval Service, and to the many other officials of the Government too numerous to mention, for their courteous attention given to the many matters which we have had occasion to bring to their attention.

The World's Shipbuilding Statistics to Dec. 31, 1920.

Returns compiled by Lloyd's Register of Shipping, which only take into account merchant ships of 100 tons and upwards the construction of which has actually been commenced, show that there were 921 ships of 3,708,916 tons gross under construction in the United Kingdom at the close of the quarter ended Dec. 31, 1920. The particulars are as follows:—

Steam—	No.	Gross tonnage.
Steel	822	3,470,932
Ferro-concrete	2	1,494
Wood and composite	5	2,429
Total	829	3,474,855
Motor:—		
Steel	54	225,960
Ferro-concrete	2	600
Wood and composite	1	450
Total	57	227,010
Sail:—		
Steel	35	7,051
Ferro-concrete	.....	.....
Wood and composite	.....	.....
Total	35	7,051
Total steam, motor and sail	921	3,708,916

The tonnage now under construction in the United Kingdom is about 22,000 tons less than that which was in hand at the end of last quarter, and about 714,000 tons more than the tonnage building 12 months ago. The December figures include 64 steamships and motor ships of 1,000 tons and above, with a total tonnage of 422,553, intended to carry oil in bulk.

At the end of December the following merchant ships were under construction abroad, i.e., outside of the United Kingdom:—

	No.	Gross tons.
Steam, steel	786	3,165,384 (a)
Steam, wood	25	17,467
Motor, steel	70	200,679 (b)
Motor, wood	62	26,813
Sailing, steel	27	13,126 (c)
Sailing, wood	89	47,393
Total	1,059	3,470,862

(a) Including 2 ferro-concrete ships of 12,144 tons. (b) Including 7 ferro-concrete ships of 6,943 tons. (c) Including 2 ferro-concrete ships of 1,500 tons.

The following figures are given for merchant ships under construction in Canada:—

	No.	Gross tons.
Steam, steel, Great Lakes	8	18,198
Steam, steel, coasts	29	109,314
Steam, wood, coasts	2	440
Motor, steel, coasts	1	350
Motor, wood, coasts	1	617
Sailing, wood, coasts	9	7,840
	50	136,759

Masters' and Mates' Certificates.—It is stated that during 1920, 270 certificates were granted to young men from Quebec and the Maritime Provinces, who qualified as masters and mates for coastal and ocean service. The majority of them were trained in the navigation schools at Halifax, Yarmouth, St. John and Quebec.

Canadian Shipbuilding During 1920.

During 1920 Canadian shipbuilding yards had, for the most part, a fairly busy year, the tonnage launched being equal to approximately 200,000 d.w. tons. Probably 90% of this represented tonnage for the Canadian Government Merchant Marine. So, in a sense, 1920 may be termed a clean-up year, an unfortunate feature being that owing to lack of orders it may mark the cleaning up of a number of yards.

Vancouver, with 72,000 d.w. tons, claims the palm for the weight of tonnage launched during the year. Of this, J. Coughlan & Sons are credited with approximately 61,000 tons. Not only did they turn out the largest amount of tonnage, but they beat the next largest plant in Canada by nearly 10,000 tons. This of itself demonstrates the extent to which the shipbuilding industry has been developed on the Pacific coast. That the Pacific coast yards are also very efficient may be seen in the circumstance that the lowest tender received for the building of vessels for the Canadian Government Merchant Marine was from a B.C. firm.

Canadian Vickers Ltd. plant at Montreal, with a little over 50,000 tons to its credit, also had a busy year. Its record since the outbreak of war, that of approximately 300 ships turned out, is a splendid tribute to the high state of efficiency attained by Canadian shipbuilding plants.

Halifax Shipyards Ltd. was a new entrant upon the scene during the year, having two ships of 8,300 d.w. tons to its credit, Canadian Mariner and Canadian Explorer. The extensive nature of this plant and its very complete equipment is an assurance that it has been built to occupy a permanent place in Canadian shipbuilding industry. The launching of Canadian Mariner, the first steel ship to take the water at Halifax, was naturally considered a most important event in the history of that city, and confident predictions are made that a bright future lies before the port in this department of industry.

Plants on the Great Lakes launched approximately 33,000 d.w. tons, of which 13,160 is credited to Port Arthur. Collingwood had 5,000 tons and Toronto 8,500 tons. The difficulties that forced the Dominion Shipbuilding Co. into liquidation kept down the tonnage at the latter port.

Lloyd's Register of Shipping Returns for the quarter ended Sept. 1920, places Canada seventh among the nations with 170,625 gross tonnage under construction. Of these 46 were steel ships with a tonnage of 158,628. There were also 15 wooden sailing ships, tonnage 10,940, and three wooden steamships, tonnage 1,057.

The prospect before the Canadian steel shipbuilding industry just now is not bright. Indeed, probably 40% of the yards have been closed, and unless new orders are received, and there are few in prospect, some of the largest and best equipped will have to shut down. While it had the opportunity the industry made a very creditable showing, but the conditions that made this possible no longer exist. The impetus imparted to shipbuilding during the war, so stimulated it in almost all countries, that, if anything, there may be an excess of tonnage over the world's present requirements. On this subject opinions differ, but the drop in ocean rates, together with the tying up of a large number of ships, tells its own story. Having largely been brought into existence through abnormal conditions, the Canadian industry has naturally suffered through return of normal times, and at present there are no certain indications of an improvement.

Confronted with the prospect of a lack of orders, and thus of empty plants, the Dominion Parliament, at its 1920 session, at the earnest solicitation of the shipbuilding interests, authorized the granting to shipbuilders of Government credits up to $20,000,000 for financing orders from foreign interests. The directors of certain plants had, as the result of enquiries, become convinced that they could secure orders from France for considerable tonnage if arrangements could be made for the financing of the same. It was represented that certain French companies were willing to place orders, but that the rate of exchange prevented them from doing so. Hence the credits scheme was proposed to tide over the settlement until such time as the rate of exchange would become normal. The arrangement provided that the foreign purchaser should advance 25% of the price in cash; that the shipbuilding concern interested should make arrangements for the financing of the second 25% and that the Government should advance the remaining 50%. But, though provision was made, the expected orders from France did not materialize. During the summer application was presented on behalf of Mexican interests for large credits, on this account, but at that time Mexico did not look like a good risk, and no action was taken. To date none of this credit has been used.

During the year the shipbuilding interests applied to the Dominion Government for a bonus to aid shipbuilding; strong arguments were advanced in support of it, but the Government decided that the public would not receive the proposal with favor. At present there seems to be little hope from this source.

During the year there was a thorough cleaning up of the Canadian Shipping Register, with the result that while a large tonnage of new vessels was added, to say nothing of transfers made to the Canadian Register, still the total has been kept considerably below what it otherwise would have been. In the past shipowners had been very lax in reporting either ships lost or those transferred to other registers. A report on practically all ships on the register was made during the year, with a result that nearly 100,000 gross tons were removed. As it stands today the register represents a thoroughly reliable statement of tonnage actually operated.

The gross tonnage on Canadian Register at the end of 1920 was approximately 1,630,000 tons. At the end of Nov. 1920 there were 4,375 steamships on the register representing 1,105,000 gross tons, while 3,729 were sailing ships with a gross tonnage of about 514,100 tons. This means that during the year Canada increased her gross tonnage by nearly 140,000 tons. This is very satisfactory, but the increase would have been fully 100,000 tons greater, had the circumstances relating to the register been those of previous years. It is further to be noted that while during the 11 months ended Nov. 30 there was a net loss of 469 ships from the register, still there has been a decided gain in the proportion of steel to sailing tonnage, for while the sailing tonnage has remained practically stationary, the steam tonnage has been increased by possibly 120,000 tons.

The number of ships registered during the 11 months ended Nov. 30 was 406, of which 270 were steam and 136 sail. The net gross tonnage of steamships registered was 180,922 tons, and of sail 31,457 tons. During November the largest number of registrations were made, the gross tonnage put on during the month being about 33,211.

The number and tonnage of new ships built and registered in Canada during the 11 months ended Nov. 30, 1920, was unusually large, viz., 292. Of these 190 were steamships with a gross tonnage of 123,065. The new sailing ships added numbered 102, but the gross tonnage was only 18,130.

The number of ships removed during the 11 months up to Nov. 30 was 889, divided as follows:—sail 538, steam 351, the gross tonnage being 105,360 tons. Thus the number of ships removed was equal to about 10% of the total now on the register.

The tonnage of ships built and registered in Canada has steadily grown since 1914, when it was 56,710 tons gross. This year it will probably total 170,000 tons. The number of ships built during the year has decreased, showing that a larger class is being turned out from Canadian yards. The 1920 tonnage built and registered will be approximately equal to that of 1919.—Special correspondence, Liverpool Journal of Commerce.

Merchant Marine Up-keep Costs.

The following is taken from the Dominion Marine Department's report for the year ended Mar. 31, 1920:—The profits of a merchant marine are, of course, partly dependent upon the cost of its maintenance. The following is an approximate comparison of the cost of wages and board per month between a British, a United States, a Canadian, and a Japanese steam merchant ship of similar tonnage and dimensions; cost of British ship for wages and board per month $3,645.09, of the United States $6,711.10, of the Canadian $2,303.50, and of the Japanese $1,124.50. The pay of the master of the Canadian ship was $250 a month, that of the master of the Japanese ship $100 a month; able seamen on the Canadian ship received $16.20 a month, on the Japanese ship $9 a month.

Taking the U.S. cost of operating, which is by far the highest, as representing 100%, the British is 54%, the Canadian 34%, and the Japanese 17%; it is apparent that the U.S. merchant marine is operated under a great disadvantage as compared with the Japanese, and to a lesser extent with the British and the Canadian; the Canadian operating costs are 20% less than the British, 66% less than the U.S., but nearly double those of the Japanese. It is altogether likely when the period of competition sets in that the United States will lower her cost of operation, otherwise she will be heavily handicapped.

The Mathews Steamship Co., Toronto, has been granted supplementary letters patent, under the Ontario Companies Act, increasing its capital stock from $250,000 to $2,000,000, by the creation of 17,500 shares of $100 each.

The Shipbuilding Industry's Position.

The Liverpool, Eng., Journal of Commerce says:—The situation in the shipbuilding industry both at home and abroad is perhaps more difficult to appraise than at any previous period. A year ago the United States still retained the predominant position in regard to the amount of tonnage under construction, but even at that time the British industry was pressing hard upon the heels of its new, and, as it appeared at that time, powerful rival. It is a rivalry which we need no longer fear. The quarterly returns which have been issued by Lloyd's Register during this year have made it clear that whilst the shipbuilding industry in the U.S. is a declining one, that of the United Kingdom is assuming itis old position of being the most important in the world.

Viewed from this standpoint, the position is not, of course, unsatisfactory. We have built and are building a majority of the world shipping. Yet when the statistics for the last quarter of 1920 are studied in detail they reveal some facts which are calculated to cause great anxiety to those engaged in this important industry. The fortunes of both employers and employed are, it is clear, being imperilled. The figures will bear a little examination. The merchant tonnage now building in the United Kingdom amounts to 3,708,916 tons. This is a figure considerably in excess of that which was recorded 12 months ago, but it is significant that it reveals a decrease as compared with Sept. 1920. The position in relation to rival shipbuilding countries is that the yards of the United Kingdom are, as in the pre-war period, building more merchant shipping than all other countries in the world. As against the total figure, just quoted, which stands to the credit of the United Kingdom, the tonnage building in all other countries is less than 3,500,000 tons. The decline in the aggregate of shipping under construction is, compared with the world total, quite insignificant, but it seems probable that it may be the beginning of a rapid shrinkage in the activities of the shipbuilding industry. One fact which is brought out in the returns, and which is calculated to arouse great apprehension as to the future of the industry, is that as compared with the total tonnage under construction the amount completed has been small. Expressing this in actual percentages, it appears that whereas in 1913 the average tonnage completed during each quarter was over 23% of the total work in hand, in 1920 it was only between 12 and 13%. These are figures which tell a depressing story. They are also a significant reminder of the main reason why the cost of building ships has advanced by such rapid strides, and emphasize the need in this, as in other industries, of taking measures to impress upon the workers the futility of deliberate slow working in the hope of promoting employment. It is true that the tonnage launched during the December quarter of 1920 was a record for the United Kingdom, but it is quite obvious that it could easily have been very much larger had the percentage of output to the total work in hand been maintained at the old level. One of the special features brought out in the returns is that the demand upon shipbuilders at present is to a considerable extent confined to the building of oil tankers, both in Great Britain and in the U.S. The returns, in which steamships and motor ships are now separately recorded, also bring out quite clearly the growing popularity of the motor ship.

The great lesson to be derived from these figures is that unless steps are taken to reduce the cost of shipbuilding, by an increase of output, without any further rise in wages, the industry is threatened with a slump of an unprecedented character. It would not be correct to assume, as some are inclined to do, that the falling off in orders for new tonnage is the result of over-building. A cursory examination of the situation, and this impression would be deepened by a more searching analysis, indicates that, notwithstanding the considerable additions made to the world's merchant fleets during 1920, the tonnage in service is still below the figure which would have been reached had the growth of the world's mercantile marine proceeded on normal lines. There is no escape from the conclusion that the main reason for the indisposition to order new ships is the enormous cost of construction and the rise in the expenses of ship operation in face of falling freights. Fairly active conditions in British shipyards during the next few months are probably assured, but if an attempt is made to forecast the prospects beyond that time the outlook is a gloomy one.

Newfoundland Steamship Services, Etc.

The Newfoundland Board of Trade in its report for 1920, dealing with local and foreign transportation, says:—During the war the council had to report on inadequate steamship service with foreign ports. For 1920 a satisfactory British service was given by Furness Withy & Co.'s steamships. The U.S. services by the Red Cross Line from New York and the Federal Line from Boston, amply cared for the freight demands to and from these ports. The services from Halifax and Sydney by the Red Cross Line, Farquhar & Co. and Furness Withy & Co. were continued. Canada Steamship Lines Ltd., and Canadian Government Merchant Marine gave satisfactory freight service from Montreal for the summer, and arranged to operate a winter service from Halifax and St. John. The inauguration of the C.G.M.M. West Indian Service from Halifax offers greatly improved facilities for the rapid marketing of Newfoundland products. The council recognizes the difficulty transportation companies had during the past six years in replacing steamships having satisfactory passenger accommodation, and notes that the Red Cross Line is contemplating the building of suitable steamships, and trusts 1921 will see a better passenger service to Newfoundland from Great Britain, Canada and the U.S. Generally speaking there was little complaint for 1920, unfortunately due in part to the trade depression during the autumn and the consequent lessened demand for supplies.

Under the Shipping Department the coastal service formerly operated by Bowring Bros. Ltd., was continued, the steamships Prospero and Portia running regularly throughout the season. While the freight service was apparently satisfactory, it is claimed that the passenger branch is not equal to the standard set by the former contractors.

The Reid Newfoundland Co.'s railway and steamship services were, for the past six months of the year, operated under a railway commission. Additional steamships were placed on the various Bay routes and though the council realizes the difficulty of procuring suitable ships for such service, it feels compelled to record the unsuitability of such as were engaged during 1920.

During the 1920 session of the Legislature power was taken, authorizing expenditures for additional terminal facilities at St. John's and Port aux Basques. Work has been commenced at Port aux Basques, but no progress has yet been made at St. John's. The Railway Commission has decided to use Argentia as a terminal port instead of Placentia, and work is proceeding at Argentia. Port Union has become the terminus of all northern steamships operated by the Commission, but there is a consensus of opinion in the north that the former Bay terminals and St. John's give a more satisfactory service.

The loss of goods in transit was so large as to become a serious problem to tre trade. The council has repeatedly had the question before it and has had the co-operation of importers and steamship representatives. As illustrating what the tax has now become to importers, we cite the rate covering pilferage only from New York which is now 1% compared with ½% a year ago, and much lower rates in previous years. It is believed losses can be greatly lessened if importers insist that all goods be shipped in packages sufficiently strong to stand the heavy handling they get in transit. Many of the packages imported are made from refuse board and are entirely unsuitable. Locally there was a decided increase in complaints of shortages and the council is of opinion this matter should receive the attention of all local transportation companies.

Local marine underwriters report a fair year, but not sufficiently good to more than offset the losses of 1919. The number of ships on the Atlantic was smaller than usual. The rates of insurance were advanced considerably, taking effect January 1, 1921, the advance being first made at Lloyd's, London, Eng.

During the last session of the Legislature a bill was brought in making it necessary for all foreign going ships over 100 tons gross register to have a load line clearly marked and easily distinguishable. Since this act was passed some 140 ships have been marked. As far as can be ascertained a close watch is being kept to see that ships are not overloaded. When this was done clearance was withheld until sufficient cargo had been discharged to lighten the ship.

J. R. Booth Ltd. has been incorporated under the Dominion Companies Act, with $10,000,000 authorized capital and office at Ottawa, Ont., to acquire the businesses carried on heretofore by John R. Booth, as lumberman, pulp and paper manufacturer, mine owner, agriculturist, land owner and financier, and in connection with such businesses to carry on a general transportation business by land and water, and to own and operate ships of every description on the Ottawa River and its tributaries and on other Canadian rivers and lakes. J. R. Booth, who is chiefly concerned in this company, was the builder and owner of the Canada Atlantic Ry., now a part of the G.T.R. The other incorporators are C. J. Booth, J. F. Booth, Mrs. Andrew W. Fleck, and Wentworth Green, Ottawa.

Marine Engineers' Wage Scale, Etc., for the Great Lakes.

The National Association of Marine Engineers of Canada have issued the following minimum wage scale and classification for steamships operating in the Great Lakes district, as adopted by the Great Lakes executive committee representing Port Arthur, Sault Ste. Marie, Collingwood, Owen Sound, Midland, Toronto, Kingston, Sarnia and St. Catharines councils, Jan. 18, and approved by the National Executive Committee.

Conditions of Employment.—All engineers shall be furnished first class transportation, including berth and meals, from the lake ports nearest their homes to the steamships on which they are to be employed, when going to fit out, and after the steamship goes out of commission, first class transportation, including berth and meals, shall be furnished to the lake port nearest the homes of the engineers.

All references to tonnage to be construed as gross tons. In all references to monthly conditions 30 days to constitute a month.

All ratings in all classes to include board and accommodation excepting passenger ferry steamships.

Overtime at the rate of 75c. an hour for all time over 12 hours shall be paid engineers on ships carrying only one engineer.

Any special conditions of employment not covered by the provisions of this wage scale to be submitted to the Great Lakes Executive Committee through the Business Manager for adjustment.

Passenger Steamships.—Class 1.—All passenger steamships of 3,000 tons or over. Chief engineer, $2,400 a season. Second engineer, $180 a month.

Class 2A.—All passenger steamships of 1,250 tons and under 3,000 tons, running less than six months. Chief engi- $2,100 a season. Second engineer, $150 a month.

Class 2B.—All passenger steamships of 1,250 tons, and under 3,000 tons, running less than six months. Chief engineer, $1,900 a season. Second engineer, $150 a month.

Class 3.—All lake passenger steamships under 1,250 tons and all passenger steamships confined to river service requiring second class engineer. Chief Engineer, $1,650 a season. Second engineer, $140 a month.

Class 4.—All passenger steamships from 45 n.h.p. to 25 n.h.p. Chief engineer, $150 a month. Second engineer, $110 a month.

Class 5.—All passenger steamships under 25 n.h.p. Chief engineer, $125 a month.

Freight Steamships.

Class 1.—All freight steamships of 5,000 tons or over. Chief engineer, $2,400 a season. Second engineer, $180 a month.

Class 2.—All freight steamships of 3,000 tons and under 5,000 tons. Chief engineer, $2,200 a season. Second engineer, $160 a month.

Class 3.—All freight steamships under 3,000 tons requiring second class engineer. Chief engineer, $2,000 a season. Second engineer, $150 a month.

Class 4.—All freight steamships not otherwise classified and requiring third class engineer. Chief engineer, $165 a month. Second engineer, $130 a month.

Tug Steamboats.

Season not less than eight months.

Class 1.—All tugs requiring second class engineer. Chief engineer, $185 a month. Second engineer, $145 a month.

Class 2.—All tugs from 75 n.h.p. to 50 n.h.p. Chief engineer, $170 a month. Second engineer, $140 a month.

Class 3.—All tugs from 50 n.h.p. to 25 n.h.p. and all h.p. tugs over 15 n.h.p. Chief engineer, $165 a month. Second engineer, $130 a month.

Class 4.—All tugs under 25 n.h.p. and not embraced in class 3. Chief engineer, $150 a month. Second engineer, $120 a month.

Special Class.—Harbor tugs (other than dredge tugs) operating exclusively in Welland Canal and carrying only engineer. Engineer, $160 a month. Overtime clause not to apply to this class.

Ferry Steamboats.

All passenger ferry steamboats operating from Sault Ste. Marie, Ont., and requiring second class engineer. Chief engineer, $185 a month. Second engineer, $175 a month. For season of not less than 10 months.

All other passenger ferry steamboats requiring second class engineer. Chief engineer, $175 a month. For season of not less than 6 months.

All passenger ferry steamboats requiring third class engineer. Chief engineer, $150 a month. For season of not less than 6 months.

Canadian and United States Steamship Operation on the Great Lakes.

In speaking on restrictions imposed by the Seamen's Act on U.S. vessels on the Great Lakes, as well as on the oceans, A. A. Schantz, President, Detroit & Cleveland Navigation Co., is reported to have said recently: "A straw which shows the way the wind is blowing is the fact that the Canadian freighter W. Grant Morden carried 14,137 gross tons of ore from Duluth, to the steel plant at the Canadian Sault on one trip last season. This huge cargo stands as the very largest ever carried on the Great Lakes, regardless of the commodity, and is equal to 15,883 tons. Last season the Northern Navigation Co., operating a line of boats from Detroit to Duluth, and the Detroit-Wallaceburg Line, both Canadian owned, made money, while Detroit owned boats were being put out of commission because they were losing money. Canadian costs of steamship operation, so far as wages and sustenances are concerned, are on the average 66% less than those of the United States. The Canadian Marine Department gives the monthly cost of wages and board on similar sized ships as follows: U.S., $6,711; British, $3,646; Canadian, $2,303.

Small Warships Lengthened for Peace Service.

Convoy and patrol boats built during the war by Great Britain have been lengthened to make them adaptable for use in merchant service. As built for the war they were 170 ft. long, and they have been lengthened to 213½ ft. The work was done in some instances in dry dock, in others on launching ways, up which a vessel was hauled on a cradle. No special difficulties were met in the work. In addition to transforming the hull, the operation of change to merchant service involved reduction of the boiler capacity, rebuilding of the bow portion of the ship (originally shaped like the stern in profile, to deceive an approaching enemy, and extensive changes in superstructure, etc. As rebuilt, the ships are of about 1,600 tons displacement and have a normal speed of 10 knots.

Decrease in Steamship Prices.

Turner, Davidson & Co., London, say: "The value of steamships has undergone an extraordinary change since the beginning of 1920. Then there was nothing uncommon in a price of £40 to £50 a d.w. ton for new steamships of 4,000 to 7,000 tons capacity. Today similar tonnage can be purchased for less than half these figures, and one new ship about 4,000 tons has actually been withdrawn from auction when only £8 10s. a ton was offered, practically a pre-war price.

"A large number of foreign owners, owing to the financial stringency and the adverse course of exchange, have been compelled either to cancel contracts, at a heavy sacrifice, or to assign same at prices very much below original cost. Second hand tonnage has depreciated pro rata, and freight markets all round having slumped, it is impossible for owners of expensive ships, and in many cases of moderately valued ones, to make ends meet. The market will no doubt sooner or later adjust itself when tonnage is laid up."

Proposed Great Lakes-Transatlantic Route.

An unconfirmed press dispatch from Detroit, Mich., states that C. D. Hoban, President, Great Lakes Transatlantic Route Development Co., and local representative of the Newfoundland Railway and Train Ferry Syndicate, working in conjunction with certain British interests, whose names are not stated, has announced that in the near future, a syndicate of British capitalists will carry out a scheme whereby the transportation of commodities from Detroit to Liverpool will be effected in 15 days, with only one transshipment in the case of perishable goods and two for non-perishable goods. This, it is stated, will be accomplished by the shipment of goods in six combination bulk car ferries designed for river service, to Bay of Islands, Nfld., where the cars will be landed and run over the railway to a port on the eastern coast of the Island, where they will be unloaded, and delivered to transatlantic steamships, for shipment to Liverpool, Manchester or Cork. The car ferries will, it is stated, be of such dimensions as will make them suitable for passage through the St. Lawrence canals, with dimensions, approximately, 265 ft. long, 45 ft. beam, and 14 ft. draft, and the ocean steamships will average 8,000 tons.

Esquimalt Drydock Site.—A dispute arising out of the valuation of land at Esquimalt, B.C., expropriated for building the Dominion Government drydock, came before the Exchequer Court at Victoria at the end of January, judgment being reserved. The Government, it appears, tendered the Hudson's Bay Co., the owners of the land, $32,620 for the 16.21 acres expropriated, the company claiming that the land was worth an additional $10,000. During the case various estimates as to the value of the land were given, ranging from $250 to $5,000 an acres.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Deliveries of Steamships.—In addition to the steamships mentioned in Canadian Railway and Marine World previously, the following has been delivered to Canadian Government Merchant Marine for operation:—

Jan. 20, s.s. Canadian Fisher, Marine Department contract 15, builder's yard no. 7, approximately 5,100 d.w. tons, built by Tidewater Shipbuilders Ltd., Three Rivers, Que., except the interior fittings, etc., which were put in by Halifax Shipyards Ltd., Halifax, N.S. This is the first ship of the fleet to be provided with accommodation for 30 passengers. She sailed from Halifax Jan. 25, with a full passenger list and a general cargo, for Nassau, Bahamas; Kingston, Jamaica; and Belize, British Honduras.

The s.s. Canadian Leader, Marine Department contract 53, builder's yard no. 80, approximately 8,390 d.w. tons, was delivered to the Marine Department by Canadian Vickers Ltd. at Montreal, Dec. 21, but will not be taken over by Canadian Government Merchant Marine for operation until the opening of St. Lawrence navigation.

Vancouver Dock. — Canadian Government Merchant Marine is reported to have leased the Dominion Government dock at Vancouver at an annual rental of $60,000. The dock was built by the Dominion Public Works Department in 1915 and was then handed over to the Vancouver Harbor Commission for administration. All revenues and expenditures were received and paid by the Commissioners, but they paid no rental, or interest on capital, to the Marine Department, which was originally responsible for its administration. Under this arrangement the Harbor Commissioners were unable to fix a lower scale of wharfage rates, etc., than was current at other wharves privately owned. Since the C. G.M.M. has leased the dock, a new scale has been put into effect, bringing the rates on a parity with those charged by other wharves. The lease is an annual one and it is stated that it is expected that on the completion of the Ballanyne pier, probably in 1922, all wharfage charges will be entirely eliminated, the necessary harbor revenue being produced entirely by levying a rate on cargoes.

Atlantic Freight Rates.—Canadian Government Merchant Marine has announced a reduction in general cargo rates between Canadian Atlantic ports and Great Britain. The rate on general cargo from Halifax and St. John to Great Britain was 50c. a cu. ft. or $1 per 100 lb. The new rate is 40c. a cu. ft. or 75c. per 100 lb.

Canadian Vickers Ltd., Montreal, delivered the steel cargo steamship Canadian Leader, Marine Department contract 53, builder's yard no. 80, approximately 8,390 d.w. tons, to the Marine Department, Dec. 21, 1920. She will not be taken over by Canadian Government Merchant Marine for operation until the opening of St. Lawrence navigation.

Davie Shipbuilding & Repairing Co., Lauzon, Que., advises that the construction of the steel cargo steamship, Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, the keel of which was laid May 14, 1920, has been delayed on account of having to wait for steel, and that a launching date has not been fixed.

Halifax Shipyards Ltd., Halifax, N.S., which is building two steel cargo steamships for Canadian Government Merchant Marine, viz., Canadian Cruiser and Canadian Constructor, Marine Department contracts 38 and 39, builder's yard nos. 3 and 4, each approximately 10,500 d.w. tons, expects to launch Canadian Cruiser in the latter part of April, or early in May, and Canadian Constructor about two months later.

See also Tidewater Shipbuilders Ltd.

Harbour Marine Co., Victoria, B.C., advised us recently that it could not give an approximate date for delivery for the steel cargo steamship Canadian Traveller, Marine Department contract 30, builder's yard no. 2, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, which was launched Sept. 29, 1920, it having been decided to install a refrigeration plant on the ship.

Port Arthur Shipbuilding Co., Port Arthur, Ont., advises us that the steel cargo steamship Canadian Harvester, Marine Department contract 61, builder's yard no. 45, approximately 3,890 d.w. tons, for Canadian Government Merchant Marine, the keel of which was laid Mar. 30, 1920, and which was launched Nov. 20, 1920, will probably be delivered about the middle of May.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—Canadian Railway and Marine World for February gave particulars of the arrangements made by the Marine Department with Wallace Shipbuilding & Drydock Co., North Vancouver, to complete, on a time and material, plus 8% basis, the two steel cargo steamships Canadian Reaper and Canadian Thrasher, each approximately 8,100 d.w. tons, which the Prince Rupert Drydock & Engineering Co. was building when it failed. A Prince Rupert press dispatch of Feb. 9 stated that the liquidator, W. E. Hodges, had returned there from Ottawa, and had stated at a meeting of creditors that the Marine Department required the assembled material lying in the yards for the completion of the two ships. This he had refused to agree to and a deadlock has resulted. He had also instructed Capt. Saunders, who is spoken of as the Government representative at the yard, to leave it, and had notified the Wallace Shipbuilding & Drydock Co. that no person would be permitted to enter the yards to work on the two ships, but that bona fide drydock repair workmen would be allowed access. Canadian Railway and Marine World was advised from Ottawa recently that Henry A. Butt, overseer, would represent the Marine Department during the completion of the ships.

A later Prince Rupert press dispatch of Feb. 22 says that by a judgment of Mr. Justice Murphy, a clause in the contract between the Marine Department and the Prince Rupert Drydock & Engineering Co. has been interpreted as a lien embracing not only the two ships in process of construction, but also the shipyard's plant and equipment. As a result, W. E. Hodges, the trustee appointed by creditors when the company went into bankruptcy, will be required to return nearly $100,000 worth of materials, which he removed from the yards to a private warehouse in Prince Rupert. The decision will be appealed, and will come up in the higher court next month.

See also under General Shipbuilding Matters Throughout Canada on another page.

Tidewater Shipbuilders Ltd., Three Rivers, Que.—The steel cargo steamship Canadian Fisher, Marine Department contract 15, builder's yard no. 7, approximately 5,100 d.w. tons, which was built by this company at Three Rivers, and, in order not to be delayed by closing of navigation on the St. Lawrence, was taken to Halifax to have her interior fittings, including accommodation for 30 passengers, put in by Halifax Shipyards Ltd., was delivered to the Marine Department, and transferred to Canadian Government Merchant Marine, Jan. 20, for operation. She loaded a general cargo and took on a full list of passengers at Halifax, and sailed Jan. 25 for Nassau, Bahamas; Kingston, Jamaica; and Belize, British Honduras.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—It is reported that the steel cargo steamship Canadian Skirmisher, Marine Department contract 56, builder's yard no. 104, approximately 8,390 d.w. tons, being built for Canadian Government Merchant Marine, will be launched about Mar. 10. The keel was laid Oct. 14, 1920, and work has been retarded to some extent by bad weather.

Great Lakes Levels.

The U.S. Lake Survey reports the monthly mean stages of the Great Lakes for January in feet above mean sea level as follows:—Superior, 602.08; Michigan and Huron, 579.92; St. Clair, 574.98; Erie, 571.99; Ontario, 245.54.

Lake Superior was 0.17 ft. lower than in Dec. 1920, 0.04 ft. higher than Jan. 1920, 0.03 ft. above the average January stage of the last ten years, 0.70 ft. below the high stage of Jan. 1901, and 1.20 ft. above the low stage of Jan. 1880.

Lakes Michigan and Huron were 0.18 ft. lower than Wec. 1920, 0.12 ft. lower than Jan. 1920, 0.03 ft. below the average January stage of the last 10 years, 2.75 ft. below the high stage of January 1886, and 0.84 ft. above low stage of Jan. 1896. During the last ten years the January level has averaged 0.2 ft. lower than the December level, and the same as the February level.

Lake Erie was 0.10 ft. higher than Dec. 1920, 0.69 ft. higher than Jan. 1920, 0.36 ft. above the average January stage of the last ten years, 1.56 ft. below the high stage of Jan. 1886, and 1.03 ft. above the low stage of Jan. 1896. During the last ten years the January level has averaged 0.1 ft. lower than the December level, and 0.1 ft. higher than the February level.

Lake Ontario was 0.14 ft. higher than Dec. 1920, 0.23 ft. higher than Jan. 1920, 0.13 ft. above the average JQanuary stage of the last ten years, 2.06 ft. below the high stage of Jan. 1886, and 1.74 ft. above the low stage of Jan. 1896. During the last ten years the January level has averaged about the same as the December level, and 0.1 ft. lower than the February level.

Colonial Marine Underwriters Ltd. has been incorporated under the Dominion Companies Act, with $150,000 authorized capital, and office at Montreal, to carry on business as merchant and carrier by land, air and water, ship, tug and barge owner, insurance broker, and any business in connection with ships or shipping, or the carriage of passengers and merchandise.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweigbt capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweigbt tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	Juiy 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'ie	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'ie	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'ie	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'ie	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'ie	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'ie	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'ie	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'ie	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'ie	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	.....
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'ie	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'ie	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'ie	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'ie	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'ie	"	10	Mar. 15, 1919	Dec. 18, 1920	.....
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'ie	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'ie	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'ie	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	.....
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'ie	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'ie	Lloyd's	11	Apr. 26, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'ie	"	11	May 3, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'ie	"	11	Juiy 24, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'ie	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'ie	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'ie	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	.....	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'ie	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Sbipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'ie	"	11	June 2, 1920	Oct. 30, 1920	.....
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	.....
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	.....	.....
57	Mar. 13, 1920	Canadian Rover	Collingwood Sbipbldg. Co., C'wood.	67	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	.....	.....
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'ie	"	11	May 14, 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	.....
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
					379,296.80		$72,818,073.18						

General Shipbuilding Matters Throughout Canada.

B.C. Yacht & Boat Builders Ltd., Victoria, B.C.—The second of the two 75 ft. motor patrol boats for the Marine Department's B.C. coast patrol service, was launched Jan. 17. The first, which was launched Jan. 4, is practically ready for service. They are each equipped with 100 h.p. Fairbanks-Morse engines, and have auxiliary deck hoists for buoy and other work. One of these boats is to operate in local waters, and the other is to be stationed at Prince Rupert.

A Vancouver press dispatch of Feb. 4 stated that there was a temporary stoppage of the work of completing the two boats, due to changes in the specifications made by the Marine Department, some of which were taken exception to by the builders. This, it is stated, necessitated a new contract which was at that time at Ottawa awaiting ratification. In the meantime a number of men employed on the work were laid off. Both boats were said to be in the water with engines installed. The work still to be done is mainly the superstructure and installation of fittings.

Canadian Allis Chalmers Ltd., Bridgeburg, Ont. — The shipbuilding plant which has been operated during the last three years by this company at Bridgeburg, was closed at the end of January. While it was in operation two steel cargo steamships were built for the British Government under orders from the Imperial Munitions Board, and two steel cargo steamships for the North American Steamship Co. and South American Steamship Co., Toronto, respectively.

Dominion Shipbuilding & Repair Co., Toronto. In connection with the winding up of this company's affairs, it is stated that the liquidator, Osler Wade, Toronto, is pressing a claim of $887,105 against Christopher Hannevig, New York, of Hannevig & Co., bankers, exchange, shipping and insurance brokers, etc., which company is reported to have failed. C. Hannevig is reported to have stated that the position in which the company finds itself was chiefly due to the delay of the United States Shipping Board in adjusting obligations, and that as soon as a settlement was made, all creditors would be paid in full.

Halifax Shipyards Ltd., Halifax, N.S. Montreal press dispatch, Feb. 21.—Directors of Halifax Shipyards Ltd. have approved of the terms on which the enterprise is to be consolidated with the Dominion Steel Corporation and the Nova Scotia Steel & Coal Co., and, in common with the two larger enterprises will in the course of the next ten days or so formally submit the proposal to the shareholders of the Halifax company.

Harbour Marine Co. Ltd., Victoria, B. C.—The steel car ferry tow barge which this company is building for the C.P.R. service between the mainland and Vancouver Island, was launched Jan. 25, and work was continued at the company's wharf, on the erection of the deckhouse. Her dimensions are,—length 270 ft., beam 42 ft., depth moulded 12 ft., and she has a single deck, equipped with three tracks with capacity for 18 standard railway cars. Her cost will be approximately $200,000.

The company was reported in a Victoria press dispatch recently to have decided to close down its plant and remove the machinery to the Victoria Machinery Depot Co.'s plant. Harbour Marine Co. Ltd. is a subsidiary of the Victoria Machinery Depot Co. and was formed to take over Marine Department contracts 29 and 30, for building two steel cargo steamships of approximately 8,390 d.w. tons each, for Canadian Government Merchant Marine. The first of the ships, Canadian Winner, was launched June 29, 1920, and delivered to C.G.M.M. for operation Nov. 29, 1920. The second, Canadian Traveller, which was launched Sept. 29, 1920, is being completed at the V.M. D. Co.'s plant.

The Lunenburg Marine Railway Co.'s annual meeting was held at Lunenburg, N.S., Jan. 25. The report for the past seven months, since the reorganization of the company, showed a substantial profit on the operation of the plant. Since the construction of an additional marine railway last year, making a total of three marine railways, the company can deal with ships up to 1,200 tons. The directors for the current year are: W. Duff, M.P., President; H. W. Adams, Vice President; A. H. Zwicker, Managing Director and Treasurer; E. Spindler, Manager; B. C. Smith, R. Silver, and G. E. Rhuland. H. H. MacIntosh is Secretary.

National Shipbuilding Corporation, Three Rivers, Que.—A petition in bankruptcy against this company has been granted.

A report of the liquidator on the failure of the National Shipbuilding Corporation, and its subsidiary company, Three Rivers Shipyards Ltd., states that besides the plant at Three Rivers, there is an equity in a shipyard and canal company at Violet, La. The total assets are placed at $930,355, with creditors' claims amounting to $3,095,126. The question of the reorganization of the business, it is stated, might be regarded as more theoretical than practical. The report adds:—"The whole story of the organization of this company indicates lack of proper financial and technical foresight. Apparently none of the executive officers or directors of the two companies appear to have had sufficient previous experience in shipbuilding, and they seem to have undertaken tremendous contracts and operations without any proper regard to capital, costs or consequences. The contracts which this company had could never be executed with any degree of profit, and certainly cannot now. The yard in Three Rivers as an eight-way proposition in any event would not have been successful."

North Vancouver, B.C.—A press report states that the owners of the Queensboro shipyards, New Westminster, B.C., have applied to the North Vancouver city council for a lease of two waterfront lots immediately west of St. Andrews Ave., with the option of purchasing the property at any time. It is stated to be the intention to establish a shipbuilding yard there, at an approximate cost of $20,000, to give employment to about 50 men.

Port Arthur Shipbuilding Co., Port Arthur, Ont., advises that the steel cargo steamship of approximately 3,000 d.w. tons capacity, yard no. 45, which it is building for private owners, will probably be launched in April, providing the weather will permit.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—At a recent meeting of creditors at Prince Rupert, the receiver, W. E. Hodges, reported that the secured claims against the company were $362,480; preferred wages claims, $112,000; unsecured creditors, $392,000, total liabilities, $866,480, to meet which there seemed to be net amounts due of $941,690, out of which the cost of completing the two steel cargo steamships, of approximately 8,390 d.w. tons each, Canadian Reaper and Canadian Thrasher, for Canadian Government Merchant Marine will have to be paid. Following is a local paper's summary of the receiver's report:—

The plant and premises will have to be used by the contractor (Wallace Shipbuilding & Drydock Co., North Vancouver) to complete the ships, for which a very substantial rental should be charged. The inventory of repair material and sundries around the yard runs into a considerable sum. I am having an inventory prepared which is not yet complete. The estimated value is from $100,000 to $125,000, from which an allowance must be made for realization. There is a clause in the lease which provides that on its termination the lessors may purchase the improvements made by the lessees at a value to be agreed upon, which means that whatever sum can be recovered under this clause will be available to satisfy the claims of the creditors. In the contracts for the construction of the ships, clause 21 provides that the contractors agree to deposit with the Minister of Marine a guaranty bond of an approved company equal to 10% of the contract price of each ship, as a guarantee for the faithful performance of the work contained in the contract. I have been unable to ascertain definitely the position with regard to this, but I am informed that there is approximately $160,000 on deposit in some bank in Ottawa or Montreal in lieu of the guaranty bond on one ship. I am also advised that the guaranty company has repudiated its liability on the other ship. As the merchants gave credit to the company on the strength of the existence of these bonds, it is, in my opinion, the duty of the Government to make good if the bonding company does not. Furthermore, I believe that the $160,000 above referred to as being on deposit was in reality provided out of the first payment under the contract, and should have been available for payment to the creditors, and the guaranty bond, under sec. 21 of the contract, should have been provided besides. In addition, I believe that during 1920, Newman Erb bought out the minority stockholders for $75,000. If he used the company's funds to pay for this, and I believe he did, it is undoubtedly recoverable at law. But the question must be very carefully considered as to whether it is advisable to embark upon any law suits of this description, before final action is taken. I am hoping to be able to get some information at Ottawa which will assist the inspectors and myself in deciding how to deal with regard to the New York office. I regret that owing to the peculiar circumstances attached to this case, it has been impossible to present the creditors at this meeting with a financial statement other than the information contained in this report. As soon as I can prepare this, I will again send a report to the creditors by mail, giving them all the information with regard to the progress of the liquidation which may be of interest.

The Grand Trunk Pacific Co.'s s.s. Prince Albert is undergoing her annual overhaul at this plant and certain repairs are also being undertaken.

See also under Canadian Government Merchant Marine, Shipbuilding, Operation, Etc.

Victoria (B.C.) Shipowners, Ltd., Victoria, B.C.—In connection with the recent announcement that work had been suspended on 3 out of 4 barquentines being built at the Cholberg Shipyard, Victoria. under Dominion Government aid, as announced in our last issue, C. Cholberg announced Feb. 2 that the stoppage was entirely due to the necessity for getting the first of the four, which has been named S. F. Tolmie, into service as soon as possible. This ship is now practically ready for sea, and it was expected that the work on the other three would be proceeded with before the end of February.

Wallace Shipyards & Drydock Co., North Vancouver, B.C.—Work is reported to be proceeding according to schedule on the steel steamship under construction for the C.P.R. British Columbia Coast Service. The construction of the double bottom is practically completed.

Yarrows Ltd., Victoria, B.C. — The steam trawler James Carruthers, which was damaged in collision with the U.S. s.s. Surveyor in Queen Charlotte Sound, towards the end of 1920, has been repaired at this yard. The work included the placing of about 60 new plates, a new keel and new stem bar.

The company has the contract for repairing the Standard Oil Co.'s steamship Atlas, which ran ashore in Wrangel Narrows in Dec. 1920. This work was expected to be completed by the end of February.

Canada Steamship Lines Dividends.

The directors of Canada Steamship Lines Ltd., at a meeting in Montreal Feb. 21, declared the usual quarterly dividend on the preferred stock and issued the following notice:—"No action was taken in respect to dividend on ordinary shares, and while the earnings of the year have been excellent, the directors, pursuing a conservative policy, have decided to conserve the company's resources and to await developments on certain financial proposals now under consideration to capitalize the greatly increased assets of the company. This, when consummated, will, in the opinion of the directors, be greatly to the interest of the company."

The financial proposals mentioned are said to be in connection with efforts which President J. W. Norcross has been making to interest English capital in the company. For several years the company has built up its tonnage without resorting to new borrowing, and in spite of the fact that earnings for 1920 are stated to compare well with those of previous years, the company is short of working capital.

Canada Steamships common dividend began at 4% in Feb. 1919, and was raised in Dec. 1919 to 7%.

The Quebec Steamship Co. is applying to the Dominion Parliament for amendments to its act of incorporation, including the increase of its authorized capital to $10,000,000, removing restrictions as to its issue, to allow the company to hold stock in other companies, to enlarge its powers, and to fix the head office at Montreal. The company is a subsidiary of Furness Withy & Co., having been acquired from Canada Steamship Lines Ltd. last year.

Mainly About Marine People.

C. A. Barnard, K.C., Montreal, has resigned his position as a director and Vice President of Canada Steamship Lines Ltd., but remains as counsel.

G. M. Bosworth, Chairman, Canadian Pacific Ocean Services, Ltd., Montreal, sailed from Vancouver, Feb. 10, on the C.P.O.S. s.s. Empress of Asia on a three months tour of Japan, China and the Philippine Islands, during which he will probably visit Pekin and Korea.

Hon. W. F. Coaker, Minister of Marine and Fisheries for Newfoundland, arrived in London, Eng., early in January, en route to Portugal, Spain, Italy and Greece, which countries buy large quantities of dry codfish, Newfoundland's staple product.

F. C. Cuttle, heretofore Assistant Claims Agent, Canada Steamship Lines, has been appointed Insurance Agent. Office, Montreal.

Jno. P. Doherty, Export Freight Agent, Canadian Government Merchant Marine, Montreal, was married at St. John, N.B., Feb. 2, to Miss M. E. Connolly.

A. M. Dollar, President, Canadian Robert Dollar Steamship Co., Vancouver, B. C., left for Great Britain recently for the purpose, it is stated, of obtaining two additional steamships.

C. Duguid, Naval Constructor, Marine Department, has returned to Ottawa, after a two months official trip to Great Britain.

J. H. Edwards, heretofore Assistant Freight Claims Agent, Canada Steamship Lines, has been appointed Freight Claims Agent. Office, Montreal.

M. P. Fennell, Jr., Secretary, Montreal Harbor Commissioners, returned to Montreal, Feb. 18, after having spent two months visiting various ports in Europe.

G. H. Flood, Purchasing and Contract Agent, Marine Department, has returned to Ottawa after an official trip to Great Britain.

V. N. Hart has been appointed harbor master, Guysborough, N.S., vice J. H. Dillon, resigned.

F. S. Isard, Director of Finance and Comptroller, Canada Steamship Lines, left Montreal early in February for London, Eng., on official business.

John S. Leitch, Managing Director, Collingwood Shipbuilding Co., Collingwood, Ont., has also been appointed Assistant to President, Halifax Shipyards Ltd., Halifax, N.S. H. B. Smith, Toronto, is President of both Collingwood Shipbuilding Co. and Halifax Shipyards Ltd.

Capt. K. McKenzie, a Great Lakes mariner, was killed at his home at Tiverton, Ont., Feb. 14, by an acetylene gas tank explosion.

J. McL. Mitchell, Shore Superintendent, Pacific Steamship Co., Vancouver, B.C., was married Feb. 10, to Alice I. Murphy, sister of E. Parr, agent, White Pass and Yukon Route, Vancouver.

J. A. Olive, local manager, Furness Withy & Co., St. John, N.B., was presented with a gold watch and chain by the office staff, Feb. 14, on leaving the company's service to become Secretary-Treasurer, New Brunswick Power Co.

Engineer Commander T. C. Phillips addressed the Engineering Institute of Canada's Ottawa branch recently on ship propulsion.

Jas. Playfair, President, Great Lakes Transportation Co., and Mrs. Playfair, left Midland, Ont., about the middle of February, en route to England.

R. V. Robinson, General Claims Agent, in charge of freight claims and insurance, Canada Steamship Lines, Montreal, has resigned, effective Mar. 31, and the position of General Claims Agent has been abolished.

C. E. V. Rutter, who has retired as City Agent, Canadian Pacific Ocean Services Ltd., London, Eng., after about 48 years service with the company and the Allan Line, was presented recently with a silver salver and an illuminated album containing the names of subscribers to the presentation, from the company's officials throughout the United Kingdom. He retains connection with the company, as he will represent it in the Steamship Owners' Protection and Indemnity Associations and in the Chamber of Shipping.

Capt. H. Smith, who died at Victoria, B.C., Feb. 7, aged 80, was intimately connected with navigation and marine development around Vancouver Island ever since 1863. In a local marine history, he was credited with holding all records for continuous long service in the Pacific northwest. He was born in New York, and was granted a master's certificate in Atlantic waters, later transferring to Puget Sound as master of the s.s. Eliza Anderson. He was for some years in R. P. Rithet & Co.s service, and subsequently was Superintendent of the outer wharves at Victoria, which position he held until his retirement from active service about five years ago.

Senator Lorne C. Webster, President, Webster Steamship Co., etc., has been elected President, Montreal Board of Trade.

A. A. Wright, who was elected President of the Dominion Marine Association, at its annual meeting in January, as stated in Canadian Railway and Marine World for February, is President of Tidewater Shipbuilders Ltd., Three Rivers, Que., and Vice President and Managing Director of Davie Shipbuilding & Repairing Co., Lauzon, Levis, Que. By a mistake he was referred to in our last issue as being Vice President and Managing Director of both of those companies.

New Type of Naval Searchlight.

The United States Naval Communication Service has set the electrical industry the task of designing a searchlight to be used for invisible messages for naval purposes. The line of research followed by the General Electric Co.'s engineers has been to use a cylindrical light core, and to render it invisible by the employment of infra red rays. The research will be followed with special interest by all associated with the fighting sea services. The General Electric Co. has done a good deal of work on searchlights. It has been shown that an incandescent searchlight of 7,000 candle power is a practical proposition, and experiment has also demonstrated that searchlight lenses, if supplied with mirrors curved on non parabolic lines, will conserve the large losses associated with the use of parabolic lenses. It is believed that the power of existing searchlights can be at least doubled.

Atlantic and Pacific Ocean.

Canadian Pacific Ocean Services' s.s. Montcalm, 16,200 tons, which is being built by Fairfield Shipbuilding & Engineering Co., Govan, Scotland, and which was expected to be ready for operation in February, has been delayed by a strike of joiners at the shipyards.

F. H. Clendenning, Foreign Freight Agent, Canadian Pacific Ocean Services, Vancouver, B.C., is reported to have stated that the steamships Mattawa and Methven, running in the Orient service, have been laid up pending an improvement in the trans-Pacific freight situation.

The French s.s. Victorieux, 4,321 tons, was, according to a Marconi message received at Cape Race, Nfld., Feb. 11, abandoned at sea, her crew having been taken off by the British s.s. Cranford, bound from Galveston to Liverpool. The s.s. Victorieux was owned by the French Government and operated by the Star Line. She was formerly the German s.s. Uckermarb.

The White Star Line's s.s. Calgary, sister ship of the same company's s.s. Regina, both of which are approaching completion, is reported to have had her name changed to Doric. These ships are to be 16,314 tons gross, and the s.s. Regina is expected to be on the route to Montreal about the end of the summer. The company's new s.s. Laurentic, 17,400 tons, designed especially for the St. Lawrence service, is also reported to be well advanced towards completion. It is said she will be the largest ship to enter Montreal.

The British s.s. Bristol City, bound from Bristol to New York, ran short of fuel when about 240 miles direct south from Cape Race, Nfld., and in response to a wireless, Canadian Government Merchant Marine's s.s. Sheba was dispatch to her assistance. The s.s. Bristol City was later reported to have reached a point 61 miles from Louisburg, N.S., making three or four knots an hour and burning her woodwork. She had, however, encountered heavy ice and was making no progress. The C.G.S. Stanley was immediately sent out to assist and she was taken into Louisburg under her own steam.

J. M. Jacquet, a Belgian, naturalized in Canada, entered suit against Canadian Pacific Ocean Services Ltd., for $10,000 damages for being refused a passage, which he claims to have booked on the s.s. Grampian for Paris. It is claimed on behalf of the C.P.O.S. that passage was refused on the intervention of the Belgian Consul General, on the ground that plaintiff's French passport had not been vised, and obligations under the international law were also pleaded. On the opening of the case at Montreal, Jan. 25, the court ordered the plaintiff to prove that he had the right to proceed with the action.

The Royal Mail Steam Packet Co. is reported to have been appointed agent at Vancouver for the Holland-Amerika Line, with Capt. R. G. Parkhurst in charge of the local office. The first ship to be placed on the route between Holland and North American Pacific ports will be the s.s. Eendyk, which was announced to leave Europe towards the end of February, and sail via the Panama Canal. Later in the spring a full trans-Atlantic passenger service will be operated, in addition to a freight service out of Vancouver, and it is stated that 9 steamships with approximately 15,000 d. w. tons capacity, are being specially built for this traffic.

The Cunard Co. intends to proceed with its shipbuilding programme. The company's fleet new consists of 22 ocean going steamships, representing in total 228,468 tons gross. An additional gross tonnage of 214,200 is due for delivery before the end of this year. The allied lines—the Anchor, the Brocklebank, the Commonwealth and the Dominion—represent a gross tonnage of 445,906. An additional 129,800 tons are being built this year, viz., 11 ships. Subject to any unforeseen delays, the Cunard Co. will control 1,018,374 tons gross by the end of Dec. 1922.

Maritime Provinces and Newfoundland.

The schooner Marjorie McGlashen, from St. John's, Nfld., with a cargo of fish, became a total wreck near Malaga, Spain, Feb. 13.

A St. John's, Nfld., press dispatch states that the Red Cross Line had reduced its freight rates between St. John's and New York, via Halifax, by 15%.

The s.s. Bristol City, which was taken into Louisburg, N.S., recently, by the s.s. Kamouraska, has been libelled by the Dominion Coal Co., on a claim for $25,000, for salvage services.

The concrete ship Permanencia, while on her maiden voyage from Sydney, N.S., to Fortune Bay, Nfld., was damaged, and had to lay up at Rose Blanche, Nfld., where she was surveyed.

The Newfoundland schooner Elizabeth Fearn, in ballast from Bahia for St. John's, Nfld., struck on the northhead of Quidi Vidi, Nfld., Feb. 11, and became a total wreck. She was of 246 tons, and owned by Campbell & McKay.

It is stated that during 1920, thirty-one ships were added to the Lunenburg, N.S., fishing fleet, at an approximate cost of $1,000,000. In 1920 there were 117 ships, which made a total catch of 291,474 quintals, with an average per ship of 2,488 quintals, of an estimated value of $2,000,000.

The s.s. Stadium, owned by C. T. White & Son, Sussex, N.B., is reported to have been sold to F. Ellis, St. John's, Nfld., for towing and wrecking work there. She was built at Shelburne, N.S., in 1912, and is screw driven by engine of 28 h.p. Her dimensions are,—length 78.6 ft., breadth 20.6 ft., depth 9 ft., tonnage 118 gross, 49 net.

The Cape Race Shipping Co., St. John's, Nfld., at an extraordinary meeting of shareholders recently, passed a resolution to the effect, that it having been proved to the meeting's satisfaction that the company cannot by reason of its liabilities continue its business, the same be wound up voluntarily. T. Cook, M. Burke, F. J. Roil, W. Drover and G. E. Taylor were appointed liquidators.

The schooner Peter McIntyre, which was launched at Moss Glen, N.B., Nov. 11, 1920, is being completed at the McAvity wharf, St. John, N.B., and will, it is expected, be ready for sea early in March. Her dimensions are,—length overall 162.3 ft., length over keel 146 ft., breadth overall 13 ft., depth of hold 12½ ft. On completion she will load lumber for Las Palmas, Canary Island.

The County Board of Revision and Appeal heard a large number of appeals from shipowners at Lunenburg, N.S., Jan. 25, against the assessment on shipping. During the war the assessment was practically doubled, and on account of the fishing industry being somewhat dull, and freights short, it was claimed that a considerable reduction should be made. The board made large decreases in the assessments.

A company is reported to be organizing for the establishment of a steamship service between Pictou, N.S., and Charlottetown, P.E.I., formerly served by the P.E.I. Steam Navigation Co. Those interested in the company are said to be W. N. McDonald, Sydney, N.S.; Dr. T. H. McDonald, Meteghan, N.S., and Dr. U. S. McDonald, New York, and it is stated that the s.s. Constance, 180 tons, equipped for passenger and freight service, has been bought for the route.

A Halifax press report states that Canada Steamship Lines Ltd. intends starting a combined passenger and freight service between Montreal and Boston, calling at Quebec, Charlottetown, Halifax and St. John's. It is stated that the ships to be used will be of about 8,000 tons, with accommodation for about 200 passengers and 4,000 tons of cargo. The ships are, it is said, at present being operated by the Canadian Transatlantic Co., for which Canada Steamship Lines is agent, on the route between Canada, Plymouth, Eng., and Havre and Bordeaux, France. As an alternative, it is said, the company may operate ships between Halifax and Boston, making connection with ships for Montreal, at Halifax.

The United States Shipping Board's wooden steamship Bassan, which has been in considerable trouble of late, stranded in St. Pierre, Miquelon, harbor, Feb. 7, and was expected to become a total loss. Her career on her last voyage was as follows,—sailing from Norfolk, Va., with coal for Botwood, Nfld., in Sept. 1920, during a storm off Cape Race she sprang a leak through loosening of her planks. She was taken in tow and when about to sink was beached. After some temporary repairs she was refloated and while being taken to St. John's, Nfld., she went ashore at Trepassey, and after being floated with considerable difficulty she was taken to St. John's, where she was patched up, and after being taken in tow by tugs she again developed leaks and eventually stranded at St. Pierre.

Dakin and Betts, of Pugwash, N.S., are reported to be forming a company with a capital of $50,000, of which $40,000 will be paid up, to operate a steamship service between Pictou, N.S., and Charlottetown, P.E.I. It is stated that they have an option on the s.s. Speedy II, owned formerly by the Dominion Government, and that they hope to obtain subsidies for a daily service from the Dominion, Nova Scotia and Prince Edward Island Governments. The s.s. Speedy II was built at Leith, Scotland, in 1896, and is screw driven by engine of 88 n.h.p. Her dimensions are,—length 115 ft., breadth 20.6 ft., depth 10.6 ft., tonnage 252 gross, 145 net. She was built as a private yacht for the late Barney Barnato, a South African millionaire, and subsequently was owned by the Dominion Public Works Department.

The Newfoundland Government, which recently brought a claim against the United States Shipping Board's s.s. Bassam for $75,000 for salvage services, has been awarded $1,000 by the Newfoundland courts, with an additional $120 to cover damages to the Newfoundland Government's s.s. Portia, which towed the s.s. Bassam into port. The s.s. Bas-

sam, while en route from Norfolk, Va., to Botwood, Nfld., with coal, in Sept. 1920, sprang a leak. This was controlled, and she reached St. Mary's Bay, Nfld., with the aid of the s.s. Portia. Later she went to Trepassey, where she grounded while anchoring. After being refloated she proceeded to St. John's, Nfld., and her cargo of 2,200 tons of coal was discharged. She left St. John's in tow of the steam tug Ballenas Jan. 23, and on the following day again sprang a leak and returned to port for repairs.

Province of Quebec.

The Quebec Legislature has included $25,000 in its estimates for this year, to assist the steamship services of the north shore and the Magdalen Islands.

The Dominion Public Works Department received tenders to Feb. 21, for a license to operate a ferry across the Ottawa River, between Fawsett, Que., and St. Thomas d'Alfred, Ont.

Ontario and the Great Lakes.

The name of the s.s. John J. Noble, owned by Booth Fisheries Canadian Co., Toronto, has been changed to Sailor Queen.

The City of Toronto's steam tug G. R. Geary steamed across Toronto Bay Feb. 3, which is stated to be the earliest date in any year for the movement of craft in the bay.

The Great Lakes Transportation Co. is reported to have arranged to put on a steamship service between Fort William and Port Arthur, Ont., and Houghton, Mich., on the reopening of navigation.

A deputation from Hamilton awaited on the Minister of Public Works at Ottawa, Feb. 15, to ask that the Hamilton harbor development plan be approved as soon as possible, so that work on the waterfront may be proceeded with at once.

Muskoka Lakes Navigation & Hotel Co. has declared a dividend of 6% for the year ended Jan. 31, 1921. The company is reported to have had a very successful year, and to be free of debt. The directors for this year are: Hugh C. MacLean, F. F. Brentnall, A. McD. Macdonnell, Andrew MacLean, G. T. Somers, Lt. Col. R. S. Wilson.

The Detroit & Windsor Ferry Co. will, according to a Windsor press dispatch, build two docks at the foot of Ouelette and Ferry Sts., Windsor, at a cost of about $500,000, and, in addition, put on a new ferry steamship with accommodation for 60 automobiles on the main deck, and 2,500 passengers on the upper deck. The dimensions of the new ferry steamship are given as, length 175 ft., with an additional 10 ft. in width over the company's s.s. Britannia. It has been decided to make representations to the Canadian and U.S. Governments that customs inspections be made during the passage across the river, thus doing away with congestion on landing.

British Columbia and Pacific Coast.

The C.P.R. steamships Princess Ena and Tees were laid up during January for the balance of the winter, and their crews paid off, there being little freight movement.

The C.P.R. s.s. Princess Maquinna lost a blade from her propeller on a trip down from the west coast, during January, and was docked at Yarrows Ltd., Esquimalt, for its replacement.

The Vancouver Dredging & Salvage Co. commenced work on the salving of the tug Marvis, which was sunk in collision with a gravel scow, in 150 ft. of water in the Second Narrows, during January.

The Board of Railway Commissioners has refused the Slocan District Board of Trade's application for the re-establishment of a daily lake service by the C.P.R., on the Slocan, Nelson & Nakusp routes.

The C.P.R. is reported to have given a contract for approximately 25,000 tons of cal a mnth t Canadian Collieries Ltd., Vancouver Island, for use on its coast steamships converted recently from oil burners.

The C.P.R. s.s. Princess Beatrice, which sailed from Vancouver, Feb. 9, ran ashore the following morning at Steep Island. The passengers were landed at Jedidah Island and the ship was refloated and proceeded to Tucker Bay.

The Board of Railway Commissioners has dismissed the Slocan District Board of Trade's application for the re-establishment of a daily lake service by the C.P.R. in connection with its Slocan, Nelson and Nakusp lines. The Chief Commissioner held that the Board has no jurisdiction over service, or character of service on steamboat lines.

The North Vancouver Ferry Commission's ferries nos. 2 and 3 are being repaired. No. 2 is having a new stern post fitted and engine overhauled, as well as general repairs to the hull. No. 3, in addition to other repairs, is having a considerable portion of her deck replanked. One of the ferries from West Vancouver is being used while the other two are under repair.

The C.P.R. Co.'s application for the limitation of its liability under the Admiralty law, to the amount paid in passenger fares and for freight carried, and the amount realized from salvage, in connection with the loss of the s.s. Princess Sophia on Vanderbilt Reef, Lynn Canal, Oct. 25, 1919, came before Federal Judge J. Patterson at Seattle., Wash., recently. Claims have been filed in the U.S. courts in connection with the death of 200 persons, for approximately $2,000,000.

The Canadian Robert Dollar Steamship Co. is reported to have bought five barquentines owned formerly by German interests and during the war interned at Santa Rosalia, Cal. They are named Adolph Vinnen, Egon, Hans, Schurbeck and Thielbeck, and are being altered at Santa Rosalia, to make them suitable for lumber carrying, after which their names will be changed to follow the usual custom of the new owning company. The company is also reported to have bought the former German freight steamship Kurland, from the British Ministry of Shipping. She is a new ship and one of those delivered to Great Britain by Germany under the terms of the peace treatry. She is about 16,000 gross tons, and it is said will be placed in service between New York, Vancouver and Oriental ports.

The Northern Navigation Co. has decided not to run its s.s. Waubic between Penetanguishene and Parry Sound this year. The Penetanguishene, Midland and Parry Sound Boards of Trade have held meetings to consider the matter, and make suggestions to the company as to a continuance of the service.

Organization of Canadian Navigators Federation.

At a meeting held in Ottawa recently it was decided to amalgamate the Canadian Merchant Service Guild, Great Lakes Division and British Columbia Division; the National Organization of Masters, Mates and Pilots of America (as far as Canadian members are concerned); and the Masters, Mates and Pilots of the Atlantic Coast, under the name of the Canadian Navigators Federation, the membership to be confined to Canadian certificated officers.

The Canadian Navigators Federation is divided into Eastern Division, Quebec Division, Great Lakes Division and Western Division. The Eastern Division includes all waters east and south of Quebec Province, including Nova Scotia, New Brunswick and the whole Canadian Atlantic coast. Headquarters, Halifax, N. S. The Quebec Division includes all waters in that province. Headquarters, Montreal. The Great Lakes Division includes all waters west of Quebec Province to Alberta's eastern boundary, and is divided into the following districts:—Collingwood, Fort William, Kingston, Midland, Owen Sound, Port Arthur, St. Catharines, Sarnia and Toronto. Headquarters, Toronto. The Western Division includes Alberta, British Columbia and the Pacific Coast. Headquarters, Vancouver. Each division has a board of managers, composed of the vice presidents from each of its districts. It elects its own officers and manages its own business, which is attended to at its headquarters by the division secretary.

The officers of the Great Lakes Division are: President, Capt. Alex. McIntyre, Collingwood; Treasurer, F. A. Cook, Toronto; Secretary, Capt. R. D. Simpson, Owen Sound, with office in Toronto; Trustees, Capt. Edward Robinson, Goderich; Capt. Jas. Tyndall, Midland; and Capt. Jas. Woolner, Collingwood. The office is at 99 Sun Life Building, Toronto.

The Secretary of the Western Division is Capt. A. Goodlad, 1105 Rogers Building, Vancouver, B.C.

Vancouver Harbor Commission.—The Board of Railway Commissioners has been asked by the Vancouver, B.C., Harbor Commission to grant it running rights over a portion of the Great Northern Ry. lines in connection with a line between the Dominion Government wharf, and the Ballantyne pier, put under contract recently. The line proposed to be built by the Harbor Commission is "to begin on the C.P.R. right of way, south of the Dominion Government wharf, thence west along the north side of the right of way to near Vernon Drive, thence curving slightly and running south of the two spurs lying opposite the B.C. Sugar Refinery to opposite Raymur Ave., thence curving and running northeasterly across the Great Northern Ry.'s dock spur, at grade, to Ballantyne Pier."

Grand Manan Fisheries Ltd. has been incorporated under the New Brunswick Companies Act, with $49,000 authorized capital and office at Grand Harbor, N.B., to take over the fishing business carried on hitherto by S. D. Guptill, M.L.A., Grand Harbor, and in connection therewith to own and operate ships and to carry on a general fisheries business. The incorporators are S. D. Guptill, M. L.A., Grand Harbor, N.B.; W. B. Sellwood, Eastport, Me., and W. R. Dresser, Calais, Me.

The s.s. Nascopie's Ninth Annual Voyage to Hudson Bay.

By Capt. Edmund Mack, Superintendent, Bay Transport, Hudson's Bay Co.

The s.s. Nascopie, flagship of the Hudson's Bay Co.'s fleet of supply ships operating in Hudson Bay, sailed from Montreal, July 23, 1920, on her 9th annual voyage. Commanded by Capt. G. H. Mead, the Nascopie last summer and autumn steamed 8,000 miles into the ice-infested waters of the sub-polar regions, and back, provisioning Hudson's Bay posts in the Labrador, Ungava and the Bay districts, completing her round of duty with the return to St. John's, Nfld., Oct. 18.

Missionaries, police, government officials and explorers look to the annual voyage of the Nascopie or the Pelican as their only means of transportation from Canada ports to the vast territories lying athwart the Arctic circle northeast and west of Hudson Bay. Such men, scores of whom are called by duty into the land where H.B.C. fur posts are the sole civic and commercial centers of a sparse and savage population, are carried thence by our ice breaking ships. And when their work is finished we bring them home again. Each summer the Nascopie and her sister ships victual the north against the rigors of another winter. They carry the comfort, sustenance, good cheer, letters and news of the great world outside to the brave men who stand guard at the company's lonely outposts on the fringe of the Arctic sea; in winter they busy themselves in other waters until ice-locked straits which bar them from the Bay are open again or until the passage may yield to the punch of their armored prows and steel ribbed hulls.

Capt. Edmund Mack

In 1920, as in every other year that I have been with the Nascopie on her round of duty in Eskimo land, men of the company's service and throngs of natives at the posts, strain eager eyes toward the horizon, watching for the first sign of the Nascopie's smoke. As she swings to anchor for just once each year in each of these far off ports, men women, children and dogs crowd the beaches. Always is the welcome warm and hearts are light when our ship comes in. The H. B. C. ship and her crew are the perennial summer Santa Claus to these people in the land of the reindeer and polar bear. The arrival at a post is the signal for the beginning of hard labor, unloading food and wares for the post; but into the period of our brief visit is always crowded a whole season of joy and merry making. Eskimo women roll barrels and pack boxes from wharf to warehouse; everybody joins gladly in the work of unloading supplies. Then, as we weigh anchor, the people wave farewell and go back to their silent life, to work and wait, with accustomed stolidity, another day of joy and feasting when the Nascopie shall once again show her funnel above the green waters of the Bay's horizon.

The passenger list of the Nascopie on leaving Montreal, July 23, included the Eskimo murderer, Ouangwak and his intrepid captor, Sergeant Douglas, R.C.M. P., who bore the long arm of British law far into the Arctic regions last year in his search for the man-killing huskie. A

The Nascopie in Ice Fields Off Wolstenholm.

magistrate and three other policemen were members of the party escorting the murderer back to Chesterfield Inlet for trial. Of our departure from Montreal, Jock Doherty, second engineer of the Nascopie, and ship's poet, sings:—

We sailed away at break of day,
The sun smiled down as if to say:
"Enjoy me now while you've the chance,
For soon I'll hide my countenance";
And sure enough next day the fog—
Well, you'll see it mentioned in the log.

Capt. Mead carefully nosed the steamer along through dense fog. For hours, near Cape Race, the blatant shriek of the foghorn came to us from out the void, giving the captain the location of the cape. Stealing up the coast at low speed, we put safely into St. John's, Nfld. Here we took aboard Ralph Parsons, District Manager, H. B. C., Labrador District, and added to the Nascopie's bunkers her final supply of coal. Well did we know that every pound of steam

Landing Cargo, Port Burwell

power might be required to punch our big icebreaker through the freezing straights of the northland. We cast anchor, July 29, and sailed away to months of duty that were to be tinged with adventure at every turn and yet, withal, flavored with most unromantic, gruelling work. Again, we harken to our doughty engineer as he sings:

A few days' uneventful trip
And then the ice gets in its grip
Combined with fog; we plough right through
Until Port Burwell comes in view;
We strain our eyes—yes, every man,
But fail to see the Pelican.

The harbor at Burwell was churning full of ice, in which it was almost impossible for our steam launch to make headway during the transfer of supplies for the post. The unloading of a year's supplies was accomplished with greatest difficulty over the slippery ice. With duffles replacing shoes, however, the men were able to gain a footing on the ice and accelerate the task of removing cargo to the shore. And the second engineer, with light Gaelic heart, chants cheerily:

The cargo finished, we start away,
And plough through ice for all that day,
We see a walrus and a seal
Disport themselves—and scarce conceal
Our glee, to fire a shot o'er water—
To hit them is another matter.

We steam along for weary hours
Through fields of ice, past icy towers,
And scan the coast for our landmarks,
Which you won't find upon the charts,
And keep the cameras busy, too,
Because there's nothing else to do.

Steaming into Lake Harbor (Baffin's Land), much to our astonishment we found anchored there the Pelican, another of the H. B. C. supply fleet. She was crippled, we learned, having been rammed by an iceberg which wrecked a blade of her propeller. She had fortunately been got safely into Lake Harbor under sail, with the assistance of the men of the post and a motor boat. The Pelican, although now a veteran in the H. B. C. service, 20 years ago sailed the seven seas as a British man-o'-war, sister ship to the famous Condor. With her hull of heavy teakwood, the Pelican is well equipped for duty as an H. B. C. ice punching supply vessel. With the aid of reinforcements arriving aboard the Nascopie, Capt. R. Bergner and Chief Officer T. W. Jones of the Pelican were enabled to effect repairs to their ship. And here Engineer Doherty chimes in with another stanza of his brave ballad:

Capt. G. H. Mead

A hurried council formed a plan
To put new life in the Pelican;
They lightened and towed her on the beach,
Where at low tide the nuts they'd reach
That held the broken parts of screw,
Removed them and replaced with new.

The work was done, 'twas not a dream
At night they worked by searchlight's beam;
But many an anxious hour they passed
Ere she was safe afloat at last.
As we had further on to go
We sailed away while whistles blow.

The beaching of the Pelican was rendered extremely difficult and hazardous by the uncommonly great rise and fall of the tide in that region. The difference in the two levels is approximately 40 ft. Several times at low tide, during the replacement work on her propeller, the

Pelican lurched perilously to starboard, as we had run her stern upon the beach at high tide, and the receding waters left her suspended aft in a position which, without dry dock facilities, was hazardous to both ship and repairers.

Putting out of Lake Harbor on August 12, the Nascopie steamed for Wolstenholme. As the bard of our boat so aptly scans it:

Next Wolstenholm or Eric Cove,
A place with which we're not in love;
The harbor's open to the sea;
On either hand high cliffs you see;
The Post lies snuggled in the valley,
Down which winds blow continually.

The Pelican Beached for Repairs.

While anchored at Wolstenholme, a nasty blow came on when we were busy with transfer of cargo, towing in the supplies with lashed boats behind a steam launch. While making a trip from shore back to the Nascopie the heavy gale broke the lashed boats from their hitch to the launch and flung them upon the stony beach in sorry wreckage. The crew endeavored to salvage the boats and waded the icy waters until numbed with cold. Night came on and still we labored at the wreck by the beams of a searchlight. On the following day some of the crew again waded into the breakers and spent some hours in a final desperate attempt to get the cargo boats off the rocks. They were compelled to abandon the lashed boats eventually to the further fury of the waves, though they succeeded in salvaging the steam launch.

On August 16, we sailed from Wolstenholme, bound for Coat's Island, with the schooner Nannuck (White Bear) in tow. The Nannuck was to redistribute the supplies allotted her from our cargo to the company's outposts among the Eskimos of that district. The Nannuck

H.B.C. Store, Lake Harbour, Baffin's Land.

is skippered and manned by the company's Eskimos, and ably handled by them under all circumstances. As our versatile engineer muses now in satirical vein:

Nannuck is dropped at Coat's Island bleak—
A lonelier spot would be hard to seek—
But such like trials will men incur
When they go out in search of fur.
On woman's dress a part will go,
But not for warmth—just for show.

And then romps on with rhyme in cheerful tune:

So now at last we're southward bound
To a little spot in Charlton Sound;
We steer our course past rocks and shoals
And try to find the deepest holes,
Past islands called the Bears and Twins,
With nerves on edge like needles and pins.

But sounds a note of wild alarm:

Till Weston Island we draw near,
A reef extends for miles from here,
Which for the unwary form a trap,
It is not marked on any map;
With ease the ship a hurdle jumps,
And the cook exclaims, "What ho, she bumps."

Arrived at Charlton, Aug. 21. Here I left the ship and proceeded to Moose

Mrs. J. S. C. Watt, Capt. Mack, Capt. Mead, "Lofty" Stewart and staff at Wolstenholm.

Factory to inspect the company's schooner Fort Churchill, which was lying-in there. At Moose I found that the mechanical science of civilization had sailed into this first outpost of the wild north in the form of a hydroplane of the Ontario Government. Before the airman took flight for the south I mailed letters home to Montreal via his plane, this mail going out in 24 hours, whereas, ordinarily, 12 days are consumed.

Receiving aboard a new passenger, Dr. R. B. Stewart, of the Indian Department, Sept. 1, we steamed for Churchill. One of those dense fogs which had troubled us for a large part of the voyage, cast a pall upon the coast as we neared Churchill anchorage, completely obscur-

H. B. C. Depot, Charlton Island.

ing the company's two forts, which, in fair weather, are distinguishing landmarks of the historic place. For three days we hovered off the port, unable to navigate the Nascopie to her accustomed berth at Churchill. At last the great fog lifted and, as the second engineer records in his inimitable way:

At last we enter and clear the bar;
It's the most dangerous harbor here by far.
We anchor in a certain place
Just clear of that mad river's race;
Its current runs at quite eight knots.
Even at half, it's swift in spots.

Forthwith the year's supplies for the post were put ashore. The coastwise auxiliary schooner, Fort York, was filled with cargo for York Factory, Trout Lake and Weenusk Posts, on the west shore to the southward. Members of the R.C. M.P. whom we had carried from Montreal with their prisoner here found that the motor boat which they had expected to be there for their use, had been wrecked on the way into port. To our passenger list were added before sailing from

Gateway, Old Fort Prince of Wales, Churchill

Churchill on Sept. 7, C. Harding, H. B. C. District Manager at York Factory, also Sergeant Thompson.

Arriving at Chesterfield, Sept. 14, the Nascopie landed supplies for Repulse Bay and Baker Lake. The new motor tug, Caribou, was launched, to begin her duties in northern waters by towing these supplies to their destinations. Passengers who embarked at Chesterfield were Father Turquetil, Father Puguet and Br. Gerard of the Roman Catholic Mission.

Back to Churchill we steamed on Sept. 21, to put Mr. Harding ashore before starting on the return leg of our voyage. Headed for Wolstenholme again, we ran into the great ice floes driving down Fox Channel, Sept. 23. We were none too early to avoid being locked in the Bay for nine months. Fox Channel is where the "choke" come earliest. Putting on steam, the Nascopie smashed and butted through the ice and raised Wolstenholme on Sept. 24, buffeted by the usual stiff gale off the big Cape. Here we learned that the Pelican had again disabled her propeller in the ice fields. She was un-

H. B. C. Storehouse, Chesterfield.

able to proceed south and perform her allotted duty of erecting a new trading post to be named Port Harrison. It was decided that the Nascopie should assume the task. We loaded lumber and supplies, and, as the gifted Doherty runs on in verse:

What cargo she has left we load,
And turn back again upon the road
To erect a new department store
Upon some ill-frequented shore.
We can't just find the place somehow—
"Port Harrison, Oh, where art thou?"

The cargo's landed in a tent,
The architects o'er plans are bent;
To build the stores they have begun,
Each day we count them one by one;
The dwelling house is a work of art
The swellest mansion in this part.

The Nascopie Punching Through the Ice of Fox Channel.

The stores are built, so off we set,
We leave some men the furs to get;
We wish them luck—our wish sincere—
And hope to call another year.
At last we're on the homeward track
It's past the time that we're due back.

We sailed from Port Harrison, Oct. 4, leaving L. A. Learmouth, a veteran of the service, as manager of this newest H. B. C. post. Touching again at Wolstenholme, Oct. 6, we steamed straight for Lake Harbor and took aboard as passengers there the Rev. Fleming, Anglican missionary for Baffin's Land, and Mr. Melton of Cape Dorset. On Oct. 9, the Nascopie, in the teeth of a heavy gale, laid her course for Port Burwell.

All passengers were miserable from seasickness until we made port. At Burwell we picked up J. Livingstone and W. McGibbon, bound from Fort Chimo, Ungava, to Scotland, on leave of absence from the H. B. C. service—their first time out in seven years. Rev. S. M. Stuart, of the Anglican church, also came aboard at this port.

On Oct. 13 we sailed from Burwell and moving through Gray's Straits breasted the Atlantic. Meeting a heavy

New H. B. C. Post at Port Harrison.

sea, the Nascopie pitched, rolled and bucked until sea sickness again overtook many of our passengers. Steaming into the harbor at St. John's, Newfoundland, Oct. 18, the eventful 1920 voyage of the Nascopie into the Bay came to an end. As we took train for Montreal we saw the last of the Nascopie, ready to sail for Savannah to load cargo for Bristol and Glasgow.

The foregoing is reproduced from The Beaver, a publication issued by the Hudson's Bay Co., in the interests of its staff.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

Briish Columbia, Vancouver Island.—A light has been establishment on beacon at first narrows, on edge of shoal off mouth of Franklin River in Alberni Canal. It is a five pile dolphin, surmounted by a white wooden circular day mark and lantern, showing an occulting white acetylene gas light from a lens lantern.

Juan de Fuca Strait.—The District Communication Superintendent of the U. S. Navy Yard, Puget Sound, has announced through the Branch Hydrographic Office at Seattle, Wash, that radio station has been established on Swiftsure bank light vessel and is now in operation. Watches will be maintained in accordance with the regulations, and the operator will listen in for five minutes at the beginning of each hour from 8 a.m. to 9 p.m., inclusive. This station will be able to handle traffic on wave lengths of 300, 378, 476, 600, 756 and 952 meters. Personal and commercial messages will not be handled. Local weather forecasts will be sent broadcast on 600 and 952 meters at 8a.m., 12 noon, 4 and 8 p.m. daily.

New Brunswick, Chaleur Bay. — The light at Petit Rocher will be moved, without further notice, to a new position at bend in breakwater, 185 ft. from its former position. Mariners are warned that the light not being on the end of the breakwater they must give it sufficient berth to clear the breakwater when entering the harbor.

Bay of Fundy.—The two conical buoys placed by U.S. authorities in 1918, northwest of Campobello Island, have been discontinued.

Nova Scotia, Cape Breton Island. — The Public Works Department has dredged berths as follows:—McKinnon's wharf; on the north and south sides the berths have been dredged to a least depth of 16 ft. from the outer corner of the wharf shoreward for 150 ft., and for a width of 40 ft.; Ingraham's wharf, on the north side the berth in front of the coal shed is 95 ft. wide, with an average length of 60 ft. and was dredged to a least depth of 15 ft.

Quebec, Saguenay River.—On the reopening of navigation, the 6th order dioptric fixed white light, on the east side of the river, about one mile above Grosse Roche, will be replaced by an occulting white acetylene gas light, shown from a lens lantern, which will be unwatched.

United States Shipping and Shipbuilding Notes.

The U.S. Bureau of Navigation reports 92 sailing, steam, gas and unrigged ships, of 208,967 gross tons, built in the U.S., and officially numbered during Jan. 1921.

The U.S. Navigation Bureau states that on Jan. 1 U.S. shipyards were building, or under contract to build for private owners, 275 steel ships, of 1,067,293 gross tons, compared with 293 steel ships of 1,123;946 gross tons on Dec. 1, 1920.

The National Merchant Marine Association meeting at Washington, D.C., recently, adopted eight resolutions embodying policy for development and maintenance of U.S. merchant marine, as follows:—Immediate and faithful enforcement of Merchant Marine Act of 1920; placing Shipping Board personnel on permanent basis; extension of government aid to U.S. shippers; establishment of new mail, passenger and cargo routes, so that private capital may eventually gain control; cessation by Shipping Board of practices of allocating ships to services already established; creation of equitable plan of relief for U.S. shippers engaged in competitive trades with foreign vessels; permanent enrollment of competent officers and men of merchant marine into Naval Reserve; maintenance of Great Lakes naval training station.

Alberta & Arctic Transportation Co. Ltd. has been incorporated under the Dominion Companies Act with authorized capital of $750,000, and office at Toronto, to take over part of the assets of the British Columbia Express Co., and also of the Lamson Hubbard Canadian Co. Ltd., and to carry on a general shipowning, navigation and transportation business. It also has power to own and operate elevators, wharves, docks, oil tanks, pumping stations, tank cars and ships and pipe lines, for retaining substances. The incorporators are: A. Hutchison, C. Millar, G. R. Sproat, J. C. Thomson, W. T. Jones, and W. W. McKeown, Toronto, and W. J. West, Ashcroft, B.C.

Pictou Harbor.—A Dominion Government proclamation, dated Ottawa Jan. 26, declares the harbor of Pictou, N.S., to be a public harbor, the harbor including and consisting of all the water space and beach, up to high water mark, within a line drawn from Logan point to Roaring Bull point, as far up as the tide ebbs and flows, and extending in the East River to the southerly boundary of the Town of New Glasgow.

The Sannie Transportation Co. Ltd. has been incorporated under the British Columbia Companies Act, with $25,000 authorized capital, and office at Vancouver, to own and operate ships of every description, and to carry on a general transportation business for passengers and freight.

Canadian Pacific Ocean Services Ltd. Management.

It was apparently announced in England recently that the C.P.R. would again take over the direct traffic management of its ocean steamship lines, as the Montreal Gazette's London correspondent cabled Feb. 16 that Sir Thos. Fisher, General Manager, C.P.O.S., had said in commenting on the matter: "It will probably mean a reduction in the staff, but not the disappearance of the principal figures in the Canadian Pacific Ocean Services." The correspondent added:—"Sir Thomas said that the new arrangement was rather in the direction of increased efficiency. The understanding is that the C.P.O.S. organization will continue to operate the C.P.R. fleet, but that in all other respects things will return to the status which they were in prior to 1916, when the Allan Steamship Line was absorbed."

Montreal papers stated that the C.P.R. and C.P.O.S. officials, when interviewed on the matter, were reticent, but did not deny that changes were contemplated, and a Montreal press telegram of Feb. 17 said that G. M. Bosworth, Chairman, C.P.O.S., who is on a trip to the Orient, would retire on his return, and that C. E. E. Ussher, Passenger Traffic Manager, C.P.R., would become a C.P.R. Vice President, in charge of Ocean Services. Canadian Railway and Marine World has been unable to obtain any definite information further than that the arrangement referred to by Sir Thos. Fisher is under consideration, but that apparently no changes are contemplated in the management and that no new position is to be created.

Tank Steamships for Molasses Trade. The Pure Can Molasses Co. of Canada Ltd., which is operating steamships between the West Indies and Canadian ports in the molasses industry, owns, in addition to the s.s. Julius Kessler, details of which were given in a previous issue, the steamships Theodore F. Reynolds, and the British steamships Delmira, Rochelie and Manx Isles. The s.s. Delmira was built at Sunderland, Eng., in 1908, of steel, and is screw driven, by engine of 341 h.p., and has the following dimensions,—length 352.2 ft., breadth 45.2 ft., depth 25.2 ft., tonnage 3,459 gross, 2,211 net; the s.s. Manx Isles was built at Glasgow, Scotland, in 1915, of steel, and is screw driven, by engine of 248 h.p., and has the following dimensions,—length 315.2 ft., breadth 44.7 ft., depth 21.2 ft., tonnage 2,642 gross, 1,688 net; the s.s. Rochelie was built at Alloa, Scotland, in 1913, of steel, and is screw driven by engine of 125 h.p., and has the following dimensions,—length 241 ft., breadth 36 ft., depth 16.7 ft., tonnage 1,487 gross, 904 net.

The International Mercantile Marine Co., according to a statement credited to P. A. S. Franklin, President, is purely a United States owned and controlled concern, and the British Government has no control or ownership in the company, in any way, shape or form. It owns a number of British registered ships, which it attempted to sell, but was prevented from doing so by the U.S. Government's action. An agreement to sell these ships to British interests was drawn up, and on the personal request of the President was not concluded, the directors voting that the President's wishes be complied with and the agreement officially cancelled.

Electric Drive for Merchant Ships.

The electric drive on a merchant ship has been tested successfully, and it has been learned that the United States Shipping Board will equip 10 large freighters with it, hitherto untried on commercial vessels. For the first time in Maritime history, a large freighter, with its shaft driven by electricity, was put to the test when the Shipping Board s.s. Eclipse sailed from the South Brooklyn yard of the Tobo Yacht Basin and cruised out to sea past Ambrose Channel.

The Eclipse, an 11,800 d.w. ton cargo carrier, built on the Pacific Coast and originally outfitted with a turbine engine, made a speed of 11½ knots, ploughed through the water without creating noticeable vibration, and made a marked impression upon the group of shipping men invited to attend her trials.

While Admiral Benson, shortly after he assumed direction of the Shipping Board, announced that the U.S. might be expected to blaze the field as regards the adoption of the latest types of propulsion, it was not learned until recently that the Board had placed a contract with the General Electric Co. for 10 sets of generators and motors. These will be installed immediately.

The fact that the Eclipse was being converted into an electrically driven steamer was known only to a very few, it will come as a surprise to the shipping world at large to learn that such progress has been maade. The electric drive—strictly a U.S. invention—has been tested out on American battleships, but has never before been installed on a merchant ship. It is said that the electric drive is a little more expensive than turbines, but it is said to be far more simple to operate, and promises to reduce the cost of repairs to a minimum.

The conversion was accomplished by a rather simple installation. An ordinary generator, driven by a steam turbine, and similar to the generators found in an ordinary inland power house, generates the current, which is transmitted to a power motor. This is about 12 ft. in diameter, and is attached directly to the shaft. While the electric drive is more expensive than the turbine or the reciprocating steam engine, it is predicted that the cost would be brought down if any considerable number of installations were made.—Journal of Commerce, New York.

Editor's Note.—We think that the New York Journal of Commerce is in error in referring to the s.s. Eclipse as the first freighter to have its shaft driven by electricity. Canadian Railway and Marine World for Sept. 1912 stated that the Montreal Transportation Co. had ordered, in England, a ship for the lake and canal trade, which would be a departure from the customary means of propulsion, as electricity would be used the first time for a ship of such a size. A description and plans of the ship were published in Canadian Railway and Marine World in Nov. 1912, with drawings of the Diesel engines, and the means of driving the propeller by electricity. It was also stated in the same issue that electric ship propulsion would shortly receive its first trial, as a naval fuel ship, Jupiter, equipped for such driving, had been launched in the U.S. Navy Yard at Mare Island. Our issue of Aug. 1913 referred to the launching of the s.s. Tynemount at Newcastle-on-Tyne, Eng., for Montreal Transportation Co., and in Feb. 1914 it was stated that this ship had sailed from the Tyne on her maiden voyage to Santander, Spain. We were advised subsequently that the ship had not been accepted by the Montreal Transportation Co.

We are informed that the Montreal Transportation Co. did not accept the ship, owing to defective working of her machinery, that the company which had the contract for building her became insolvent, that she was bought by Swan, Hunter & Wigham Richardson Ltd., who removed the electric system and replaced it with a steam plant, and that she ultimately came out to Canada in 1915 as the s.s. Port Dalhousie, and was operated by Forwarders Limited, of Kingston, Ont., and afterwards went into ocean service and was sunk during the war.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Whiting Corportion, Harvey, Ill., has issued "Ladles," catalogue 156, describing and illustrating its complete line of foundry ladles, including a new style, helical, worm geared, crane ladle, and a new style teapot spout ladle, having the spout inside the bowl.

Diamond State Fibre Co. of Canada Ltd. will move, early in March, to new premises in Wrigley Building, Carlaw Ave., Toronto, where it will have about double the space now occupied. A show room will be equipped for displaying the company's products, and a private railway siding will facilitate prompt shipments. T. J. MacFadden, who has been in the company's head office at Toronto for some months, is now covering western territory.

The Independent Pneumatic Tool Co., Chicago, Ill., is new offering for sale a special Thor rotary wire brush for use on the no. 71 portable pneumatic grinder and no. 6 electric grinder. The brush attachment, it is stated, makes two tools in one, as the no. 71 grinder can be used with emery wheel, and with very few changes the brush attachment can be added. The brush which is attached to the no. 6 electric grinder is smaller, because of a higher number of revolutions per minute and requires a few attachments not necessary on the no. 71 pneumatic grinder.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

Mar. 15 to 17.—American Railway Association, Division 4, Engineering, Chicago, Ill.; E. H. Fritch, 431 South Dearborn St., Chicago, Ill.

May 11.—Railway Accounting Officers' Association, Atlantic City, N.J.; E. R. Woodson, 1,116 Woodward Bldg., Washington, D.C.

May 23 to 26.—Master Boiler Makers' Association, St. Louis, Mo.; H. D. Vought, 95 Liberty St., New York.

May.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

June 8.—Railway Accounting Officers' Association, Atlantic City, N.J.; E. R. Woodson.

June 15 to 22.—American Railway Association, Division 5, Mechanical, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 20.—American Association of Freight Agents; R. O. Wells, Illinois Central Rd., Chicago, Ill.

June 20.—American Train Dispatchers' Association, Kansas City, Mo.; C. L. Darling, Northern Pacific Ry., Spokane, Wash.

Aug. 24 to 26.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, Kansas City, Mo.

Sept. 20 to 22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry.. Sterling, Ill.

Oct. 4 to 6.—Maintenance of Way Master Painters' Association, Buffalo, N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association — A. Eastman, 70 Bond Street, Toronto.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Offices, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committtee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver.—C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Sydney Drydock Project.—The question of the proposed drydock at Sydney, N.S., came before the city council recently on an application of the Sydney Foundry & Machine Works Ltd., for the closing of a road, in connection with the proposed construction. The company stated that it was prepared to proceed immediately a subsidy in aid was granted by the Dominion Government, under the Dry Dock Subsidies Act. The council appointed a committee of three to arrange an interview with the Government, to urge the importance of granting a subsidy.

THE VICTORIA ROLLING STOCK & REALTY CO. OF ONTARIO LIMITED.

NOTICE is hereby given that the Annual Meeting of the Shareholders of the Victoria Rolling Stock & Realty Company of Ontario, Limited, will be held at the offices of Messrs. Osler & Hammond, 21 Jordan Street, Toronto, on Wednesday, March 2, 1921, at twelve o'clock noon, for the reception of the Annual Report and election of Directors for the ensuing year.

By order,

G. C. CHISHOLM,
Secretary.

Toronto, February 21, 1921.

QUEBEC CENTRAL RAILWAY COMPANY.

NOTICE.

The Quebec Central Railway Company will apply to the Parliament of Canada at its next session for an Act

(a) Extending the time for completion of the line of railway which it was authorized to construct by Statute of the Province of Quebec (1901), 1 Edward VII., Chapter 59, as amended by 1904, 4 Edward VII., Chapter 70, from Scotts Station, in the County of Beauce, on its present line, to a point at or near the Southern extremity of the Quebec Bridge, and thence eastward along the South bank of the River St. Lawrence for a distance of about five miles;

(b) Extending the time for completion of the line of railway which it was authorized to construct by Statute of Quebec, 1912, 2 George V., Chapter 81, from a point on its main line at or near Leeds Station, in the Township of Thetford, or the Township of Broughton, through Thetford, Broughton, Leeds and the Counties of Lotbinière and Levis, to connect with the line referred to in Clause (a) hereof, at a point at or near St. Lambert, in the County of Levis, a distance of about thirty-five miles.

And to increase its bonding powers in respect of said lines of railway.

Dated at Montreal, this 25th day of January, 1921.

H. C. OSWALD,
Secretary.

Pringle, Thompson, Burgess & Cote,
Ottawa Agents.

CANADIAN PACIFIC RAILWAY CO.

Dividend Notice.

At a meeting of the Board of Directors held today the following dividends were declared:—

On the Preference Stock, two per cent. for the half-year ended 31st December last;

On the Common Stock, two and one-half per cent. for the quarter ended 31st December last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account;

Both dividends are payable 1st April next to Stockholders of record at three p.m. on 1st March next.

By order of the Board,

ERNEST ALEXANDER,
Secretary.

Montreal, 14th February, 1921.

NOTICE is hereby given that an application will be made by the Thousand Islands Railway Company to the Parliament of Canada, at the next session thereof, for an Act amending the Acts relating to the company by providing that the annual meeting of the shareholders shall be held on such other day than that named in the special Act as the directors may from time to time determine by by-law and generally in accordance with the provisions of section 103 of The Railway Act, 1919, and for other purposes.

Dated at Montreal, this 24th day of January, A.D. 1921.

W. H. BIGGAR,
Solicitor for the applicants.

RAILWAY
To R.S.A.
Specification
Catalogue No. 33

LAMPS

MARINE
To B. of T.
Requirements
Catalogue No. 24

THE HIRAM L. PIPER COMPANY, Limited
Montreal, P.Q.

CANADIAN BRONZE LIMITED
Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITTS. Miscellaneous Brass Castings for Railroads.
Works and Office: 69 Delorimier Avenue, MONTREAL, QUE.

The Collingwood Shipbuilding Co.
Limited
COLLINGWOOD—ONTARIO and KINGSTON—ONTARIO—CANADA
Steel Ships, Engines, Boilers, Castings, and Forgings
PLANT FITTED WITH MODERN APPLIANCES FOR QUICK WORK

S.S. CANADIAN WARRIOR

Two Dry Docks
and
Shops
EQUIPPED TO
OPERATE
Day or Night
on
Repairs

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under

Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.

Rates under other headings and for display advertisements on application.

Positions Vacant

Technically trained man to take charge of and co-ordinate efforts in small drawing office of Street Railway Corporation. Should have EXECUTIVE ABILITY and some track and building experience. Chance for advancement. Must be Canadian citizen. State age, experience and salary expected. Box 652 Canadian Railway and Marine World, Toronto.

Positions Wanted

Railway Accountant.—Age 35. Twenty years experience. Past five years, General Auditor, 600 mile road. Railway work not essential. Box 4866, Canadian Railway and Marine World, Toronto.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

THE CURTISS-WILLIS CO., Inc.
No. 30 Church St., New York
Largest Dealers in
USED AND NEW TANKS
Send for our new tank list. MOST COMPLETE EVER ISSUED.

The Strauss Bascule Bridge Co.

Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

Ottawa Traction Company, Limited

Seventh Annual Report for the Year Ending December 31st, 1920.

Your directors have much pleasure in submitting their seventh annual report for the year ending December 31, 1920.

The amount received from The Ottawa Electric Railway Co. during the year was $279,060, with which was paid the usual quarterly dividends of one per cent, and a bonus of one per cent.

The established record of The Ottawa Electric Railway Co. has been fully maintained during the past year, and the receipts have again shown a steady and gratifying increase.

All of which is respectfully submitted.

T. AHEARN,
President.

Ottawa, February 7, 1921.

OTTAWA TRACTION COMPANY LIMITED

STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDED DECEMBER 31, 1920.

Expenditure.

To net income transferred to profit and loss appropriation account	$279,060.00
	$279,060.00

Income.

By dividends received from The Ottawa Electric Railway Co.	$279,060.00
	$279,060.00

Profit and Loss Appropriation.

To Dividend No. 24, paid April 1st, 1920—1%	$ 55,812.00
To Dividend No. 25, paid July 2nd, 1920—1%	55,812.00
To Dividend No. 26, paid Oct. 1st, 1920—1%	55,812.00
To Dividend No. 27, paid Dec. 31st, 1920—1% and bonus 1%	111,624.00
	$279,060.00
By Balance transferred from Profit and Loss Account	$279,060.00
	$279,060.00

BALANCE SHEET AS AT DEC. 31, 1920.

Assets.

Accounts receivable, The Ottawa Electric Railway Co.	$ 900.00
18,601 shares of The Ottawa Electric Railway Co., par value $100 each	5,580,300.00
	$5,581,200.00

Liabilities.

Capital stock issued	$5,581,200.00
	$5,581,200.00

Auditor's Report to the Shareholders.

I have audited the accounts of your Company for the year ended December 31st, 1920, and certify that the foregoing Balance Sheet and Income and Expenditure Account are properly drawn up so as to exhibit a true and correct view of the state of the Company's affairs according to the best of my information and as shown by the books of the Company.

I have received all the information and explanations required by me.

ARTHUR A. CRAWLEY,
Chartered Accountant of Crawley, Milne & Co.

Ottawa, February 7, 1921.

OTTAWA TRACTION COMPANY, LIMITED

Directors

T. AHEARN - - - President
WARREN Y. SOPER, Vice-President
T. F. AHEARN GEO. P. MURPHY
E. N. SOPER J. F. SMELLIE
T. WORKMAN A. J. DAWES
GEO. F. HENDERSON, K.C.
G. L. SNELLING, Secretary-Treasurer

Report of the 28th Annual Meeting

of the

WINNIPEG ELECTRIC RAILWAY COMPANY

Held February 9th, 1921

At the annual general meeting of the Shareholders of the Winnipeg Electric Railway Company, held in the head offices of the Company, on February 9th, 1921, the report of the President and Directors and the financial statements for the year ending December 31st, 1920, were presented and adopted.

The following directors were elected for the ensuing year and until their successors are appointed: Sir Augustus Nanton, A. W. McLimont, Hugh Sutherland, Geo. V. Hastings, J. D. McArthur, G. W. Allan, K.C., A. J. Nesbitt, W. J. Bulman and W. R. Bawlf.

The following are the officers of the Company for the ensuing year: Sir Augustus Nanton, President; A. W. McLimont, Vice-President; F. Morton Morse, Secretary; L. Palk, Assistant Secretary; and J. S. Mackenzie, Treasurer.

The report of the President and directors stated:

The gross earnings for the year 1920 show an increase of $949,221.54 over the previous year. Notwithstanding the heavy increase in wages and other operating expenses, the net income shows an increase for the year of $498,720.12.

The year 1920 began with prices of commodities and labor climbing upward at a rapid rate, and while it did not seem possible that this ascent could continue indefinitely, the first half of the year had elapsed before there appeared any sign of the peak having been reached.

In July a Board of Arbitration awarded increased wages to the Company's employees, such increase being made retroactive to the 1st May. As a result of the Company's application to the Manitoba Public Utilities Commission, increased rates were granted and an appraisal of the physical value of the Company's property was arrived at. The increased rates and fares authorized assisted in offsetting the increased operating expenses which had resulted from the rising costs of material and labor.

In April last the Company's south Main Street car barn, together with 21 cars and other equipment, were destroyed by fire. A new fireproof, fully modern car house has been erected on the site of the old one and all rolling stock destroyed has been replaced. Something over $300,000 was recovered from insurance.

The different utilities of the Company all show a satisfactory growth over the preceding year. The gross earnings of the Company exceeded those of 1919 by $949,221.54.

The Company has continued making extensive improvements in all departments, and in that connection has expended during the year more than $900,000. This includes replacing property destroyed by fire.

It will be observed that after payment of all fixed charges, and making provision for depreciation, the Company made a net profit of nearly $600,000.00, which is substantially the best showing of any year since 1914.

For the purpose of retiring as far as possible the Company's floating liabilities, a new issue of Preferred and Common shares was authorized, which stock is being placed on the market, and, it is expected, will all shortly be disposed of.

The Company has continued its policy of providing the public with adequate service, and seeks to establish and maintain good relations with the public, realizing that the welfare of your utilities is a matter of public consequence, which policy we believe has met with a marked degree of success.

Respectfully submitted.

A. M. NANTON,

President.

Gross Earnings from Operations		$5,233,700.65
Operating Expenses, before charging Depreciation		3,428,897.43
Net Operating Revenue		1,804,803.22
Miscellaneous Income		76,700.11
Income available to meet fixed charges, etc.		1,881,503.33
From which the following deductions are made:—		
Interest charges on Debenture Stock, Bonds, Gold Notes, etc.	$716,214.85	
Extinguishment of Discount on Securities	26,786.76	
City Percentage and Car License Taxes	181,249.01	
Taxes	127,239.43	
Miscellaneous Non-Operating Expenses	2,942.31	
Other Income Deductions	30,495.74	1,084,928.10
Net Income as shown on Accounts submitted herewith, excluding Depreciation		796,575.23
Deduct:—		
Depreciation		201,050.00
Net Income Transferred to Surplus		595,525.23
Surplus brought forward from 1919 as adjusted		1,314,420.29
Net Income for year transferred		595,525.23
Dividend on 7% Cumulative Preferred Stock		4,444.16
Sinking Fund Appropriation		60,000.00
Surplus Carried Forward		$1,845,501.36

Engineers and Contractors

ANGUS SINCLAIR, C. E.

Railway Contractor

OFFICE: EXCELSIOR LIFE BUILDING,
Adelaide and Toronto Sts., Toronto

THE ARNOLD COMPANY

ENGINEERS—CONSTRUCTORS.
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—
Electrification of Steam Railroads.
OUR EXPERIENCE COVERS THIRTY-FIVE PLANTS
CHICAGO

ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.

Robert W. Hunt & Co., Limited

Consulting and Inspecting Engineers
Chemists and Metallurgists

Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.

Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.

REPORTS ON PROPERTIES AND PROCESSES.

Head Office and Laboratories:

McGill Building, - - - - - - - MONTREAL, QUE.

Branches: TORONTO VANCOUVER LONDON, ENGLAND

DOMINION TOWING & WRECKING CO., LIMITED

Tug Strathmore
" Strathbell

Harbour Tug Service

Lighter Strathbuoy—Capacity, 700 tons.

Equipped for all kinds of Towing, Wrecking, Etc.
Sand and Gravel supplied for Concrete Work, Rock and Soil Filling for Cribwork.

Dock Telephone, South 184; Head Office, South 2383. JOHN BELL, General Manager, 509 Grain Exchange, Fort William, Ont.

Malleable Castings High Grade Material First Class Service

Galt Malleable Iron Co., Limited - GALT, ONT.

Canadian Gold Car Heating & Lighting Company, Limited

ECONOMICAL—SYSTEMS OF MERIT—WILL NOT FREEZE

Vapor Systems, Pressure Systems, Vapor and Pressure Systems, Hot Water Systems, Electric Systems
Automatic Heat Control for all Systems—Ventilators

346 ST. JAMES STREET MONTREAL, CANADA

Car Closets

Flush or Dry

DUNER CO. 101 S. CLINTON ST. CHICAGO.

KETTLE VALLEY RAILWAY COMPANY.

Notice is hereby given that the Kettle Valley Railway Company will apply to the Parliament of Canada at the next Session thereof for an Act increasing its bonding powers in respect of the branch line of railway from a point on its authorized line at or near Summer Creek, or One Mile Creek, by the most feasible route to the Copper Mountain and Voight Mining Camp, situate about fifteen miles southwest of Princeton, in the Province of British Columbia, authorized by Paragraph (b) of Section 1 of the Statute 8-9 Geo. V., Chapter 54.

Dated at Montreal this 17th day of January, 1921.

H. C. OSWALD,
Secretary.

Pringle, Thompson, Burgess & Cote,
Ottawa Agents.

"SOLID AS THE CONTINENT"

The success that attended the operations of the North American Life during 1920 established beyond question the strength and security of the Company. Its financial position is unexcelled.

Outstanding Records for 1920:—

Policies Issued and Revived	$24,363,971.00
Amount of Insurance in Force	99,600,473.00
Assets	20,041,882.64
Payments to Policyholders	2,163,997.65
Net Surplus	2,609,827.21

Such records are the outward evidence of the unexcelled financial position attained by the Company, and of the sure foundation upon which it has been built. With this Company, policyholders' interests are paramount, over 99% of the profits earned being allotted to them. If you are contemplating new insurance, see one of our representatives. A copy of the 1920 report will be sent on application.

NORTH AMERICAN LIFE
ASSURANCE COMPANY
"SOLID AS THE CONTINENT"

W. KERR GEORGE,
D. McCRAE, Col.,
Vice-Presidents

Home Office: Toronto, Canada

L. GOLDMAN,
President.

AN ADVERTISING OPPORTUNITY

By F. A. McLean, Sherbrooke, Que.

The old theory, that if a man made a product better than anyone else the world would beat a pathway to his door, was exploded long ago. This might have been true before the days of intense competition, when business was simpler, and there were fewer things to attract the attention of possible buyers.

A portion of the world today may, out of curiosity, beat a pathway to his door, but they will not keep on coming, year after year, unless a little advertising is used to keep down the weeds. It is not enough in these days for an individual, or a firm, to manufacture goods of sterling worth competently and in considerable quantities. To keep the wheels turning, the goods must be sold at a price which will yield a reasonable profit and at a rate proportionate to their speed of production, and this can only be done when buyers can be found in sufficiently large numbers and at a moderate cost.

That the buyers may be found, and brought in touch with the goods, it is necessary that the whereabouts, the quality, the reliability and utility of the goods be made known, and who but the man who has to depend on the sale of these goods for his living should do this? The offering of the goods themselves for sale, and the dissemination of information that they are for sale, with an account of their specific utility and advantages over similar products, if any, is just as much a part of the business of their profitable and continuous production, as is the accumulation of raw materials, of the right quality and at the right price, and the successive steps of their manufacture and assembly in the shop.

One of the earliest forms of advertising was probably the display of goods along the road side, or in a market or other public place, much as the street faker or hawker does today. This method was, and probably still is, all right in a country where the needs of the people are few, and modern transportation methods are unknown. A refinement of this form of advertising is doubtless the store windows, which grace and beautify our city streets with their artistic displays.

The roadside display of goods was followed by the town crier, employed by the King, and who, after having cried out the laws and tax notices, could no doubt be induced to cry the merits of the goods made by anyone who cared to pay him. A step forward was the private crier, hired to represent one firm, or possibly a number of non-competing ones. The object of the crier was, of course, to address as many of the people that passed the market place, the parish church, or the street corner, as possible, with the hope that some of them might be interested in some portion of the information which he so loudly and laboriously proclaimed.

Advertising by the town crier was without doubt well suited to an age in which illiteracy was too common to excite comment, but with improvements in the manufacture of paper and printing methods, and the almost universal spreading of knowledge and learning which followed, the need for the town crier disappeared and he passed the way of all earthly things, giving place to the itinerant peddler, who has in turn been driven out of existence by our modern travelling salesman and the house to house canvassing crews, the latter so intensive in their methods that a suburban residence during the summer holiday periods often receives an average of one call every ten minutes all day long. Then we have the street car card, the billboard, and the electric sign, all of which have been developed to an astonishing degree.

Old methods have been vastly improved upon, and many advantages have been added which were not possible with the early methods. All of these things can be claimed for the printed advertising medium or periodicals of our day. Each one in the vast throngs of people who subscribe to and read these publications is far more susceptible and more likely to be attracted by and interested in an artistic and well worded announcement in their pages than are the casual passers by who compose the crowds in the streets, with the additional advantage that the printed word repeats its sales appeal each time it meets the eye, while the spoken or shouted word dies with the breath of the speaker.

In view of this fact, it is perhaps interesting to speculate on just when the sales appeal of the printed word ceases to act, since it is likely that the medium which bears it will pass through the hands of many potential buyers, or through the hands of those who, if not buyers themselves, may voluntarily or involuntarily influence some one who is a possible purchaser (after having sold themselves on the proposition) ere it reaches the waste basket or the ash can. While it is undoubtedly true that some sales are made in this way, it would be almost suicidal for a firm making steam boilers, for instance, to advertise them in a magazine circulating amongst golfers, on the off chance that some of them might be in the market for boilers or know some one who was.

Literary, social and political periodicals, newspapers, billboards, car cards and signs, although they appeal to large masses of people, do not sort them out, and while they are splendid mediums in which to advertise a product with a universal utility, such as food products, wearing apparel and so on, advertisements inserted in them for goods which at best can only be of interest to a small portion of their readers, are bound to be more or less wasteful, since much seed will fall on barren ground. This is much like the gunner who haphazardly fires a shrapnel shell into the enemy's lines, on the off chance that some of the missiles will find a billet in the bodies of such of the enemy as may be near it when it bursts.

The technical newspaper, on the other hand, may be likened to the well aimed bullet of the sniper, or the big game hunter, a carefully aimed shot directed to the point where it will do the most good, as the technical newspaper, through specialization, automatically selects and assembles from the general mass of humanity a number of readers, subscribers and potential buyers whose interests are similar. These readers, having similar interests, are looking for the same things, and as the publisher rejects advertising which in his opinion will not appeal to his readers, the advertiser may be sure that his announcements will not have to compete for attention and interest with a lot of others entirely foreign to his particular line of business.

Canadian Railway and Marine World is a special medium in a special field. The industries which it represents, and of which it is at once the logical market place, mouthpiece and organ, are of unlimited importance to Canada and to the world at large. It is the only publication of its kind in Canada, and it covers the Dominion with a thoroughness that in proportion to the population might well make any United States contemporary envious. It has a remarkably large number of readers for a paper of its class, has a long and successful record behind it, and its readers are for the most part made up of men who desire to keep in touch with the latest developments in the steam and electric railway and marine transportation lines in Canada. Many of its readers depend upon its reports and its advertising pages to point out to them the time and place to buy raw materials, machine tools and such other equipment as they need.

To anyone who has a product, or a service of commercial value, to sell, which will be of help either to the executives or the rank and file of the railway and other transportation companies of Canada, and to the car, locomotive and ship builders, the advertising pages of Canadian Railway and Marine World present a favorable opportunity to bring their products to the attention of possible buyers at a moderate cost.

CANADIAN RAILWAY AND MARINE WORLD

Toronto *Member of* **Canada**

Audit Bureau of Circulations, Associated Business Papers, Canadian National Newspapers and Periodicals Association, Canadian Press Association.

Cutting Haulage Costs

Whitcomb Locomotives, Gasoline or Electric, provide a most dependable and economical means of transportation. Wherever light tracks are laid, Whitcomb Locomotives give unfailing service because their construction combines many features that prove their efficiency and ability to cut haulage costs on all industrial work.

"V" Dump Cars are in universal use for carrying all classes of materials, wet or dry, such as concrete, clay, ashes, sand, rock, etc. Accurate balance insures positive and easy dumping.

Fairbanks-Morse Motor Cars, standard gauge, are simply and strongly built and are the most practical for inspection, section, and all track work. Designed to operate on kerosene as well as gasoline, they have a speed of up to 25 miles per hour in either direction.

Our nearest Branch will gladly send detailed information of special interest to purchasing agents.

If it isn't here —write us.

Fairbanks-Morse

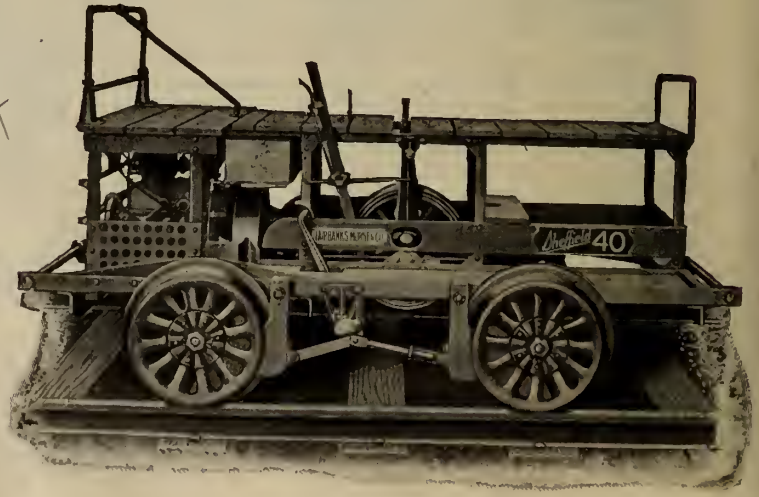
Railway Motor Cars,
Push Cars,
Velocipedes,
Standpipes,
Water & Coal stations,
Barrett jacks,
Duff jacks,
Track tools,
Boilers,
Steam engines,
Hoisting machinery,
Rope blocks,
Buckets,
Dump cars,
Gasoline locomotives,
Electric locomotives,
Wheelbarrows,
Road machinery,
Concrete mixers,
Warehouse trucks,
Jack lift trucks,
Express wagons,
Milburn lights.

The Canadian Fairbanks-Morse Co., Limited

Canada's Departmental House for Mechanical Goods

Halifax, Ottawa, Toronto, St. Catharines, Calgary, Regina, Saskatoon, Vancouver, Victoria.

St. John, Hamilton, Quebec, Winnipeg, Montreal, Windsor,



Use
Grip Nuts
and reduce your
Bad Order Cars

Canada Grip Nut Company, Limited

Montreal, Que.

Plant: St. Johns, Que. **Winnipeg, Man.**

The Canadian Bridge Co., Limited

Walkerville, Ontario

Locomotive
Turntables
Roofs
Steel Buildings

Manufacturers of
Railway and Highway
BRIDGES
Montreal Office in New Birks Building

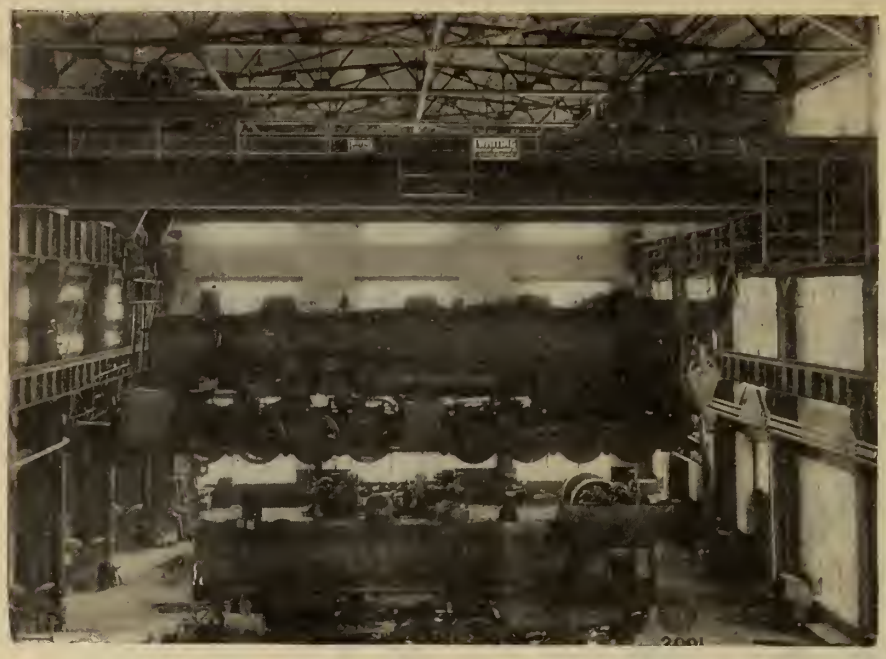
Structural
Iron Work
of all
Descriptions

MILLER BOILER WASHING SYSTEM—FOR LOCOMOTIVES

Washout Water at 120°. Refill Water at 200°.

F. W. MILLER HEATING CO.

McCORMICK BUILDING - - - - - CHICAGO, ILLINOIS



250-Ton 7-Motor Whiting Electric Traveling Crane, 78-ft. Span.
Handling 232-Ton Mallet Engine in Shops of Union Pacific R. R., Cheyenne, Wyo.

WHITING CRANES *for* Railroad Service

All types for shop or yard. Electric and handpower. Electric travelers of 3 to 250 tons capacity, practically any span. Specifications on request.

Other Whiting Products:

Cupolas	Converters	Trucks and Cars
Tumblers	Ladles	Turntables
Core Ovens	Air Hoists	Elevators
Malleable and Brass Furnaces		Tramrail Systems

SCREW-JACK LOCOMOTIVE HOISTS

Coach Hoists — Turntable Tractors
Transfer Tables — Car Wheel Fdy. Equipment

Send for Catalogs and Prices

WHITING CORPORATION

General Office and Works - Harvey, Ill.

Canadian Representatives:

DOMINION FDY. SUPPLY CO., Montreal, Toronto and Winnipeg
B. C. EQUIPMENT CO., Vancouver, B.C.

WHITING

Without Drawing the Temper

Sharpen all your cutting tools on the Dimo-Grit wheels of Luther DIMO Grinders — 10 times as fast as an emery wheel. No water needed to cool the tool.

Above is shown the DIMO Railway Grinder (No. 175) with chisel-plane guide, twist drill and flat drill attachment. It clamps to any bench, hand car or other support. Smooth running, ball bearing—sharpens all cutting tools. Indispensable in machine shops and in section gangs for sharpening track drills, adzes, chisels, scythes, etc.

Write for DIMO booklet. It will tell you how you can save time and money by using the DIMO line of up-to-date repair tools.

Luther Grinder Mfg. Co.

DEPT. 10, MILWAUKEE, WISCONSIN, U.S.A.

LUTHER GRINDERS

DIMO PRODUCTS

ESTABLISHED 1849.

BRADSTREET'S

Capital and Surplus, $1,500,000.
Offices throughout the Civilized World.

Executive Offices:
NOS. 346 and 348 BROADWAY,
N.Y. CITY, U.S.A.

The Bradstreet Company gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

Subscriptions are based on the service furnished and are available only by reputable wholesale jobbing, and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. Correspondence invited.

OFFICES IN CANADA:

Halifax, N.S.; Hamilton, Ont.; London, Ont.; Montreal, Que.; Ottawa, Ont.; Quebec, Que.; St. John, N.B.; Toronto, Ont.; Vancouver, B.C.; Calgary, Alta.; Edmonton, Alta.; Winnipeg, Man.; **Victoria, B.C., and St. John's, Nfld.**

JOHN A. THOMPSON,
Gen. Man. Western Canada, Toronto.

Maintaining Service

Maintaining efficient service entails the use of many materials, not the least important of which, is oil.

Dirty oils, the results of careless storage, hamper maintenance and efficiency.

BOWSER

stored oils are clean and free-flowing. They retain their useful qualities. Records are accurately kept and time and labor saved by the use of Bowser measuring pumps.

An analysis by our engineers does not put you under obligation. Write for this service.

S. F. BOWSER COMPANY, Limited
66-68 Fraser Ave., Toronto, Canada

Branch Offices in Principal Cities of the U. S.

LONDON
32 Victoria St. S.W.1.
HAVANA
Lonja del Comercio 427
PARIS
5 Rue Denis-Poisson
SYDNEY
6 Castlereagh Street

The illustration to the right shows the Bowser Figure 106 gallon pump. Can be used for all lubricating and non-lubricating oils. Rapid and accurate in operation.

The most efficient gallon pump that is manufactured.

Reid Newfoundland Co.

St. John's, N. F.

Railway and Steamship Lines
Dry Dock and Marine Works

WOOD AND STEEL SHIPBUILDERS AND ENGINEERS

SPECIAL FACILITIES FOR REPAIRS

SHEER LEGS AND WHARFAGE AT DEEP WATER PIER

SHOPS EQUIPPED WITH MODERN MACHINERY

PNEUMATIC TOOLS, ELECTRIC AND ACETYLENE WELDING PLANT IN OPERATION

VESSELS PAINTED WITH ANTI-FOULING PAINTS

Rates on Applciation

PAGE-HERSEY TUBES, LIMITED

MADE IN CANADA.

P H

Tubular Poles

NEAT, UNIFORM AND ORNAMENTAL
in appearance, combined with
GREAT DURABILITY, STIFFNESS AND STRENGTH
make them ideal for
ELECTRIC LIGHT AND POWER
TELEPHONE, TELEGRAPH
AND STREET RAILWAY
LINES
and also for
FLAG POLES,
all sizes and weights.

ILLUSTRATION SHOWS A LINE OF P H WROUGHT TUBULAR STEEL POLES ON THE BLOOR STREET VIADUCT—TORONTO, CAN.

HEAD OFFICE:
100 Church Street - Toronto, Can.

A Successful Strike

A successful strike at the high cost of railway maintenance is made by the one piece cast-steel specialty.

Cast-steel car bolsters and truck side frames save millions in repair and upkeep expense.

Send us your enquiries.

DOMINION FOUNDRIES & STEEL, Limited

HAMILTON - ONTARIO

The Norton New Series "BB" Speed Controlled Self-Lowering Jack

Is the Highest Class Jack in the World.

This new pattern No. 5361BB is particularly useful where **small head** and **high lifting capacity** are desired.

Send for latest Catalogue.

A. O. NORTON, Limited

Coaticook, Prov. Quebec, Canada.

Agents:
Mussens Limited, Montreal
Kelly-Powell Limited, Winnipeg
The Canadian Fairbanks-Morse Co., Ltd., Vancouver

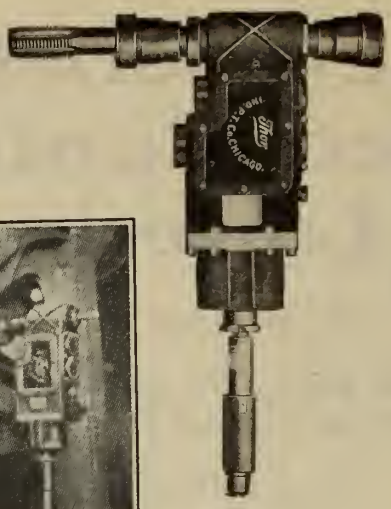
Taylor & Arnold Engineering Company, Ltd.

MANUFACTURERS OF

Taynold Electric Headlights
Taynold Turntable Tractors Taynold Car Replacers
Taynold Loco Bell Ringers
Ship Blocks and Turnbuckles
Detroit Lubricators
Detroit Radiator Valves W R Co 2 Recorders
Buckland McVicar Drifting Valves
Ships Telegraphs

Montreal Toronto Winnipeg

THOR–THE NAME TO LOOK FOR



Repairing link cradles with a No. 19 *Thor* Reversible Close Corner Drill. Not necessary to remove the link cradles. Saving in time and labor over 80%.

The Right Tool Makes the Hardest Operation Easy

Thor

There is a THOR for every operation in railroad work and shipbuilding — one particularly adapted to the individual requirements of each operation.

The superior performance of THOR Tools is, therefore, to be expected. The extra careful workmanship in THOR Tools enables them on job after job to deliver the goods far beyond expectations. Consequently, you find THOR, standard equipment in the leading plants today.

Buy your full supply of THOR Tools now. Immediate delivery.

Independent Pneumatic Tool Company

Canadian Office: 334 St. James St., MONTREAL.

BIRMINGHAM, BOSTON, CLEVELAND, CHICAGO, DETROIT, NEW YORK, PHILADELPHIA, PITTSBURGH, ST. LOUIS, SAN FRANCISCO, TORONTO.

RAILWAY AND MARINE LIGHTING

Complete Equipment for Electric or Gas Lighting of Railway Passenger Cars

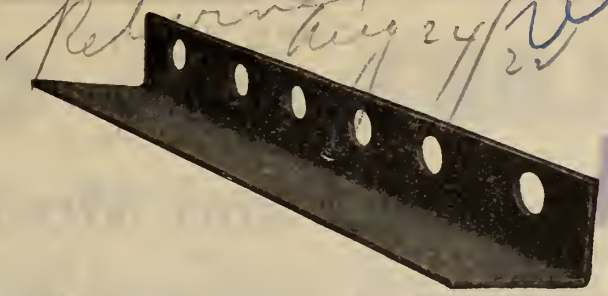
Complete Apparatus for Harbors and Rivers— Buoys, Beacon Towers and Lanterns

The Safety Car Heating and Lighting Co.

601 Drummond Bldg., Montreal

Diamond-F

Standard fish plates
Weber plates
Continuous plates
Braddock plates
Keystone plates
O'Brien plates
Washer angles
Head pieces
Switch shims
End posts
Washers
Ferrules
Gaskets
Liners
Bridle rings
Wiring tags
Dust guards
and other forms of insulation.



Diamond-Fibre Track Insulation

Vulcanized Fibre plays a most important part in the equipment of modern railroads because of its low initial cost, the ease with which it can be bent and punched into different shapes, its ability to withstand excessive pressure and vibration, its toughness and its insulating properties.

"Diamond-F. Railway Insulation" is the very highest grade of vulcanized fibre, made from carefully selected raw material of the highest quality, treated with great care under the eyes of experts. The finished product is then thoroughly seasoned and cured.

We feel sure that Diamond Fibre quality and service can find a place in your equipment. We want you to write and let us know your requirements, so that we can give you full information about our lines and service.

Samples of "Diamond-F. Railway Insulation" sent for testing purposes, on request.

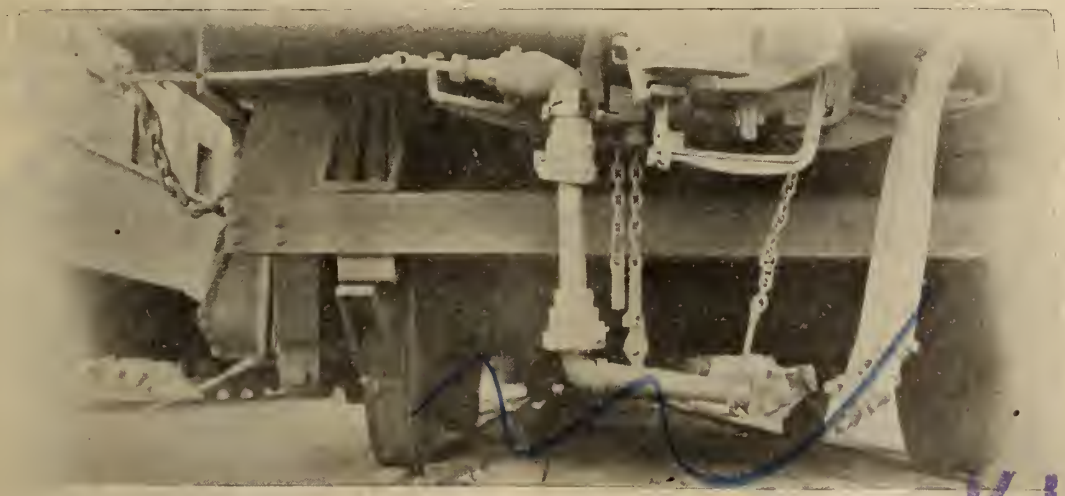
Diamond State Fibre Co.
of Canada, Limited

Wrigley Building, Carlaw Ave., Toronto, Canada

Diamond-F

Barco Steam Heat Car Connections are a proven success, and the most efficient car connection made. They can be used with any standard coupler head, are easily coupled, will stay coupled, and cannot fall off.

They will stand full boiler pressure, cannot have a serious leak, and are practically indestructible. Pressure drop is less than with hose or any other type of connection.



SOLE AGENTS FOR CANADA

The Holden Company, Limited
356 St. James Street, Montreal
Branch Offices — Toronto Winnipeg Vancouver

PEDLAR'S "PERFECT" TONCAN METAL CULVERTS

Strongest and Most Durable

PEDLAR'S Culverts give the greatest assurance against washouts. They will not break from the effects of frost, ice, or unexpected internal stresses. Their enormous strength is equal to the heaviest live or dead loads to which they may be subjected. When a Pedlar Culvert of the proper capacity is installed it will never fail from any cause, but will stand right up to its work year in and year out, reducing maintenance cost to the minimum.

Write for Culvert Booklet R.M.

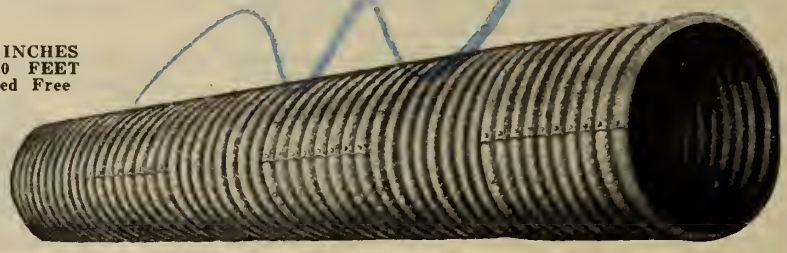
THE PEDLAR PEOPLE LIMITED

(Established 1861)

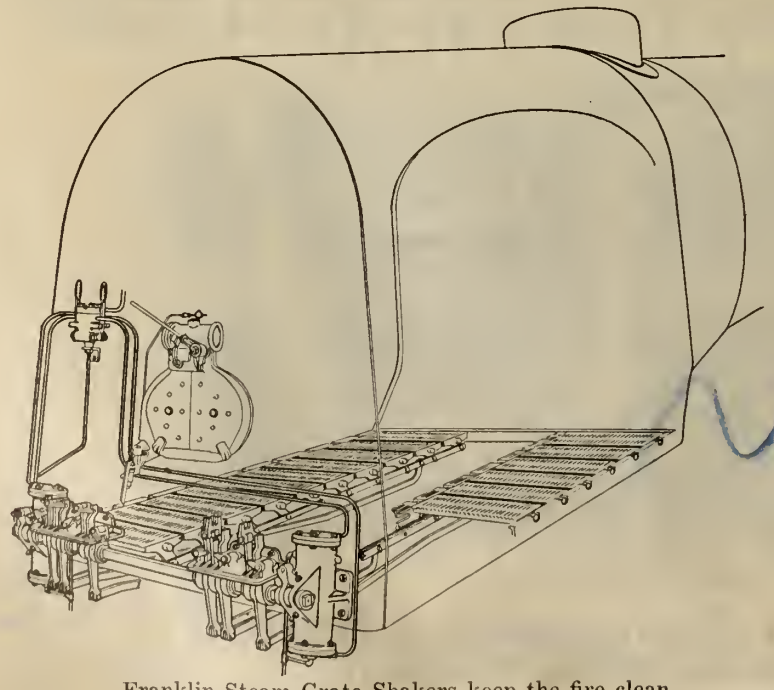
Executive Offices and Factories: OSHAWA, ONT.

Branches: Montreal Quebec Halifax St. John Ottawa Toronto Winnipeg Calgary Vancouver

DIAMETERS 8 to 84 INCHES
LENGTHS UP TO 40 FEET
Coupling Bands Supplied Free
for longer lengths



AN EVEN BED OF FUEL



Franklin Steam Grate Shakers keep the fire clean

To keep the firebox hot 16 lbs. of air are required for each pound of coal. A modern locomotive may have two tons of coal all burning and bound together on the grates.

No 150 lb. man can shake the grates and keep the fire clean and free from clinkers.

With the Franklin Steam Grate Shaker it is easy to keep that even, steady burning bed of fuel so necessary for good combustion.

Franklin Railway Supply Co. of Canada, Limited

Transportation Bldg., Montreal

B. J. Coghlin Company, Ltd.

Founded in 1869

Manufacturers of

SPRINGS AND TRACK TOOLS

Office and Works: Darling, Davidson and Ontario Street East

MONTREAL

Harvard Turnbull & Co., Agents	-	-	-	Toronto
Gordon & Belyea, Limited, Agents	-	-	-	Vancouver
Filer-Smith Mach. Co., Ltd., Agents	-	-	-	Winnipeg

For the Good of the Service Use—

NATIONAL STEEL TRAP DOOR AND LIFTING DEVICE
RESISTO and TUCORK INSULATION
FLEXOLITH COMPOSITION FLOORING
TUCO PRESERVATIVE FOR FLOOR PLATES
NATIONAL STANDARD ROOFING
IMPERIAL CAR WINDOW SCREENS

TUCO PRODUCTS CORPORATION, 30 Church St., New York City

CANADIAN OFFICE:

Consolidated Equipment Co., 263 St. James Street, Montreal.

Butterfield Superiority

in Quality Finish and Service is built into each and every tool

Angular, Concave, Convex, Form CUTTERS, End Mills, Worm Hobs, Generating Hobs, Hollow Mills.

Gear, Plain Milling, Side Milling, Step Stocking CUTTERS, Metal, Slitting and Screw Slotting Saws, Slitting Discs.

Ask for Drill and Cutter Catalog "A"

Butterfield & Co., Inc.

Rock Island, Que.

Money paid for these Brake Shoes was largely money wasted

Why?

Because these unreinforced brake shoes did not give equivalent service for their cost, having broken in service before their life had barely commenced.

And the remedy?

Use only Reinforced Brake Shoes—then you will get your brake shoe money's worth in long and safe service.

Dominion Brake Shoe Company, Limited

The HOLDEN CO., Limited, Agents,
350-356 St. James Street, MONTREAL

The Luxeberry Painter Says:

"First impressions are nearly always received through the eyes. This is a big reason why Railway Coaches and Boats in the passenger service should be attractively finished."

True efficiency and economy in the finishing room demand the right varnish for the right use for the right price. Varnish needs differ widely. We make specially adapted finishes for Railway and Marine uses.

BERRY BROTHERS INC.
Worlds Largest Makers
Varnishes and Paint Specialties
Walkerville, Ont.

Canada Iron Foundries, Limited

Chilled Tread Cast Iron Car Wheels for All Services
Cast Iron Water, Gas and Culvert Pipe,
Flanged Pipe and Specials
Railway Castings

HEAD OFFICE:

Mark Fisher Building - - - Montreal

RAMAPO

AUTOMATIC SAFETY SWITCH STANDS

Guard Rail Clamps
Double Shoulder Solid Bottom
Switch Riser Plates

SWITCHES
FROGS AND CROSSINGS
MANGANESE TRACK WORK A SPECIALTY

CANADIAN RAMAPO IRON WORKS, LIMITED
NIAGARA FALLS, ONT., CANADA

ENGINEERS, MANUFACTURERS
AND ERECTORS OF

STEEL RAILWAY BRIDGES
STEEL HIGHWAY BRIDGES
STEEL TURNTABLES
STEEL STRUCTURES OF
EVERY DESCRIPTION

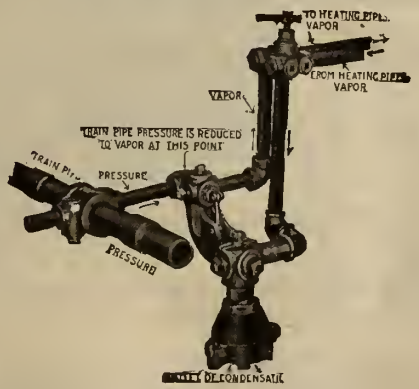
YOUR INQUIRIES WILL RECEIVE PROMPT ATTENTION

THE HAMILTON BRIDGE WORKS COMPANY
HAMILTON, CANADA LIMITED

VAPOR CAR HEATING CO. of Canada, Limited

MADE
IN
CANADA

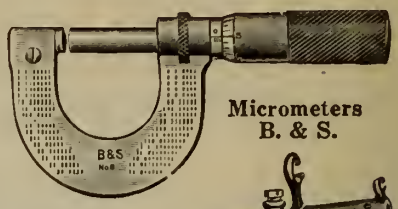
AT



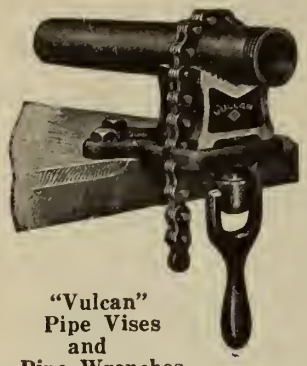
THE
VAPOR SYSTEM
OF
CAR HEATING

61 DALHOUSIE STREET - MONTREAL, QUEBEC
F. A. PURDY, SALES REPRESENTATIVE. S. P. HARRIMAN, ASS'T. TREASURER.

Machine Shop, Foundry and Construction Supplies



Micrometers
B. & S.



"Vulcan"
Pipe Vises
and
Pipe Wrenches

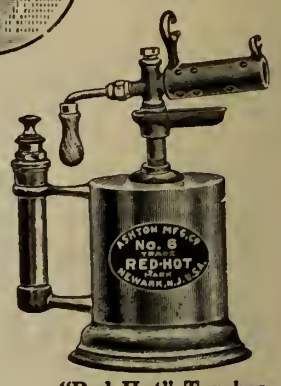
In addition to the tools shown, our line includes Set Screws, Cap Screws, Machine Screws, High Speed and Carbon Drills, Files (extra large stock) and a complete line of machinists' tools (Starrett, Brown & Sharpe, etc.)

We also carry a heavy stock of Bar Iron, Sheet Iron, (black and galvanized), Machine Steel, Cast Steel, High Speed Steel, Cold Rolled Steel, etc.

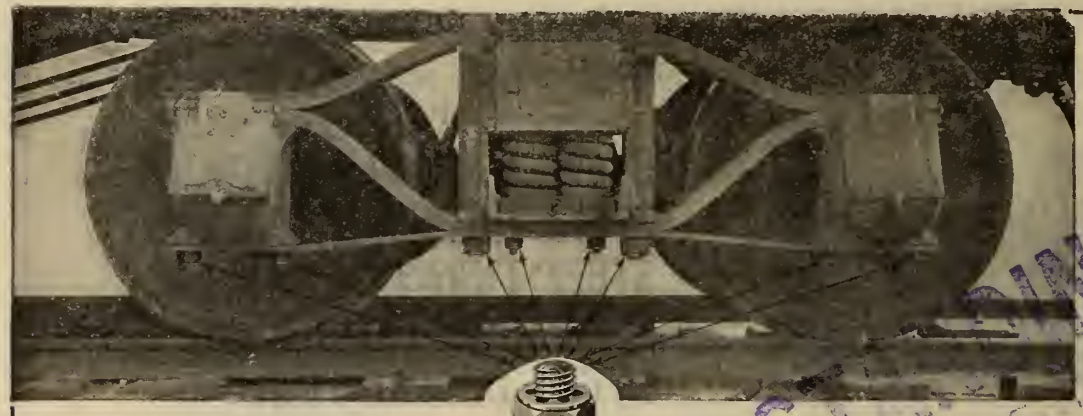
Pleased to quote prices and time of delivery.

RICE LEWIS & SON, Limited

Established 1847. 19 Victoria Street.
TORONTO, ONT.



"Red Hot" Torches.



Save money by using

The HOLD TITE NUT LOCK

(Patented)

THE LATEST AND LAST in a NUT LOCKING DEVICE

TWO CLAIMS are made proving the Superiority of the Hold Tite Nut Lock.

CHEAPNESS. Look at the Washer! Nothing can be made cheaper.

EFFICIENCY. We guarantee that no vibration can remove it.

WHAT MORE? NOTE THE SIMPLICITY—No double nuts or Cotter are necessary. This expense can be saved. Put on the Lock Washer and forget it. The nut will remain in place. No thought need be given to the shape of the Nut or to the thread of the bolt. Fit the right sized washer over the same size bolt,—that's all.

If the bolt stretches take up the nut and tap the washer against it,—it is as secure as ever.

Write for samples of the different sizes. They will be cheerfully furnished free. It will not obligate you in any way.

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THE HOLD TITE NUT LOCK makes a bolt as secure as a rivet.—TEST THEM OUT FOR PROOF.

With the use of carbon accessories a great saving of time and money can be effected

—by holding the molten metal to the welding area with carbon plates, a cracked locomotive cylinder was welded without the usual costly removal of the cylinder from the frame.

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The services of our Engineering Department are always available in the solution of your welding problem.

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Highly refractory
Low co-efficient of expansion due to heat
Mechanically strong
In many shapes and sizes

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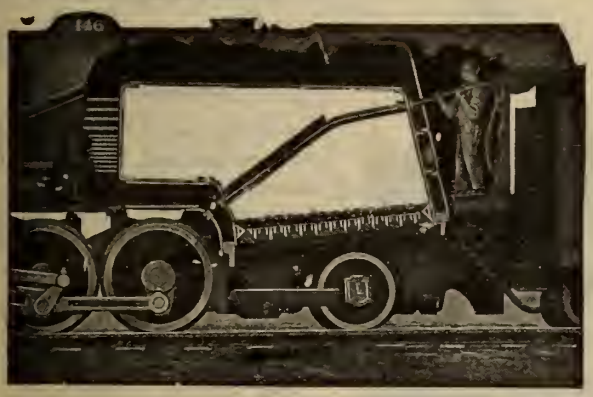
Incorporated
NEW YORK CITY
Branches in 65 Large Cities.

Lagonda Arch Tube Cleaner



Lagonda Cleaner Removing Scale from Arch Tubes.

Lagonda Arch Tube Cleaners

Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

The Lagonda Arch Tube Cleaner will remove these scale deposits easily and quickly. They are built for all sizes of tubes and can be driven by either water, air or steam. Send for Catalogue W-1 describing the construction and operation of these Cleaners.

Other Lagonda Boiler Room Specialties are described in our General Catalogue L. Send for Copy.

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are unsurpassed for the rapid and economical handling of material. Designed and manufactured under the well-known standards and the duplicate parts system of the

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All that its name implies. Good materials are only determined by results obtained in service. Ask about it. This is a Packing that overcomes the necessity for carrying many styles and sizes. "INTERNATIONAL" PLASTIC METALLIC conforms to all sizes and shapes of stuffing boxes.

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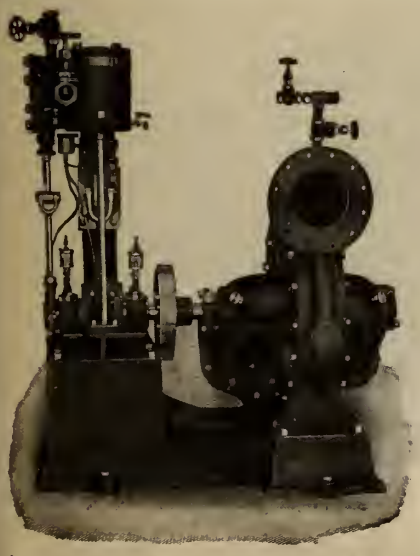

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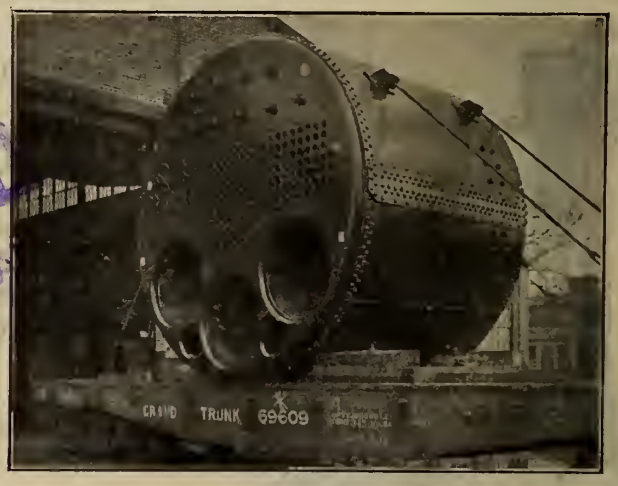

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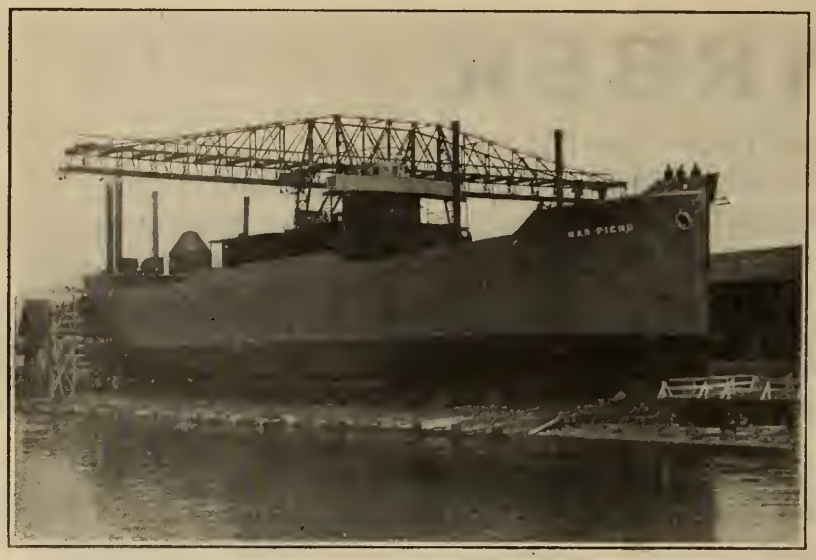

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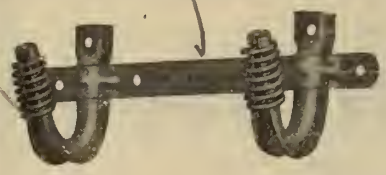

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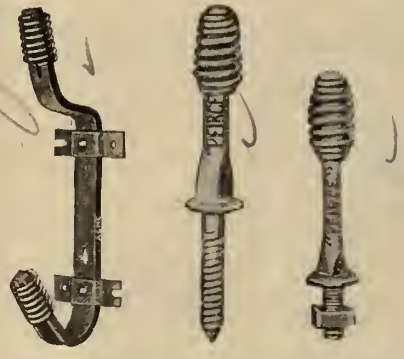

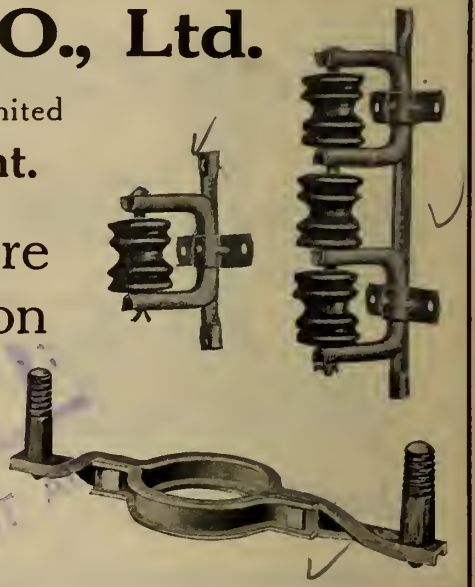

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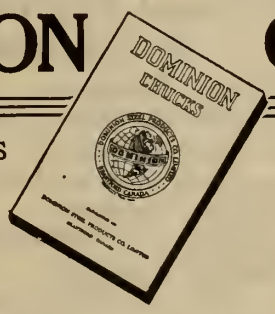

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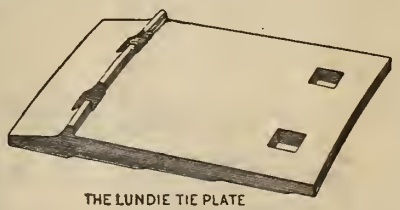

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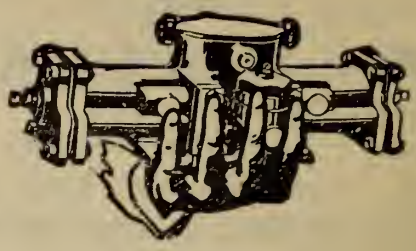

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How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

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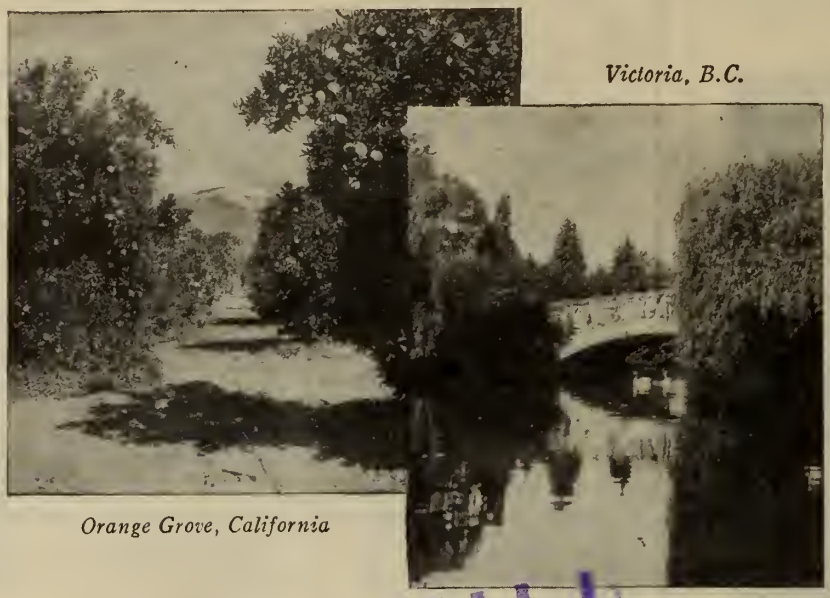

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TUBES, BOILER
Consolidated Steel Corporation
TUBES, BRASS AND COPPER
Peacock Bros.
TUBES
F. H. Hopkins & Co.
Page-Hersey Tubes Ltd.
TUBES, FIBRE
Diamond State Fibre Co. of Can.
TURNBUCKLES
Canada Foundries & Forgings, Ltd.
TURNTABLES
Canadian Bridge Co.
Dominion Bridge Co.
G. P. Nichols & Bro.
Whiting Corporation
TURNTABLE CENTERS
Whiting Corporation
UPHOLSTERY, CAR
L. C. Chase & Co.
VALVES
Canadian Fairbanks-Morse Co.
T. McAvity & Sons
Peacock Bros.
VALVES, ANGLE AND GLOBE
T. McAvity & Sons
Ohio Brass Co.
VALVES, BRASS GATE
T. McAvity & Sons
Ohio Brass Co.
VALVES, LOCOMOTIVE POP
T. McAvity & Sons
Taylor & Arnold Engineering Co.
VALVES, MARINE POP
T. McAvity & Sons
VALVES, REDUCING.
Mason Regulator & Engineering Co.
VALVE GEARS, LOCOMOTIVE
Pyle-National Co.
VARNISHES
Berry Bros.
Dominion Paint Works Ltd.
VENTILATORS, CAR
Railway & Power Eng. Corp.
VESSELS (See Shipbuilders)
WASHERS
Steel Co. of Canada.
WASHERS, FIBRE
Diamond State Fibre Co. of Can.
WASTE
B. J. Coghlin Co.
WASTE PAPER BASKETS, FIBRE
Diamond State Fibre Co. of Can.
WATER SOFTENERS AND PURIFIERS
Babcock & Wilcox
Dearborn Chemical Co. of Can.
WEATHER STRIPPING
Holden Co.
WELDING
Canadian Vickers, Ltd.
Metal & Thermit Corporation
Reid Newfoundland Co.
WELDING APPARATUS AND MATERIALS
Commercial Acetylene Welding Co.
Davis-Bournonville Co.
Holden Co.
Metal & Thermit Corporation
Prest-O-Lite Co.
WHEELBARROWS
F. H. Hopkins & Co.
Harvard Turnbull & Co.
WHEEL GRINDERS
Griffin & Brinkerhoff
WHEELS, CAR
American Steel Foundries
Association of Manufacturers of Chilled Car Wheels
Canada Iron Foundries
Canadian Steel-Tire & Wheel Co.
Consolidated Steel Corporation
Marsh Engineering Works
WHEELS, LOCOMOTIVE
Canada Iron Foundries
Canadian Steel-Tire & Wheel Co.
Consolidated Steel Corporation
WHITE LEAD
Carter White Lead Co.
Steel Co. of Canada.
Harvard Turnbull & Co.
WINCHES, SHIP
Canadian Vickers Ltd
Holden Co.
The Wm. Kennedy & Sons, Ltd.
A. G. Kidston & Co.
Marsh Engineering Works
WINDLASSES, SHIP
Canadian Vickers, Ltd.
The Wm. Kennedy & Sons, Ltd.
A. G. Kidston & Co.
WIRE AND WIRE ROPE
Canada Wire and Cable Co.
B. J. Coghlin Co.
Consolidated Steel Corporation
Dominion Wire Rope Co.
Northern Electric Co.
Peacock Bros.
Harvard Turnbull & Co.
WIRE, BARE COPPER
Canada Wire and Cable Co.
Northern Electric Co.
Standard Und. Cable Co. of Can.
Steel Co. of Canada.
WIRE, BRASS, IRON AND STEEL
Steel Co. of Canada.
WIRE GOODS, BRIGHT
Steel Co. of Canada.
WIRE, TELEGRAPH AND TELEPHONE
Canada Wire and Cable Co.
Northern Electric Co.
Standard Und. Cable Co. of Can.
Steel Co. of Canada.
WRENCHES
Dominion Brakeshoe Co.
WIRELESS TELEGRAPH EQUIPMENT
Canadian Marconi Co.
WIRE, TRANSMISSION AND TROLLEY
Canada Wire and Cable Co.
Northern Electric Co.
Steel Co. of Canada.
Standard Und. Cable Co. of Can.
WRECKING, MARINE
Dominion Towing and Wrecking Co.
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Alphabetical List of Advertisers

A

Algoma Steel Corporation 131
American Manganese Bronze Co. 132
American Steel Foundries 2
Arnold Co. 114
*Associated Business Papers Inc. 22
*Association of Manufacturers of Chilled Car Wheels ..... —

B

Babcock & Wilcox 129
Barrett Co. 16
Berry Bros. 126
Bertram, John, & Sons Co. 1
Bowser, S. F., Co. 119
Bradstreet Company 118
British Ministry of Munitions 10
Brown Hoisting Machinery Co.... 3
Buffalo Brake Beam Co. 36
Butterfield & Co. 125

C

Canada Foundries & Forgings Ltd. 142
Canada Grip Nut Co. 117
Canada Iron Foundries, Ltd. 126
Canada Machinery Corporation.... 33
Canada Steamship Lines, Ltd. 35
Canada Wire & Cable Co. 36
Canadian Bridge Co. 117
Canadian Bronze Co. 111
Canadian Chicago Bridge & Iron Co. 138
Canadian Consolidated Rubber Co. 20
Canadian Fairbanks-Morse Co..... 116
Canadian Gold Car Heating and Lighting Co. 114
Canadian Government Merchant Marine, Ltd. 6
Canadian Mead-Morrison Co. 141
Canadian National Carbon Co..... 128
Canadian National Newspapers and Periodicals Association .... —
Canadian National Railways 142
Canadian Pacific Railway ..... —
Canadian Pacific Ry. Colonization Department 140
Canadian Porcelain Co. 38
Canadian Railway and Marine World 115
Canadian Ramapo Iron Works Ltd. 127
Canadian Steel-Tire & Wheel Co. 40
Canadian Vickers, Ltd. 133
Canadian Westinghouse Co. 25
Carr, C. E. A., Co. 134
Carter White Lead Co. of Canada 143
*Chase, L. C., & Co. ..... —
Coghlin, B. J., Co. 125
Collingwood Shipbuilding Co. 111
Commercial Acetylene Supply Co. 32
Consolidated Steel Corp. 15
Corbet Foundry & Machine Co... 112
Crane Limited . ..... —
Curtiss-Willis Co. 112

D

Date, John 140
Davis Boring Tool Co. 11
Davis-Bournonville Co. 145
Dearborn Chemical Co. of Canada 14
Diamond Saw & Stamping Works . . .. —
Diamond State Fibre Co. of Canada 123
Dominion Brakeshoe Co. 126
Dominion Bridge Co. 27
Dominion Coal Co. 142
Dominion Foundries & Steel, Ltd. 120
Dominion Iron & Steel Co. 132
Dominion Oxygen Co. 23
Dominion Paint Works, Ltd. ..... —
Dominion Steel Products Co. 135
Dominion Towing & Wrecking Co. 114
Dominion Wire Rope Co. 26
Duner Co. 114

E

Engineering & Machine Works of Canada 132

F

Fairmont Gas Engine & Railway Motor Car Co. 136
Flannery Bolt Co. 34
Franklin Railway Supply Co. of Canada 124

G

Galena Signal Oil Co. 19
Galt Malleable Iron Co. 114
Gartshore, J. J. 140
General Railway Signal Co. of Canada 143
Grand Trunk Railway 28
Griffin & Brinkerhoff 142

H

Halifax Shipyards Ltd. 35
Hamilton Bridge Works Ltd. 127
Hart-Otis Car Co. 26
Holden Co. 123
Hopkins, F. H., & Co. 26
Hoyt Metal Co. 140
Hunt, Robert W., & Co. 114
Hunt-Spiller Mfg. Corporation .. 39

I

Imperial Bank of Canada 140
*Imp. Guar. & Accident Ins. Co. —
Independent Pneumatic Tool Co.. 121
Inglis, John, Co. 41
International Correspondence Schools . . .. —
International Machinery & Supply Co. 130

J

Johns-Manville Co., H. W. 129
Joliette Castings & Forgings Ltd. 133

K

Kalamazoo Railway Supply Co... 33
Kennedy, The William, & Sons, Ltd. 2
KeYoke Railway Equipment Co... 12
Kidston, A. G., & Co. 34
Krauser, Webb G. 18

L

Lewis, Rice, & Son 128
Lincoln Electric Co. 21
Lundie Engineering Corporation. 135
*Luther Grinder Mfg. Co. 118
Lyman Tube & Supply Co. ..... —

M

McAvity, T., & Sons 30
McCord & Co. 37
Marconi Wireless Telegraph Co... 131
Mason Regulator & Engineering Co. 28
Metal & Thermit Corporation.... 31
Midland Shipbuilding Co. 134
Miller, F. W., Heating Co. 117
Miner, W. H. 29
Montreal Locomotive Works, Ltd. 37

N

National Lock Washer Co. 8
National Pneumatic Co. 136
Nichols, G. P., & Bro. 135
Nicholson File Co. 146
North American Life Assurance Co. 114
Northern Crane Works Ltd. 140
Northern Electric Co. .....4 & 5
Norton, A. O., Ltd. 121
Nova Scotia Steel & Coal Co..... 31

O

Ohio Brass Co. 24
*Ontario Specialties, Ltd. ..... —
Orton & Steinbrenner Co. 130
Ottawa Car Mfg. Co. 39
Ottawa Traction Co. 112

P

Page-Hersey Tubes, Ltd. 120
Page & Jones 140
Peacock Bros. 9
Pedlar People, Ltd. 124
Piper, The Hiram L., Co. 111
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 38
Pyle-National Co. 129

R

Rail Joint Co. of Canada 130
Railway & Power Engineering Corp. 138
Ramsay, A., & Son, Co. 135
Reid Newfoundland Co. 119
Robb Engineering Works 30
Robinson Co., E. A. 128

S

Safety Car Htg. & Ltg. Co..... 122
Sinclair, Angus 114
Slater, N., Co. 134
Smart-Turner Machine Co. 131
Standard Car Truck Co. 133
Standard Underground Cable Co. of Canada 142
Star Brass Works 27
Steel Co. of Canada .....13 and 140
Strauss Bascule Bridge Co. 112
Superheater Co. 17
Symington Co., The T. H. 32

T

Taylor & Arnold Engineering Co. 121
Templeton Kenly Co. 7
Tuco Products Corporation 125
Turnbull, Harvard, & Co. 41

U

Union Draft Gear Co. 18
Universal Draft Gear Attachment Co. 18

V

Vapor Car Heating Co. of Canada 127

W

Whiting Corporation 118
Winnipeg Electric Ry. Co. 113
Woolery Machine Co. 41

Y

*Yarrows, Ltd. 29

*Alternate months.

Canadian Railway and Marine World

GENERAL INDEX
FOR 1920

ACTON BURROWS, PROPRIETOR
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Items marked with an asterisk are accompanied by maps, portraits or other illustrations.

STEAM RAILWAY DEPARTMENT AND GENERAL MATTER.

A

Aerial Transportation Notes 10, 125, 240, 378, 427, 487, 658
Alaska Ry.—
Development.....135, 235, 382, 489
Timber bridge problems *233
Alberta & Great Waterways Ry.....550, 606
Alberta-Hudson Bay Ry. 135, 235
Algoma Central & Hudson Bay Ry. Finance, Meetings, Etc. 188, 242, 294, 640
Algoma Eastern Ry.—
Appointments 600
Finance, Meetings, Etc. 640
Rolling stock 496, 553
Altimas, J. D., Car records and their relation to transportation and car accounting 535
American Railroad Association—
Officers Sec. 3. Mechanical 364
Telegraph and telephone division 555
(See also Mechanical Conventions at Atlantic City.)
American Railway Engineering Association.... 599
American Railway Express Co. 195, 252, 307, 442, 500
American Railway Master Mechanics Association.
(See Mechanical Conventions at Atlantic City.)
Appointments, Transportation 22, 72, 131, 185, 248, 299, 390, 433, 488, 543, 600, 657
Atlantic, Quebec & Western Ry.....194, 546, 550
Automatic Train Control Committee 668

B

Baggage loss, limited liability 370
Bagotville Ry. 18, 135
Ballast spreader attachment *190
Basford, G. M., The locomotive as an investment 371
Beatty, E. W., Canada's national economic problems 59
Belgian Railways—
Rehabilitation of 376
Rolling stock ordered in Canada 69
Birthdays of transportation men 6, 58, 113, 170, 230, 288, 364, 440, 475, 549, 607, 666
Black, R. H., How to heat railway buildings economically 637
Board of Railway Commissioners—
Appointments 543
Baggage loss, limited liability 370
Brakemen's seats on locomotives 244, 474
Car lighting regulations 139
Chairman's speech at London 306
Coal seizures authorized 603
Coal situation, power to deal with 431
Demurrage not chargeable when delays caused by customs officials 368
Express companies, jurisdiction over 252
Express franks 114
Fire protection for wooden bridges and trestles 184
Free and reduced passenger transportation 5
Freight and passenger rate increases....491, 529
Locomotive regulations for Great Northern Ry. in British Columbia 482
Locomotives and tenders, inspection of 230
Maintenance of way and flagging rules for impassable track 113
Motor car operating rules 60
Orders by, summaries of 8, 62, 137, 183, 250, 304, 385, 441, 476, 544, 608, 660
Rehearing applications 69
Sittings of 552
Smoke from railway stationary plants 23
Telegraph and telephone franks 130
Traffic orders 20, 70, 139, 187, 247, 305, 389, 435, 498, 549, 593, 648
Venereal diseases notices on railways 602
Wire crossing conditions and specifications 227, 251
Wires along and across railways 72
Booster engines for locomotives 599, *661
Borden, Sir Robt., Address to a railway brotherhood 7
Boston & Maine Rd. 550
Brakemen's seats on locomotives 244
Brandon, Saskatchewan & Hudson Bay Ry. 431
British America Express Co. 195
British Railways—
Electrification of 383
Government control, results of 133, 439
Grouping plans 378
Oil fuel experiments 594
Burrard Inlet Tunnel & Bridge Co.....18, 297, 550
Burt, A. M., Improving maintenance of way methods 643

C

Cable communication with Great Britain..... 610
Cable communication with West Indies 500
Cable extensions, British 500
Canada & Gulf Terminal Ry. 389
Canada Eastern Ry. 73
Canadian Car Demurrage Bureau 600
Canadian Collieries (Dunsmuir) Ltd. 20, 61
Canadian Express Co. 54, 110, 140, 195, 307, 390, 425, 442, 611
Canadian Express Co.'s history 538
Canadian Marconi Co., control of 546
Canadian National Express Co. 54, 110, 140, 195, 252, 284, 307, 390, 425, 442, 555, 611, 669
Canadian National Rys.—
Annual statement by Minister of Railways 223
Appointments 22, 72, 131, 185, 248, 299, 300, 390, 433, 488, 543, 554, 600, 657
British Columbia terminals 195
Capreol Y.M.C.A. 176
Construction, Betterments, Etc. 21, 73, 123, 186, 236, 387, 436, 484, 552, 610, 647
D. B. Hanna on 65
Earnings 17, 63, 121, 182, 244, 302, 378, 423, 483, 537, 602, 658
Electric railways 302
End of the year one by D. B. Hanna 14
Farmers' policy 17
Finance, Etc. 23, 294, 499
Inspection trips 477, 547, 603
Location betterments *589
Locomotives, numbering of 668
Locomotives, 6-wheel switching *19
Merging of Grand Trunk Pacific Ry. 668
Merging of Grand Trunk Ry. 376, 424, 486
Organization 176
President's message to employes 23
Receipts and expenditures 303
Revaluation proposal 138
Rolling stock orders and deliveries *19, 69, 126, 181, 241, *293, 388, 427, 442, *496, 553, 604
Staff concert, etc. 22
Canadian National Rolling Stock Co. 133
Canadian Niagara Bridge Co. 18, 135, 175, 297, 386, 550, 606
Canadian North Eastern Ry. 131
Canadian Northern Pacific Ry. Construction suit 188
Canadian Northern Ry.—
Earnings 121, 241, 302, 378, 423, 483, 537, 602, 658
Finance 75, 659
Report 116, 365
Canadian Pacific Ry.—
Appointments 22, 72, 131, 185, 248, 299, 390, 433, 489, 545, 601, 657
Birch Lake construction refused 301
Boys' club, Montreal 388
Construction, betterments, etc. 16, 75, 122, 180, 246, *291, 389, 428, 483, 551, 594, 651
Dining Car Department's war memorial.....*497
Earnings, expenses, etc. 17, 63, 121, 183, 244, 302, 378, 423, 483, 537, 602, 658
Employes' annual passes 174, 434
Employes' entertainment, Montreal 77
Equipment trust certificates 251
Finance 294, 499, 646
Honor roll 60
Information bureaus 432, 554
Mechanical Department machinery 284
Northern Alberta, entrance into 602
Officials' annual dinner 191
Pension Fund 249
President's Winnipeg speech 111
Quebec subsidies 122
Surveys, recollection of early 244
Report and annual meeting 228, 283
Rolling stock orders and deliveries 19, *26, 126, 181, 241, 293, 388, 427, *496, 553, 604, 646
Scholarships at McGill University 140
Steel hopper bottom grain car.....*26, *665
Telegraphs 390, 452, 500
Track section prize competition 307
Tree windbreaks on Western Lines 374
War and employment figures 61, 113
War veterans 437
Canadian Railway Board of Adjustment No. 1 649
Canadian Railway Club 301
Canadian Ticket Agents' Association....477, 546
Canadian Traffic League 132, 656
Canadian Transfer Co. 133, 236
Cape Breton Coal, Iron & Ry. Co. 606
Caraquet & Gulf Shore Ry. 77, 115, 384
Car construction *353
Car, Freight, Equipment, the upkeep of 641
Car, Freight, Roofs 231
Car lighting systems, regulations for 139
Car operating rules, motor, hand, etc. 60
Car records and their relation to car accounting 535
Car shortage situation 546
Car wheels *348
Central Canada Ry. 533
Central Ry. of Canada 290
Central Vermont Ry. 390
Chicago & Northwestern Ry. 489, 601
Chicago, Burlington & Quincy Rd. 185
Chicago, Milwaukee & St. Paul Ry. 185
Commercial Cable Co. 110, 308
Core hole plugs in a locomotive shop *426
Cornwall Terminal Co. 61
Cotter pin extractor *234
Couplers and draft gear 362
Crows Nest Southern Ry. 431

D

Dauphin Industrial Ry. 175
Delaware & Hudson Co.—
Appointments 299
Canadian properties 381
Demurrage not chargeable for customs delays 368
Dolly Varden Mines Ry. 135, 245, 297
Dominion Atlantic Ry.—
Appointments 545
Development 135, 175, 606
Dominion Express Co.—
General 54, 140, 252, 442, 500, 555, 669
London to Paris air service 442
Dominion Telegraph Co. 452, 500
Duluth, South Shore & Atlantic Ry.....545, 631
Dwyer, W. E. L., Railway track design and manufacture *74

E

Economic problems, Canada's national 59
Edmonton, Dunvegan & British Columbia Ry. 134, 175, 181, 235, 388, 432, 433, 487, 489, 499, 533, 545, 550, 599, 606
Electrification of British Railways 383
Electrification of Dominion Government railways urged 242
Elecrification of Paulista Ry., Brazil..... 282
Electrification of steam railways 77
Engineering Institute of Canada 599
English Channel tunnel project 12, 644
English River Pulpwood & Timber Limit Railway 645
Equipment for loading in switching operations, Furnishing of 497
Esquimalt & Nanaimo Ry.—
Development .....18, 135, ...175, 235, 297, 489, 550, 606, 645
Land grants 140, 229, 554
Essex Terminal Ry. 645
Express Companies, Among the 54, 110, 140, 195, 252, 307, 390, 442, 500, 555, 611, 669
Board of Railway Commissioners' jurisdiction 252
Express company, suit re damage to fruit.... 118
Express franks considered by Board of Railway Commissioners 114
Express rates, application for increases 427
Express service 432
Express Traffic Association of Canada 308, 427, 555, 669

F

Feedwater heaters for locomotives 341
Fire protection for wooden bridges and trestles 184
Flinflon & Mandy Mines Railway 176, 297, 606, 645
Freight and passenger rate increases 491, 529, 591
Freight and passenger traffic notes 27, 129, ...180, 240, 302, 389, 427, 482, 552, 605
Freight trains, efficient handling of 642
Fuel economy and smoke prevention *415

G

Gaspe peninsula, railway situation 118, 442
Grain elevators, Government, at Fort William and Port Arthur 384
Grain inspected at western points..... .....23, 61, 139, 194, 298, 368, 553, 594, 669
Grain in store at elevators 9, 61, 138, 188, 232, 306, 384, 440, 495, 555, 610, 669
Grain removal by rail from Fort William and Port Arthur 189
Grand Trunk Pacific Ry.—
Appointments 22, 132, 186, 299, 390, 433, 488, 543, 601
Co-ordination with Canadian National Rys. 426, 486, 668
Development..... 18, 175, 297, 428, 489, 645
Finance 74, 659
Land grant by Ontario 284
Rolling stock orders and deliveries..... .....69, 126, 241, 388, 427
Telegraphs 546
Grand Trunk Western Lines 72
Grand Trunk Ry.—
Acquisition by Dominion Government..... .....21, 74, 121, 171, 252, 289, 303, 553
Appointments 72, 131, 185, 248, 299, 390, 433, 488, 545, 601, 658
Arbitration of stock values 553, 651
Construction, betterments, etc. 18, 124, 182, 239, 292, 388, 436, 490, 548, 550, 607, 650
Earnings, expenses, etc. 17, 63, 121, 182, 302, 378, 423, 483, 537, 602, 658
Electrical operation suggested 195
Finance 659
Management committee *289
Merging with Canadian National Rys..... ..... 376, 424, 486
Rolling stock orders and deliveries..... .....69, 126, 181, 241, 293, 388. 604, 646
Graphic production control *55, 173
Great North Western Telegraph Co. 54, 110, 140, 195, 251, 308, 390. 555. 611, 669
Great Northern Ry.—
Appointments 249, 300, 390
Canadian lines' report 431
Development 235, 297, 386, 606
Locomotive regulations in British Columbia 482
Greater Winnipeg Water District Ry. 496, 553, 659
Guelph Junction Ry.—
Appointments 132
Finance 23, 646

H

Hamilton East End Incline Ry. 306
Hanna, D. B., End of Year One, Canadian National Rys. 14
Slander action against F. S. Cahill..... 303
Headlights and classification lamps 344
Houghton, F., Recollection of early surveys on C.P.R. 244
Heating railway buildings economically 637
Hudson Bay Railway..... 175, 235, 297, 386, 606
Hulatt, H., Romance of telegraph, telephone and wireless . , ... 127

I

Industrial, logging and mining railways in British Columbia 377
Intercolonial Ry. Provident Fund 180
International Ry. of New Brunswick 188
Inverness Ry. & Coal Co.....184, 482, 601
(See also Inverness Ry. & Collieries Ltd.)
Inverness Ry. & Collieries Ltd. 646, 658
(See also Inverness Ry. & Coal Co.)

K

Kendall, Capt. A. H., 58th Broad Gauge Operating Co.'s organization and work overseas *1
Kettle Valley Ry.—
Appointments 300
Development 18, 135, 175, 235, 297, 386, 428, 489, 550, 645
Finance 294, 431

L

Lacombe & Northwestern Ry.—
Development 18
Finance, meetings, etc. 242
Lehigh Valley Rd. 186
Lievre Valley Power, Traction & Manufacturing Co. 18, 135
Light Railways Construction Co. 76, 194
Light railways projected in Northern Ontario 76, 194
Locomotive as an investment 371
Locomotive boilers. Design and maintenance of *350
Locomotive firing, mechanical 6
Locomotive house organization 656
Locomotive terminal design and operation.... 359
Lomomotive repairs, Scheduling and routing systems in shops *337
Locomotive Terminal Equipment Association 27
Locomotives for Roumania 651
Locomotives, seats on 244, 474
Logging, mining and industrial railways in British Columbia 377
London, Eng., to Calcutta by rail 227
London railway terminal, tracks, etc. 588
Lotbiniere & Megantic Ry., acquisition by Dominion Government 10, 73, 245
Lumber conservation in railway crossings.... 11

M

McDonnell, T. E., The Express Service 432
Magrath, P. T., The railway situation in Newfoundland 667
Mail, railway rates for carriage of 281
Mainly About Railway People 16, 67, 119, 177, 237, 295, 379, 429, 492, 540, 595, 652
Maintenance of way methods 643
Maintenance of way and flagging rules for impassable track 113
Manitoba Great Northern Ry. 431
Marconi Wireless Telegraph Co. 54, 555
Margaree Coal & Ry. Co. 550
Master Car Builders' Association.
(See Mechanical Conventions at Atlantic City.)
Mechanical Conventions at Atlantic Citiy—
Car construction *353
Committees 303
Couplers and draft gear 362
Feedwater heaters for locomotives 341
General..... 303, *337 to 364, *469, *525, *581
Headlights and classification lamps 344
Interchange rules 364
Locomotive Boilers, design and maintenance.*353
Locomotive fuel economy and smoke prevention *415
Locomotive terminal design and operation.. 359
Mechanical stokers 360
Packing journal boxes. standard method..*347
Repair shop layouts *342
Reports, sundry 362
Scheduling and routing systems for locomotive repair shops *337
Snow fighting equipment 362, *469. *525. *581
Standard blocking for cradles of car dumping machines 346
Superheater equipment for locomotives.....*351
Welding, autogenous and electric 346
Mechanical stokers 360
Michigan Central Rd.....186, 239, 300, 601, 607
Mining, industrial and logging railways in British Columbia 377
Minneapolis, St. Paul & Sault Ste. Marie Ry.—
Appointments 249, 658
Rolling stock 126, 181
Money, Canadian, on U.S. trains 69
Montreal Central Terminal Co. 297
Montreal Harbor terminal railway, electrification of 473
Montreal Incline Ry. 436
Montreal, Joliette & Transcontinental Jct. Ry. 122, 175, 297
Montreal Telegraph Co. 110
Morrissey, Fernie & Michel Ry. 235, 242
Mount McKay & Kakabeka Falls Ry.....176, 386

N

Nakusp & Slocan Ry. 242
Napierville Jct. Ry. 381
Naylor, H. R., Freight car roofs 231
Nelson & Fort Sheppard Ry. 431
New Brunswick Ry. 294, 389
New Brunswick railway legislation disallowed 12
New Brunswick and transportation interests 134
New Westminster bridge 136
New York Central Rd.—
Appointments 249, 658
Finance, meetings, etc. 133, 294, 646
Newfoundland railway situation 667
Newfoundland transportation paralyzed by snow and cold 140
Niagara railway arch bridge, proposed enlargement . , ... 590
Normandin Farmers Ry. 18, 136
North Ry. 136
North & South American Railway Suit 383
Northern Light Rys. Co.....
.....76, 194, 235, 297, 386, 428, 489
Northern Pacific Ry., improving car service 669
Northwest Route Ltd. 136, 428
Nova Scotia Steel & Coal Co. 550

O

Ottawa Terminals Ry. 23, 76

P

Prince of Wales railway tour *15
Production, control, graphic *55, 173
Pabos, Amqui & Edmundston Ry. 136, 235, 297
Pacific Cable Board 140, 251
Pacific Great Eastern Ry.—
Appointments 186, 249. 300, 489
Development 18, 136, 235, 243, 297, 386, 550, 607, 645
Finance 76, 646
Rolling stock..... 126, 181, 241, 496, 553,*604
Packing journal boxes, standard method.....*347
Parcel post rates on mail order business..... 367
Paris, Lyons & Mediterranean Ry. 7
Passenger transportation, free and reduced 5
Peace River Valley and the Rhondda interests 115
Pere Marquette Rd.—
Appointments 186
Development 550, 645
Porcupine Rand Belt Electric Ry. 551
Postal railway tunnel in London, Eng. 485
Postal Telegraph Cable Co. 195, 500
Price, Alfred. Railway operation and maintenance under divisional organizations....*369
Prince Edward Island Ry.—
Development 236
Provident fund 180
Pullen, John, Canadian Express Co.'s history 538

Q

Qu'Appelle, Long Lake & Saskatchewan Rd. land suit 378
Quebec railway aid 60, 122
Quebec railway and industrial development 590
Quebec & Chibougamau Ry.....136, 428, 645, 655
Quebec & Saguenay Ry.—
Development 235, 609
Freight rates 184
Quebec Bridge construction cost of 242
Quebec Central Ry.—
Development 18, 137, 176, 236, 297
Finance 76
Report 306
Subsidies 122
Quebec Colonization Ry. 18, 137
Quebec Eastern Ry. 18
Quebec, Montreal & Southern Ry.—
Report 381
Subsidies 122
Quebec Oriental Ry. 546
Quebec Public Service Commission legislation 438
Quebec Rapid Transit Ry. 236
Queens County Ry. 551

R

Railway Association of Canada—
Appointments 132
Car shortage situation 546
Equipment, furnishing of for switching service 497
Freight rate increase application 434
Impounding of live stock 6
Information 194
Motor car operating rules 60
Officers, committees, etc. 382
Organization, etc. 13
Suggestions to shippers by rail 485
Ties, disposal of worn 27
Railway bonds guaranteed by Alberta 227
Railway bridges, standard specification 599
Railway Broad Gauge Operating Company (Canadian), organization and work overseas *1
Railway Car Manufacturers Association 552
Railway congestion, suggestions for relief of 641
Railway development 18, 135, 175, 235, 297, 386, 428, 489, 550, 606, 645
Railway earnings, expenses, etc. 17, 63, 121, 182, 244, 302, 378, 423, 483, 537, 602, 658
Railway engineers' classification, qualifications and salaries 115
Railway equipment, intensive use of 431
Railway finance, meetings, etc..... .....23, 76, 133, 188, 242, 294, 389, 499, 646
Railway lands patented 7, 14, 66. 139, 182, 474, 553, 599
Railway legislation in New Brunswick disallowed 12
Railway officials, training of 439
Railway operation and maintenance under divisional organization *369
Railway rails, creeping of 594
Railway rolling stock, Cuban purchasers of *644
Railway rolling stock orders and deliveries.... .....*19, 69, 126, 181, 241, *293, 388, 427, *496, 553, *604, *646
Railway subsidies in Quebec 122
Railway supply exhibits at Atlantic City conventions 363
Railway ties, disposal of worn 27
Railway ties, scarcity of, in United States.... 655
Railway track design and manufacture..... *24
Railway track laid in 1919 .....20, 74
Railways acquired by Dominion Government 22
Railways and Canals Department—
Appointments 433
Estimates 249, 430

Railways, light, for Northern Ontario....76, 194
Rates, commutation, for Winnipeg beaches district 548
Rates, freight, increase application 434
Rates, freight, non-prepayment to U.S. 123
Rates, freight, prepayment from U.S. to Canada 298, 497, 598
Rates, freight, on lumber 184
Rates, freight and passenger, increases authorized in U.S. 478
Rates for carriage of mails on railways..... 281
Rates, sleeping and parlor car, increased.... 249
Red Mountain Ry. 431
Reid Newfoundland Ry. 236, 434, 547, 553, 604, 607, 645, 646
Repair shop layouts *342
Roberval-Saguenay Ry. 19, 137
Rutland Rd. 300

S

St. George's Coal Fields Ltd. 176
St. John & Quebec Ry.—
Development 19, 176, 298
Operation of 184
St. Lawrence Bridge, additional, for Montreal 656
Salmon River & Northern Ry. 19, 137
Senger, J. W., The upkeep of freight car equipment 641
Smoke from railway stationary plants 23
Snow fighting equipment *469, *525, *581
Spidy, E. T., Graphic production control *55
Spokane & British Columbia Ry. 428
Spokane International Ry. 490
Springfield Ry. 386
Standard blocking for cradles of car dumping machines 346
Stanstead, Shefford & Chambly Ry. 646
Stationery, railway, cost of 482
Statistics, transportation, compilation of 23
Steel rail orders 170
Steel rail order suit against Dominion Government 603, 645
Steel rail production in Canada 194, 599
Steel rails for Roumanion railways *246
Suggestions to shippers by rail 485
Superheater equipment on locomotives *351
Sydney & Louisburg Ry. 137, 551
Sydney, N.S., railway and steamship terminals 232, 302

T

Telegraph and telephone franks discussed by Board of Railway Commissioners 130
Telegraph, telephone and cable matters 54, 110, 140, 195, 251, 308, 390, 452, 500, 555, 611, 669
Telegraph, telephone and wireless, romance of 127
Telegraph and telephone line estimates....251, 452
Telegraph cable to West Indies 368
Telegraph, wireless system proposed for British Empire 308
Temiscouata Ry.—
Finance 76
Future of 230
Thousand Islands Ry. 389
Timiskaming & Northern Ontario Ry.—
Appointments 132, 658
Development 176, 236, 298, 387, 490, 551, 645
Earnings 23, 76, 242
Estimates 301
Future of 21
Rolling stock orders and deliveries 241, 293, 388, 427, 553, 646
Toronto, Hamilton & Buffalo Ry.—
Development 19, 176, 236, 298, 607
Finance, meetings, etc. 389
Report 439
Toronto Union Station.....19, 133, 381, 490, 546
Train service, curtailment of 21
Transportation Club of Toronto 61
Transportation companies, sales tax applied to 432
Transportation companies, Toronto assessment of 115
Transportation interests and McGill University 648
Transportation interests and New Brunswick 134
Travelling Engineers' Association 602

U

Union Pacific Ry. 186, 249, 390
United States Railway Notes..... .....74, 123, 176, 249, 302, 651
United States railways returned to companies 132

V

Valve motion *167, 285
Vancouver Terminal Belt Ry. 137
Victoria & Sidney Ry. 61

W

Wabash Rd., Development 176
Webb, E. R., Locomotive house organization 656
Welding, autogenous and electric 346
Western Union Telegraph Co. 390, 452
Wheels, cast iron, improvements in 666
White Pass & Yukon Ry. 76
Wicksteed, H. K., Location betterments on Canadian National Rys. *589
Williams, F., Valve motion *167
Windbreaks, railway, for snow and sand..... 438
Windsor-Detroit bridge project 14, 61, 434
Winegar, B. M., Railway windbreaks for snow and sand 438
Winnipeg Railway Clerks' Association 296
Winterrowd, W. H., Snow fighting equipment *469, *525, *581
Wire crossing conditions and specifications 227, 251

ELECTRIC RAILWAY DEPARTMENT.

A

Accidents, Automobile drivers' responsibility for collisions with street cars 78
Answers to questions on electric railway topics 560, 672

B

Blair, D. E., Engineering features of tramway operation *309
Brandon Municipal Ry., rate increases 393, 449, 502
Brantford & Hamilton Ry., rate increases.. 449
Brantford Municipal Ry.—
Development 202, 257, 450
Earnings 617, 674
Rate increases 393, 449
Wages, working conditions, etc....318, 399, 451
British Columbia Electric Ry.—
Company spirit 617
Development 34, 81, 145, 202, 257, 561, 672
Earnings 35, 84, 147, 200, 257, 317, 396, 452, 507, 562, 617
Fares and expenditures 670
Jurisdiction over 316, 394, 671
Rate increase 35, 83, 141, 253, 449, 502, 614, 675
Report 146
Wages, working conditions, etc. 31, 256, 614
British Columbia Public Utilities Commission abolished 255
British tramways and light railways companies' affairs 561

C

Calgary Municipal Ry.—
Development 34, 81, 145, 202, 316, 392, 393, 503, 561, 616
Earnings....35, 86, 200, 260, 396, 452, 507, 562
Finances 674
Rate increases 141, 449, 502
Rolling stock 695
Wages, working conditions, etc. 451
Canadian Electric Railway Association, annual meeting 32, 85
Cape Breton Electric Co.—
Development 257, 316, 503
Earnings....84, 257, 317, 396, 452, 507, 617, 674
Rate increases 253, 315, 502, 556
Rolling stock 317
Wages, working conditions, etc. 318
Chatham, Wallaceburg & Lake Erie Ry.—
Development 34, 253, 503
Proposed purchase 562
Cornwall St. Ry., Light & Power Co., Finance 507

D

Detroit, Mich., Street railway situation 256
Dominion Power & Transmission Co.—
Finance 676
Purchase proposals 29
Rate increases 449
Report and meeting 197
Wages, working conditions, etc. 256

E

Edmonton Radial Ry.—
Development 34, 202, 259
Earnings 35, 84, 562
Rate increases 253
Wages, working conditions, etc. 31, 256
Electric railway industry, U.S. Commission report on 558
Engineering features of tramway operation....*309

F

Fares on Canadian street cars 671
(See also Rate Increases, Freight and Passenger.)
Finance, meetings, etc. 35, 84, 147, 200, 257, 317, 396, 452, 507, 562, 617, 674
Fire damage by electric wires, responsibility for 255
Fort William Municipal Ry.—
Development 202, 316
Fare increases 502, 556
Purchase proposals 29
Rolling stock 36, 84, 148

G

Glasgow tramways buy rails in U.S. 501
Grand River Ry.—
Development.....34, 145, 197, 259, 503, 561, 616
Fare increases 35, 83, 675
Rolling stock 259
Grand Valley Ry. finances 143
Guelph Radial Ry.—
Earnings 84
Matters . , ... 673
Purchase proposals 29, 82, 392
Wages, working conditions, etc. 318
Gaboury, A., Montreal Tramways Co.'s snow fighting work 30

H

Halifax Elecric Tramways Co.
(See Nova Scotia Tramways & Power Co.)
Hamilton, Grimsby & Beamsville Electric Ry.
Development 81, 503
Fare increases 449
(See also Dominion Power & Transmission Co.)
Hamilton Radial Ry.—
Development 257, 672
(See also Dominion Power & Transmission Co.)
Hamilton St. Ry.—
Accident suit 396
Development 145, 450, 503, 561, 672
Fare increases 253
Wages, working conditions, etc. 143, 199, 318, 399
(See also Dominion Power & Transmission Co.)
Hull Electric Co.—
Development 145, 202, 450
Fare increases 399, 614
Wages, working conditions, etc. 451, 557
Hydro Electric Power Commission of Ontario
Proposals for buying Ontario railways....29, 81
Radial railway enquiry 501, 670
Radial railway projects 29, 79, 143, 201, 254, 319, 394, 616, 673
Radial railway situation 443
Report, Auditor's, on radial railway projects 254
Rolling stock 36, 259, 646
Sandwich, Windsor & Amherstburg Ry., Purchase of 31
Hydro Electric Rys. Essex Division—
Development 392, 503, 561, 616
Wages, working conditions, etc. 399, 451

I

International Ry., wages, working conditions, etc. , , ... 318

K

Kingston, Portsmoutb & Cataraqui Electric St. Ry.—
Development 81
Fare increases 502
Kitchener & Waterloo St. Ry.—
Development 145
Earnings 147

L

Lake Erie & Northern Ry.—
Development 197, 259, 561
Rate increases 449
Rolling stock 259
Levis County Ry.—
Development 503
Gear drive snow sweeper *198
Fare increases 315, 393, 449
Rolling stock 148, *198
London & Lake Erie Ry. and Transportation Co., Liquidation of 36, 121, 450
London & Port Stanley Ry.—
Development 34, 81, 145, 202, 257, 316, 561, 616, 672
Finance 84, 562
Rate increases 141, 393, 556
Wages, working conditions, etc. 199, 256, 318, 399
London St. Ry.—
Development 145, 202
Earnings 507
Fares and wages 315, 396, 452
Purchase proposals 29
Fare increases 35, 83, 203, 253, 449
Situation 147, 562, 614, 673
Wages, working conditions, etc..... .....78, 199, 256, 504

M

Mail pay on U.S. electric railways 559
Mainly About Electric Railway People 32, 82, 147, 201, 258, 317, 400, 452, 505, 562, 615, 672
Manitoba Public Utilities Act validity questioned 144
Moncton Tramways, Electricity & Gas Co.—
Development 81, 145, 257
Finance, meetings, etc. 200
Proposed sale 315, 395, 450
Rolling stock 84, 148
Montreal & Southern Counties Ry.—
Bridge at Granby, Que. 83
Development 81, 316
Finance, meetings, etc. 674
Rate increase 141, 203, 253, 315
Wages, working conditions, etc. 31
Montreal Tramways Co.—
City sewers cost 80
Damage suit 86
Development 81, 202, 257, 450, 503, 672
Finance, meetings, etc. 35, 84, 200, 393, 452, 507
Fare increases 502
Report 613
Snow fighting work 30
Wages, working conditions, etc. 199, 256, 318, 399, 504

N

New Brunswick electric railway taxation..... 317
New Brunswick Power Co.—
Development 145, 316, 392, 450, 503, 616
One man cars 393, *448

Fare increases 141
Report 148
Valuation 260
Wages, working conditions, etc. 451
New England Street Railway Club 447
Niagara Falls, Wesley Park & Clifton Tramway Co. 147, 317
Niagara, St. Catharines & Toronto Ry.—
Development 503, 672
Future of 319
Rolling stock 148, 259
Wages, working conditions, etc. 78, 143, 199, 318
Nipissing Central Ry. Development 34, 145, 202, 450
Notes, Electric Railway 36, 84, 148, 198, 259, 317, 396, 451, 508, 558, 617, 675
Nova Scotia Public Utilities Commission and higher rates 398
Nova Scotia Tramways & Power Co.—
Development 34, 503, 561
Finance, meetings, etc. 80, 84
Rate increases 253, 315, 393
Report 397
Rolling Stock 35, 86, 198, 259
Wages, working conditions, etc. 199, 256, 318, 399

O

Ontario Railway Act amendments 395
Oshawa Ry.—
Appointments 132
Development 81, 145, 257
Locomotive, electric *391
Rolling stock 148, *391
Ottawa's traction problem 616
Ottawa Electric Ry.—
Development 34, 145, 257, 503, 672
Finance, meetings, etc. 317
Insurance plan 508
Proposed purchase 204, 612
Fare increases 83, 141, 203, 253
Service at cost proposed 79, 142
Wages, working conditions, etc. 78, 199, 256, 318, 399

P

Peterborough Radial Ry.—
Development 257, 503
Fare increases 253
Rolling stock 259
Pictou County Electric Co. 147, 675
Porcupine Rand Belt Electric Ry. 392
Port Arthur Civic Ry.—
Development 81, 202
Fare increases 556
Future of 315
History 260
Purchase proposals 29
Projects, Construction, Betterments, Etc. 34, 81, 145 202, 257, 316, 392, 450, 503, 561, 616, 672
Public utilities should be self supporting..... 616

Q

Quebec, Montmorency & Charlevoix Ry., Reported sale of 83
Quebec Ry., Light & Power Co.—
Development 561, 616
Fare increases 35
Report 557
Rolling stock 256, 259
Wages, working conditions, etc. 31, 256, 318, 399

R

Rate increases, freight and passenger.....35, 83, 141, 196, 203, 253, 315, 393, 449, 502, 556, 614, 673, 675
Rate increases in the U.S. 196
Regina Municipal Ry.—
Development 34 316, 450
Earnings 35, 507, 617
Fare increases 253, 315, 502
Rolling stock 451, 508
Rule of the road in British Columbia 29, 257, 448

S

St. John Ry. (See New Brunswick Power Co.)
St. Thomas Municipal Ry.—
Development 203, 450
Earnings 317, 507
Fare increases 204, 253
One-man cars 557, 618
Wages, working conditions, etc.....199, 256
Sandwich, Windsor & Amherstburg Ry.—
Development 316
Sale of 31, 82, 258
Wages, working conditions, etc. 319
(See also Hydro Radial Rys. Essex Division.)
Sarnia St. Ry.—
Development 616
Fare increases 315, 393
Purchase proposals 29, 82
Wages, working conditions, etc.....319, 451
Saskatoon Municipal Ry.—
Development 503
Fare increase 556, 614, 616
Service at cost proposed at Ottawa 79
Sherbrooke Ry. & Power Co.
Development 34, 672
Rolling stock 615
Snow fighting work at Montreal 30
Southern Canada Power Co. report 80
Sudbury-Copper Cliff Suburban Electric Ry.—
Fare increases 614
Finance 396
Proposed sale 450
Rolling stock 36
Sunday operation in Ontario 394

T

Taxation of substructures and superstructures in Ontario 28
Three Rivers Traction Co.—
Development 562
One-man cars *448, 507
Rolling stock 36, *448
Toronto, street railway questions 33
Toronto, transportation problems and motor busses 506
Toronto Island, electric railway connection proposed 612
Toronto & York Radial Ry.—
Earnings 35, 84, 200, 257, 317, 396, 452, 507, 562, 617, 674
Fare increases 449
Toronto Civic Ry.—
Development 34, 81, 145, 203, 316, 450. 503, 562
Earnings 84, 147, 257, 396, 452, 507, 617
One-man cars *560
Rolling stock 85. 145. 451. 508, *560
Wages, working conditions, etc. 256
Toronto Eastern Ry. 79
Toronto Ry.—
Additional cars 395
Car shortage penalty appeal 80
Development 81, 503
Earnings ..... 35, 84, ...200, 257, 317, 396, 452, 507, 562, 617, 674
Future management 614
Percentage payments 447, 507, 615
Preparations for taking over by city 78, 505, 673
Report 144
Snow removal appeal 79
Strike 480
Wages, working conditions, etc. 256, 319
Toronto Suburban Ry.—
Fare increases 142, 449, 502
Purchase proposals 82
Rolling stock 451
Wages, working conditions, etc. 504
Toronto Transportation Commission 452, 507
Toronto transportation matters 675
Track laid in 1919 36

W

Wages, working conditions, etc. 31, 79, 143, 199, 256, 318, 399, 450, 504, 557, 615
Waterloo-Wellington Ry. 33, 81, 203, 316
Windsor, Essex & Lake Shore Rapid Ry.—
Development 203
Proposed purchase 319
Rolling stock 148, 198, 259, 451
Winnipeg motor busses vs. trolley cars 618
Winnipeg Electric Ry.—
Appraisal of property 35
Development.....34, 257, 316, 392, 450, 503, 616
Earnings 35, 84, 147, 200, 257, 317, 396, 452, 507, 562, 617, 674
Expenditures 615
Fare increases 83, 253, 393, 449, 502, 556, 614, 675
Finance, meetings, etc. 258, 317, 670
Instructions to conductors and motormen.. 676
Omnibus service *562
Operating organization *559
Property improvements 557
Rolling stock 675
Situation 671
Street car problem *200
Wages payments 612
Wages, working conditions, etc. 199, 256, 319, 451, 504
Workmen's tickets 615
Woodstock, Thames Valley & Ingersoll Electric Ry. 315

MARINE AND SHIPBUILDING DEPARTMENT.

A

Aids to navigation, radiotelegraph and other electric 635
Alberta marine notes 109, 162, 216, 275, 331, 522, 689
American Association of Port Authorities.... 516
Atlantic and Pacific Ocean notes.....51, 108, 161, 215, 273, 330, 408, 462, 520, 569, 631, 687
Australian Navigation Act and merchant marine 209, 692
Awards to seamen by Canadian Government 630

B

Belle Isle Strait, proposal to close 47
British Columbia and Pacific Coast notes.... 52, 109, 162, 216, 275, 331, 409, 463, 522, 570, 632, 689
British Columbia pilotage 272
British Government merchant marine operation criticized 153
British Ministry of Shipping and Canadian business 212
Bunkering regulations on Atlantic coast 53, 514
Buoy and lighthouse service estimates for 1920-21 413

C

Canada Shipping Act amendments 218
Canada Steamship Lines Ltd.—
Agreement with British Empire Steel Corporation 466
Appointments 131, 185, 299
D. B. Hanna's connection with 245
Finance, meetings, etc. 38, 221
New steamship for Niagara River Line.... 522, *564
Operating results 678
Report 155
Winter overhaul of steamships 104
Canada-West Africa Steamship service 410
Canada-West Indies Trade agreement 516
Canadian Government Merchant Marine Ltd.—
Appointments....131, 185, 390, 433, 488, 543, 600
Apprentices for 468
Report 320
Shipbuilding, operation, etc. 37, 87, *149, 205, *261, *323, *401, *453, *513, 566, *625, *679
Steamship services 519
10,500 ton steel cargo steamship specification 101
Canadian Lake Protective Association.....92, 684
Canadian Merchant Service Guild 89
Canadian Pacific Ocean Services Ltd.—
Appointments....22, 72, 131, 248, 299, 433, 657
S.s. Empress of Britain reconditioned 459, 623
S.s. Empress of Canada, Launching 456, 511, *630
S.s. Montcalm, Launching 454, 565
Pacific Coast steamships to be converted to burn coal 691
Pacific Ocean services 321, 410
Services and shipbuilding 459
Canal estimates 1920-21 280
Canal traffic statistics 514, 572, 683
Champlain, s.s. 220, 272, 333, 409
Coal exportation prohibited 514
Cunard, Anchor and Anchor-Donaldson Lines—
Appointments 489
Atlantic services 110, 635
Customs requirements re coastwise entrances and clearance 53

D

Demountable wooden ships *93
Detroit River navigation regulations 271
Direction finding stations, radiotelegraph..... 413, 517, 576
Dominion Marine Association—
Customs requirements re coastwise entrances and clearances 53
Dues on Quebec ships at U.S. ports 691
Freeboard regulations on Great Lakes..... 691
Grain handling charges against ships..... 689
Meetings 92, 159
St. Lawrence River pilotage 211
Overhead wires across Welland canal 691
Dominion Shipbuilding & Repair Co.'s affairs 575
Drydocks—
Esquimalt, B.C. 269, 576
Louisburg, N.S. 51, 271
Toronto 514
Vancouver, B.C. 42, 156, 211, 410, 413, 456, 523, 680
Victoria, B.C. 206
Drydocks, estimates 336

E

Esquimalt drydock 269, 576

F

Fisheries control transferred to Marine and Fisheries Department 467
Fisheries protection tugs on Lake Erie..... 411
Fort William, Ont., grain shipments from.... .....48, 107, 577
Freeboard regulations on Great Lakes 691
Furness Withy & Co.'s report 684

G

German ships interned in South America, repair of 42
Grain elevators, Government, for Atlantic ports 164
Grain handling charges against ships 689
Grain shipped from Fort William and Port Arthur, Ont. 48, 107, 577
Grain shipments, U.S. embargo ex Canadian ports 518
Grand Trunk Pacific Coast Steamship Co.—
Appointments 601
Wreck of s.s. Prince Rupert 630, *682
Great Lakes & St. Lawrence navigation 623
Great Lakes ice conditions 211
Great Lakes levels 634, 682
Gulf of St. Lawrence Shipping & Trading Co.'s services 107

H

Halifax Graving Dock expropriation 214, 272, 410. 468
Hamilton harbor development 93
Harbors and rivers estimates 331
Harbors, rivers and drydock estimates 336
Hudson Bay navigation 461
Hudson's Bay Co.'s steamships 38
Hydrographic surveys in 1920 692

I

Imperial Shipping Committee 456
Inland navigation rules 220
International Seamen's Conference, Canada's position 468

J

J. A. McKee, s.s. 221

K

Kingston harbor improvements 94, 156, 206, 456

L

Lady Evelyn, s.s. 409
L'Esperance, Hon. D. O., St. Lawrence River winter navigation possibilities 40
Lighthouse service and buoy estimates 1920-21 413
Lighthouse Board of Canada 209
Longshoremen's wages at Prince Rupert..... 622
Louisburg drydock, proposed 271

M

Magdalen Islands steamship communication.. ..... 327, 683
Mail subsidies and steamsbip subventions..... ..... 280, 331, 467
Mainly About Marine People 52, 91, 159, 213, 271, 334, 412, 458, 518, 567, 634, 686
Manitoba, Saskatchewan and Alberta notes.. .....109, 162, 216, 275, 331, 522, 689
Marine casualties during 1919 54
Marine Department's annual report 102
Marine oil engine 578
Marine public works contracts 106, 158, 211, 280, 331, 409, 454, 461, 572, 635
Mariners certificates of service requirements 276
Mariners, Notices to 46, 107, 158, 209, 335, 409, 460, 523, 564, 690
Maritime Provinces and Newfoundland 51, 108, 161, 215, 273, 330, 408, 462, 520, 569, 631, 687
Montreal-Quebec pilotage district 220, 410
Montreal shipping statistics 93
Montreal Transportation Co.'s sale 413

N

National Association of Marine Engineers of Canada 157
Naval policy, Dominion Government's 263
Navigation on Great Lakes & St. Lawrence River 623
Navigation regulations on Detroit River..... 271
Navy League of Canada 163
Newfoundland Marine Notes 51, 108, 161, 215, 273, 330, 408, 462, 520, 569, 631, 687
Newfoundland steamship services 633
Nipawin, s.s., Ross Navigation Co. *109
North Land, s.s., Cutting in two of *332
Northern Alberta navigation 414
Northumberland, s.s., transferred from Atlantic coast to Lake Ontario 407

O

Ocean and rivers service estimates 1920-21.. ..... 280, 468
Officers, steamship, for ocean, lake and river steamships 208, 270
Ontario and Great Lakes 52, 108, 162, 215, 274, 330, 408, 462, 521, 569, 631, 687

P

Panama Canal traffic 524, 565
Payne, J. B., The U.S. Shipping Board's work and future policy 154
Pictou harbor control transfer 327
Piles in intertidal spaces, durability of..... 222
Pilotage in British Columbia.....48, 99, 272, 328
Pilotage, Canada Shipping Act amendments 322
Pilotage, Montreal-Quebec district.....220, 410
Pilotage, St. John, N.B. 571
Pilotage, St. Lawrence River 52
Port Arthur, Ont., Grain shipments from.... .....48, 107, 577
Port Arthur Shipbuilding Co.'s report..... 623
Prince Edward Island car ferry service..... 626
Prince Rupert Drydock & Engineering Co. suspends operations 685
Prince Rupert, s.s., wreck of 630, *682

Q

Quebec canals staff 152
Quebec Province, marine notes .....162, ...215, 273, 330, 408, 462, 521, 569, 631, 687
Quebec ships at U.S. ports, dues on 691
Quebec Steamship Co.'s sale 328

R

Rates increased on Atlantic Coast, Gulf of Mexico and Great Lakes 577
Roumanian goods shipped through U.S. ports 222

S

St. John, N.B., harbor development, and drydock and shipbuilding repair plant construction *265, 412
St. John, N.B., pilotage regulations 571
St. John Drydock & Shipbuilding Co.'s bonds 572
St. Lawrence River, icebreakers for....220, 410, 510
St. Lawrence River ice conditions 219
St. Lawrence River improvements 635
St. Lawrence River, proposed navigation and and power development 210
St. Lawrence River, winter navigation....40, 104
Sailors, lake, advice to 689
Saskatchewan marine notes 109, 162, 216, 275, 331, 522, 689
Sault Ste. Marie canals traffic 47, 327, 406, 462, 521, 569, 623, 683
Shipbuilding—
Australian 412
British 220, 321, 412, 626
Canadian Government Merchant Marine 37, ... 87, *149, 205, *261, *323, *401, *413, *513, 566, *624, *679
Dominion Government programme 96, 277
Dominion Government, building of 18 knot passenger steamships opposed 163
Estimates for 1920-21 272
General, throughout Canada....*43, *98, *160, 212, 270, *329, *405, *457, *509, *563, *628, *677
Dominion Government aid to 464
Industry, cost of operation of steamships, etc. 573
Japanese depression 519
United Kingdom's position 153, 517
Wooden, in British Columbia, Dominion Government aid 100, 276, 407
In Canada for British Government..... 152
In Canada for overseas in 1919 158
In Canada, Suggested bonussing of 95
In Scotland in 1919 and 1920 153
Statistics 461
Ship channel estimates for 1920-21 272
Shipping—
Canadian, losses during the war 49, 110, 157
Canadian, position of 519
Federation of Canada 159, 217
Offices removed from U.S. to Canada..... 633
Restrictions favoring U.S. ships on the Pacific 157
Shipping, shipbuilding, steel and coal merger projected 411
Ship owners' rights in partially built ships under liquidation proceedings 684
Ships—
Added to and deducted from Canadian register 46, 100, 206, 273, 408, 464, 520, 572, 626, 689
Built in Canada for other countries..... 94
Registered in Canada 41, 106, 214, 275, 407, 463, 512, 571, 633
Trading with Canada, proposed Dominion Government control 271, 321, 333
Sorel Government shipyard superintendency , , ...101, 412
Stanley, s.s. 220
Steamship inspectors—
Canada Shipping Act amendments.....276, 406
Fees 678
Steamships inspected—
Collingwood 334
Quebec and Vancouver 50
Steel plate disposal by Marine Department.. 685
Sydney, N.S., steamship terminal 461

T

Toronto floating drydock 514
Toronto Harbor Commission 622
Toronto harbor contract 53
Toronto harbor improvements 333
Trent Canal—
Construction 410
Marine railway operator 100

U

United States Merchant Marine Act, probable effect of 411
United States navigation wages on the Great Lakes 272
United States—
Shipping Board's work and future policy 154
Shipping and shipbuilding notes 49, 94, 158, 209, 269, 413, 519, 567, 690
Ships to the sea via St. Lawrence River.... 335

V

Vancouver—
Drydock.... 42, 156, 211, 410, 413, 456, 523, 680
Harbor improvements 45
Victoria—
Dock case , ... 206
Harbor improvements , ... 328
Harbor tunnel 222
Port of *619

W

Welland Canal—
Lock gate accidents 334, 465, 576
Navigation 686
Welland Ship Canal construction 411, 465
West Indies steamship services.....516, 633, 683
Winter moorings of Canadian steamships, 50, 101
Wireless telegraphy—
Compulsory on ships 206
Requirements on British ships 47
Workmen's Compensation Act and seamen.. 54
Wreck Commissioners' Enquiries and judgments—
Bohemian, loss of 219
Canadian Volunteer, grounding 105
Canadian Voyageur-Howard D. Troop, collision 333
Chama, stranding 690
Chelston, loss of 523
Clare Hugo Stinnes I, stranding 690
Edward Pyke, stranding 635
Georgie, stranding 690
Germanicus, stranding 42
Hamonic, stranding 465
J. A. McKee, stranding 570
Lakeport-Howard W., collision 105
Manchester Division, stranding 465
Manchester Division-Tunisian, collision..... 570
Margaret Hackett-Brookdale collision 523
Metagama, stranding 570
Montreal-Henry B. Hall, collision 690
Pictou-Laurier Pier, collision 465
Quebec, stranding 465
Prince Albert-Prince John, collision 409
Rio Negro, stranding 42
Tuscarora, stranding 570

APPOINTMENTS AND BIOGRAPHICAL.

A

Adams, C. W..... 601
Adams, F. G. 540, 544
Adams, J. H..... 131
Adams, J. O.....433, 492
Ades, A. C. 248
Aitchison, J. F. 651
Alfred, F. H. 186
Allen, J. S. 433
Anderson, G. 185
Anderson, J. 379
Appleton, W. U. 540, 543, *544
Armstrong, J. T. 22
Arthur, H. R. 185, 237
Ashdown, J. H. 300
Audrain, J. A. 237, 248
Ayer, L. E. 488, 492

B

Baillie, G. M. 433, 492
Baird, W. 22
Balfour, G. A. 132
Bamford, W. B. 379, 390, 429
Bannerman, J. M. 543
Barber, J. H. 237, 248
Barker, A. C. 657
Barnett, G. C. 22
Barnsley, John 412
Barnwell, E. A. 299
Beardshaw, A. 185
Beaumont, H. B. 72, 159
Becker, W. A. 186
Bell, R. H. 544
Bennett, A. E. 601
Bennett, B. H. 489
Benson, M. R. 602, 652
Bertie, D. 185
Best, T. H. 600, 652
Bibby, W. 433
Bigelow, F. C. 658
Bird, A. M. 185
Black, J. R. 600
Black, R. N. 131
Blackwell, K. W. 379
Blake, H. P. 543
Blake, W. C. 543
Boer, G. L. 601
Borbridge, W. 652
Boucher, W. R. 248
Bourlier, H. C. 600
Bovard, C. 433
Bower, E. 544
Bowie, E. G. 295, 299
Brady, F. P. 652, 657
Bradshaw, G. 177, 185
Brewer, H. H. 488
Broderick, E. 131
Brookes, C. E. 652
Brophy, G. D. 299
Brostedt, A. 544, *595
Brousseau, L. 390
Brown, C. B. 600
Brown, C. H. 544
Brown, E. N. 186
Brown, G. H. 72, 119, 489, 492
Brown, L. S. 654
Brown, S. A. 72
Brown, S. P. 16
Brown, T. J. 601
Brown, T. W. 22
Brown, W. L. 544
Buchanan, H. G. 390
Buckworth, A. B. 489, 492
Bulgin, E. J. 545
Buller, F. J. 72, 600
Bunting, G. E. 390, 412
Burgis, J. H. 131, 488
Burke, W. H. 488
Burnap, R. L. 119, 131
Burns, T. J. 237
Burns, W. 543
Burpee, F. D. *317
Burpee, G. B. 131
Burr, W. J. 248, 433
Burrows, Acton *32, 85
Butler, F. L. *505

C

Callahan, J. D. 72
Callaway, W. R. 545, 601
Campbell, D. R. 600
Cambie, H. J. 177, 185
Cameron, J. 131, 489
Cameron, J. D. 544
Cameron, J. R. 488, *652
Canfield, L. J. 249
Carey, A. D. 390, 439, 544
Carey, F. 600
Carey, F. F. 657
Carleton, R. V. 390
Carlson, O. 132
Carroll, T. 22, 72
Carson, H. A. 433
Caswell, J. R. 248, 295, 299
Cawley, W. F. 185
Chappell, B. T. 544
Chipman, J. R. H..... 545
Chisholm, R. 544, 652
Chown, A. B. 429, 433
Clark, F. 299
Coates, S. C. 433
Coleman, D. C. 300
Coleman, Jas. 295, 299
Collins, G. 433
Connell, J. W. 544, 657
Connolly, W. G.....544, 652
Cooper, D. D'E. 131, 213
Copeland, J. M. 390
Corbett, J. W. 52
Corcoran, J. H. 488, 540
Couzens, H. H. *615
Cowan, H. W. *92
Cowie, C. D. 600
Cox, A. E. 543
Crabbe, S. W. *237, 248
Cramer, J. L. 186
Crawford, D. M. 429, 433, 543
Crawford, D. T. 658
Crawford, E. 543
Creelman, R. 488, 540
Creighton, F. J. 544
Crombie, D. 600, 652
Cuncliffe, G. 544
Cunningham, J. H. 249
Cunningham, W. A. 543

D

Daem, J. 185
Dalrymple, J. E. 132
Davidson, A. 544

Davidson, W. R. *177, 185
Davis, A. H. 492
Davis, S. G. 658
Davison, J. E. 544
Dean, A. R. 131, 213
Dearing, F. 601
Devenish, W. R. 657
Devine, A. 657
Dey, V. A. G.....237, *248
Dickson, M. C. 295
Disney, C. P.... 16, *22, 67
Dixon, H. A. 540, 543
Doherty, J. P. 52, 543, 600
Doherty, W. M. 248
Donaldson, G. L. 601
Downey, E. J. 600
Doyle, R. 379
Driscoll, J. P. 543
Druce, L. V. 544
Drummond, D. 433
Duff, J. H. 488
Dufief, H. B. 601
Duffy, M. L. 248
Dulmage, S. D. 299
Dunn, E. O. 545
Dunn, M. C.... 600, 601, 653
Dunsmuir, Jas. 379
Duperow, W. E. 488, 540
Duval, J. E. 237, *238
Dye, E. A. 249

E

Eager, A. H. 543
Earle, C. F. 544
Eastman, A. *33
Eastman, W. R. 433
Eaton, Sir John C.....16, 22
Edgley, G. R. 543
Edmonson, W. H. 185
Edward, J. D. 131
Edward, J. H. 248
Edwards, A. E. 299
Edwards, J. A. 299
Edwards, J. H. 131
Ehrke, J. 658
Elliott, E. C. 119, 131
Elliott, F. S. 390
Elliott, R. H. 131
Evans, W. K. 433

F

Fairbairn, R. L. .....
..... 595, 600, *601
Fallon, T. M. 300
Farley, P. J. 600
Farr, B. J. 177, 185
Faughnan, B. 545
Ferguson, J. 185, 237
Ferguson, W. A. 600
Finglass, W. B. 433
Fish, R. H. 131, 177
Fitch, W. A. 433
Fitzmaurice, W. R. 237, 248
Flinn, E. F. 131, 488
Flinn, F. O. 185
Flugge, C. F. A..... 185
Fonger, L. A. 540, 544
Fontaine, J. E. 248
Foreman, H. G. 543, 600
Foreman, R. J. 488, 492
Foss, C. O. 493
Foss, W. C. 185
Foster, F. 72, 131
Fouse, F. 299
Fowler, G. F. 22
Fox, C. H. 185, 237
Foy, F. C. 249, 653, 658
Francis, E. 433
Fraser, E. B. 185
Freeman, E. 433
Friend, C. E. 543
Fryers, J. M. 248

G

Gaboury, A. *33
Gale, G. Gordon *33
Gantt, I. W. 433
Gauden, Mrs. E. H. 546
Gays, H. K. 544
Gilkerson, W. J. 488
Gilmour, A. G. 543
Ginnelly, T. 600, 653
Glazebrook, J. 657
Goad, G. N. 543, 595
Goodeve, A. S. *653
Goodfellow, F. M. 186
Gorbell, A. P. 657
Gormaly, C. A. 131, 488
Gorman, E. F. 546
Gould, F. 249, 489
Gow, A. H. 433, 493, 600
Gracey, T. J.....131, 177, 185
Grant, Gordon 295
Grant, W. H. 600
Greene, S. M. 544, 595
Greer, John 546
Grieve, J. M. .....
....248, 379, *380, 540, 543
Griffin, F. 543
Groat, J. H. 22
Grout, H. C. 238, 248, *295
Gunn, D. R. 600
Gutelius, F. P.....299, 653
Gutelius, N. E. 248
Guthrie, W. C. 238, 248
Guy, W. M. 72, 186
Gzowski, C. S. 595, 600

H

Hacking, E. 544
Haigh, C. J. 72, 433
Hair, G. M. 600
Hall, Grant 382
Hall, W. S. 489
Halstead, John 299, 379
Hamill, H. H. .....
.....119, 132, 489, 493
Hamilton, D. 132
Hannaford, J. M. 119
Hannah, A. T. 299
Hansard, H. H. 600
Harlow, R. A. 186
Hatfield, L. M. 390, 458
Hately, W. 488, 540
Hawken, H. E. A..... 686
Hawkins, J. 131
Hay, R. 544
Hayden, F. G. 600
Hayes, C. A. *289, 488
Hazen, H. T. 600
Hazzard, S. 185, 249
Head, H. S. 433
Heaman, J. A. *541, 543
Hebert, L. 433
Hemsworth, G. M. 544
Hertzberg, A. L. 67
Hertzberg, C. S. L. 16
Heywood, H. P. 213
Hiam, T. A. 119, 131, 429
Hibbard, G. W. 185
Hickie, C. H. 600, 601
Hickson, J. W. 658
Higgenbottom, F. V..... 186
Hilliard, E. J. 429, 433
Hinton, W. P. 481, 493
Hoag, G. A. 543, 596
Holman, J. G. 390
Hookway, A. E. 658
Hopper, F. W. 429
Horn, J. M. 488, 541
Howard, C. K. 429, 433
Howard, W. H. 249
Hughes, W. J. 131
Hulatt, H. 546
Hungerford, S. J. .....
..... *289, 488, 541, *543
Hunter, W. C. 120, 131
Hutcheson, J. E. *32
Hutchinson, F. L. 657
Hyman, T. M. 299, *379, 380

I

Irvine, J. A. 248
Irving, T. T. 185
Irwin, J. 488, 544

J

Jackson, J. B. 299
Jackson, J. W. 299
Jamieson, J. L. 433
Jeffrey, W. R. 390
Jenkins, F. J. 248
Jenney, C. E. 544
Johnson, C. Gardner 221
Johnston, G. F. 544
Johnston, J. W. 657
Johnston, R. E. 544
Johnstone, J. W. N. 596, 600
Jones, D. 657
Jones, D. L. 390
Jones, L. K. 177

K

Kane, H. E. 543
Kearney, T. 248
Keeley, B. C. 185, 433
Kelley, H. G. *289, 290
Kelly, W. R. 543
Kelman, J. A. C. 299, 380
Kempsville, H. R. 185
Kendall, A. H. *1
Kennedy, D. R. 601, 657
Kerr, J. M. 299
Kilby, W. H. 544
Kilpatrick, A. 544
King, Francis *91
King, R. 299
King, T. 541, 546
King, W. J. 131
Kingsland, W. A. 657
Kirkpatrick, J. 390
Kirkpatrick, J. P. 438, 544
Kirkpatrick, W. A. .....
.....72, 120, 248, 544, 596

L

Labrecque, A. 423
Labrie, C. C. 600
Lackey, T. J. 185
Lambkin, H. J. 248, 296
Lancaster, M. 543
Landry, A. T. 299
Langham, E. 488, 657
Larocque, A. A. *91
Lash, Z. A. 67
Lavoie, L. 653, 657
LeBar, W. O. 201
LeBlanc, J. E. 488
Leborveau, S. 300
Leger, S. E. 433
Legrand, J. G. .....
..... 541, *542, 543
Leney, J. M. 543
Lenon, A. F. 544
Letch, A. J. 600
Lett, R. C. W. 600
Lewis, H. M. 601
Lewis, S. R. 601
Leyfield, F. A. 300
Lillie, J. S. 185, 258
Lipsett, A. C. 544
Little, W. J. 249
Logie, E. R. 185, 380
Louden, T. 433
Lowe, T. S. 299
Lowle, F. F. W.....131, 178
Lupton, S. J. 543

M

McAdam, R. A. 489
McArthur, J. 601
McAuley, J. D. 657
McBride, G. 249
McCarron, M. 433
McCauley, T. H. *201
McCawley, J. 600
McClelland, J. 657
McCormick, J. H. 544
McCowan, A. 543
McCuaig, D. J. 185
McCutcheon, L. 657
McDonald, E. 600
MacDonald, G. E. 186, 249
McDonald, J. D. .....
120, 132, *178, 489, *493
Macdonald, J. K. 380
McDonough, T. W. 544
McFadyen, J. 131
McGettigan, P. 132
McGhee, C. P. 390
Macgillivray, J. 22
Macgregor, J. A. .....
.....433, *540, 541, 545
McGuire, G. A. 433
McGuire, J. F. 299, 544
McIlroy, W. 299, 380
McKay, G. G. 654, 657
McKean, A. T. 299, 380
McKean, H. L. 22
McKie, S. E. 601
McKillop, R. 178, 185
McLeod, K. E. 544
MacLeod, M. H. 488, 543
Macleod, R. F. 489
MacMillan, R. M. 299, 380
MacNab, J. V. 131
McNaughton, A. B. .....
..... 178, 185, 249
McNaughton, R. F. 544
McNicholl, G. A. 544
McNutt, J. D. 657
Macrae, J. M. 488
McWood, J. 185
Macabe, T. J. 601
Madill, J. 544
Maguire, A. 601
Maharg, C. S. 489, 493
Mahon, A. H. 601
Main, H. J. 601
Mallison, H. R. 258
Manders, W. G. 488, 541
Maney, J. 601
Manning, C. 390
Marpole, R. 380
Marsales, B. R. 544
Martin, C. F. 544, 654
Martin, R. H. 248
Martin, W. E. 186
Martin, W. L. 545, 601
Mash, G. R. 296
Massie, W. E. 238
Mathison, W. J. 249
Mathews, A. E. *92
Mathewson, H. R. .....
..... 654, 657, 658
Matthews, H. W. 658
Maver, A. A. 493
Meachem, H. C. 657
Melanson, H. H. 488, 542
Merriam, S. L. 186
Merritt, R. H. 545
Messeroll, D. C. 185
Melburne, H. M. 390
Miller, F. R. 615
Miller, R. A. 299
Miller, S. H. 248
Milliken, R. M. 545
Mitchell, A. J. 488
Mitchell, R. M. 543, 657
Mitchener, A. J. 300
Moffatt, T. 131
Mole, H. 601
Montgomery, G. A. *600
Mooney, P. 489, 493
Moore, C. R. 296, 299, 390
Moore, R. S. 390
Moore, S. 248
Moore, T. J. 132
Morgan, H. M. 657
Morrison, H. K. 178, 185
Morse, C. S. 380, 390
Mount Stephen, Lord.... *16
Mullins, A. Z., ...
.....120, 132, 489, 494
Muncey, L. F. 545, *596
Munro, A. S. 489
Munro, W. I. 545
Mutchler, C. B. 132, 186

N

Napier, J. J. 543
Naylor, H. R. 545
Neal, W. M. 151, 248
Needham, C. F.....299, 381
Nelligan, J. J. 686
Nelson, F. P. 433
Nelson, G. L. 132
Nelson, J. E. 545
Nichol, R. R. 601
Nicholson, C. H. 542, 543
Nicholson, R. F.....219, 296
Norman, F. L. 545, 597
North, G. A. 545
Norton, J. H. 545
Nowell, G. H. 120, 131

O

O'Brien, W. P. 131, 185
O'Donnell, J. C. 657
O'Neal, J. W. 601
Orttenberger, C G. .....
..... 132, 178, 489
Osborne, H. S. 178
Owens, W. C. 185

P

Parent, S. N. 542
Pakenham, J. H. 543, 596
Parkinson, J. H. 601
Patriarche, A. 494
Paul, John 545
Peck, J. S. 545
Pendleton, B. 657
Pepall, G. 189, 494
Percy, T. R. 91
Perley, G. H. 72
Perry, G. D. 546
Peterson, J. C. 249
Phillips, Wm. .....
.....131, 178, *179, 545
Philp, J. F. 545
Pierce, C. J. 433
Pierce, J. F. 131, 213
Piggott, W. J. 186
Pitt, W. A. 299
Ploss, H. W. .....
.....132, 179, 489, 494
Porter, F. R. 489, 494
Pratt, W. 543
Pringle, T. E. P.....545, 596
Ptolemy, W. J. 542
Pulford, W. 132
Purvis, Allan 238

Q

Quantic, C. J. 601
Quilty, B. J. 131, 299
Quinlan, Jos. 131
Quinlan, W. J. 545

R

Raeburn, Sir E. M. 658
Reid, J. G. 489
Richardson, R. F. 72
Riddell, C. P. 132
Ridell, J. M. 179
Rimstad, A. 22
Ripley, Blair 22, 68
Rippey, W. N. 657
Rivers, W. E. 543
Robb, W. D. *290
Robertson, D. 545
Rogers, W. K. 249
Roome, G. W. 248, 412
Rooney, P. A. 545
Rosevear, A. E. 488, 542
Ross, W. LeB. 543, 657
Rosseter, F. S. 433
Rouleau, L. J. 430, 433
Ruel, Gerard 239, 248, 488
Ruhl, H. T. 120
Russell, G. M. 601
Russell, W. A. B. 545, 596
Rutley, B. G. 545
Ruttan, H. N. 654

S

Safford, H. R. 179, 185
Sample, F. L. 546, 597
Sample, W. H. 132
Savage, J. K. 248, 299
Sawyer, W. F. 488
Schofield, J. 545
Scott, Frank *290
Scott, J. R. 545, 597
Scott, S. O. 488
Secord, W. F. 22, 72
Semmens, E. J. 657
Sewell, R. A. 601
Sharpe, A. E. 249
Shaw, F. A. 543, 597
Sheppard, A. A. 657
Sims, C. S. 299
Skog, C. A. 545
Smart, G. E. 543, 601
Smiley, E. S. 299
Smith, D. M. 131
Smith, E. F. 390
Smith, E. M. 545
Smith, H. B. *567
Smith, V. G. 489
Snell, A. W. 299
Snyder, A. A. 433
Solly, L. H. 433
Sparling, J. M. 489, 494
Spence, H. M. 601
Spicer, W. H. .....
.....132, 179, 489, 494
Springett, J. 601
Stapleton, W. 545
Stark, C. A. 546
Stabbing, E. T. 22
Steeper, D. W. 131, 248
Stephen, G. 488
Sterling, F. W. 381, 390, 489
Stevenson, D. 72
Stewart, A. F. 601
Stibbard, C. C. 545, 597
Stitt, W. L. 299
Stockbridge, L. C. 185
Stovel, R. W. 69
Strachan, W. G. 131
Stubbs, R. M. 488
Stuart, H. A. 545
Studd, H. G. 131, 239
Sturges, W. J. 601
Sunderland, J. J. 543
Sutherland, P. D. 72, 159
Swalwell, J. G. 657
Swan, W. G. 91, *213
Swartz, H. C. 433, 489
Sykes, S. H. 185

T

Tansley, W. 381, 390
Taylor, H. C. 390, 430
Tedford, E. E. 390
Temple, R. H. M. 601
Thomas, G. M. 430, 433
Thompson, M. D.....545, 597
Thompson, W. H. 600
Thomson, L. C. .....
..... 542, 543, *545
Thorpe, E. R. 186
Thurber, C. H. 600
Tiffin, E. 597
Tilley, H. F. 545
Tisdale, A. A. .....
..... 488, 544, 597, 601
Tisdale, F. W. 601
Tobin, J. A. 601
Tomkins, W. C. 132
Tozer, T. S. 433
Trudel, J. A. 543, 598
Trusler, S. L. 658
Tulley, H. G. 82
Turnbull, T. 545
Turnbull, W. H. 22
Turner, F. C. 489, 518

U

Uren, W. J. .....
..... 239, 248, *296, 299
Utley, T. D. 22, 68

V

Vanalstine, W. A. 545
Van Horne, Sir William *17
Vass, John 120, 132
Vaughan, R. C. .....
.....488, 654, *657
Vaux, G. W. 186
Veroneau, L. A. 489
Virtue, O. I. 390

W

Wagner, C. E. 489
Wagstaff, S. G. .....
..... 72, 433, 495
Wainwright, C. S. 72
Walkden, W. 542, 545
Walkem, H. B. 601
Walker, E. B. 543
Walker, L. D. 68
Walton, N. B. 545, 598
Wardrop, John 601
Warren, A. E. 488, *492, 495
Warren, J. J. 300
Watkins, H. E. 249, 390
Watson, T. G. 543
Watt, A. 601, 654
Waugh, Jas. 72, 655, 657
Way, W. B. 488
Weatherston, R. J. S...
..... 430, 433
Webber, W. 72
Wheeler, C. A. 433
Wheelwright, B. .....
..... 179, 186, 239
White, T. P. 545
Whittenberger, H. E. ....
..... 120, 132, *185
Wickerson, E. G. 545
Wilcox, A. 545
Williams, A. 239, 248, 299
Wilson, J. H. 299, 381, 390
Wilson, R. 489
Wilson, T. A. 239
Wilson, R. 300
Wilson, T. A. 248
Winterson, F. A. 545
Wollen, H. B. 248
Wolvin, R. M. 222
Wood, D. O. *488, 489, 495
Wood, E. H. 300
Wood, F. G. 433, 488, 495
Wood, G. W. 131
Woodman, J. M.....239, 249
Worby, C. H. 248, 296
Wright, J. A. .....
.....249, 296, 489, 495

Y

Yates, F. 545, 598, 601
Yates, G. W. 433
Young, H. A. 72
Young, W. R. 601

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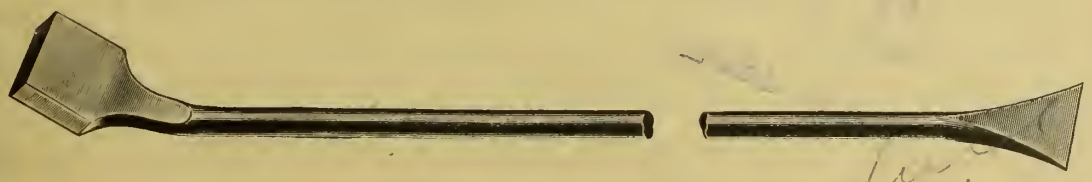

"Made in Canada"

Place your orders for Track Tools early this year and specify "Canadian Made". The reasons are obvious.

We offer you a properly designed tool equal to any imported and give you a Canadian guarantee.

Order direct or through our agents.

B. J. Coghlin Co., Limited

Office and Works : **2050 Ontario St., East**

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Steam Railways and General, Page 177. Electric Railways, Page 209. Marine and Shipbuilding, Page 217.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

DAVIS STEEL WHEELS

Heavy Cars, such as Coal Cars, operating on steep grades, place the wheels used under the heavy equipment of today under excessive strain.

The Davis Steel Wheel is especially adapted to meet this service. Out of 8000 Davis Steel Wheels used under Coal Cars, operating on a certain grade, not one has developed a defect in four and a half years' service.

KILL

INTERNATIONAL EQUIPMENT CO. LTD.

MONTREAL, QUEBEC, CANADA.

KENNEDY PROPELLER WHEELS

Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

Marine Machinery Anchor-Windlasses Winches, etc.

Steel Castings, All Sizes

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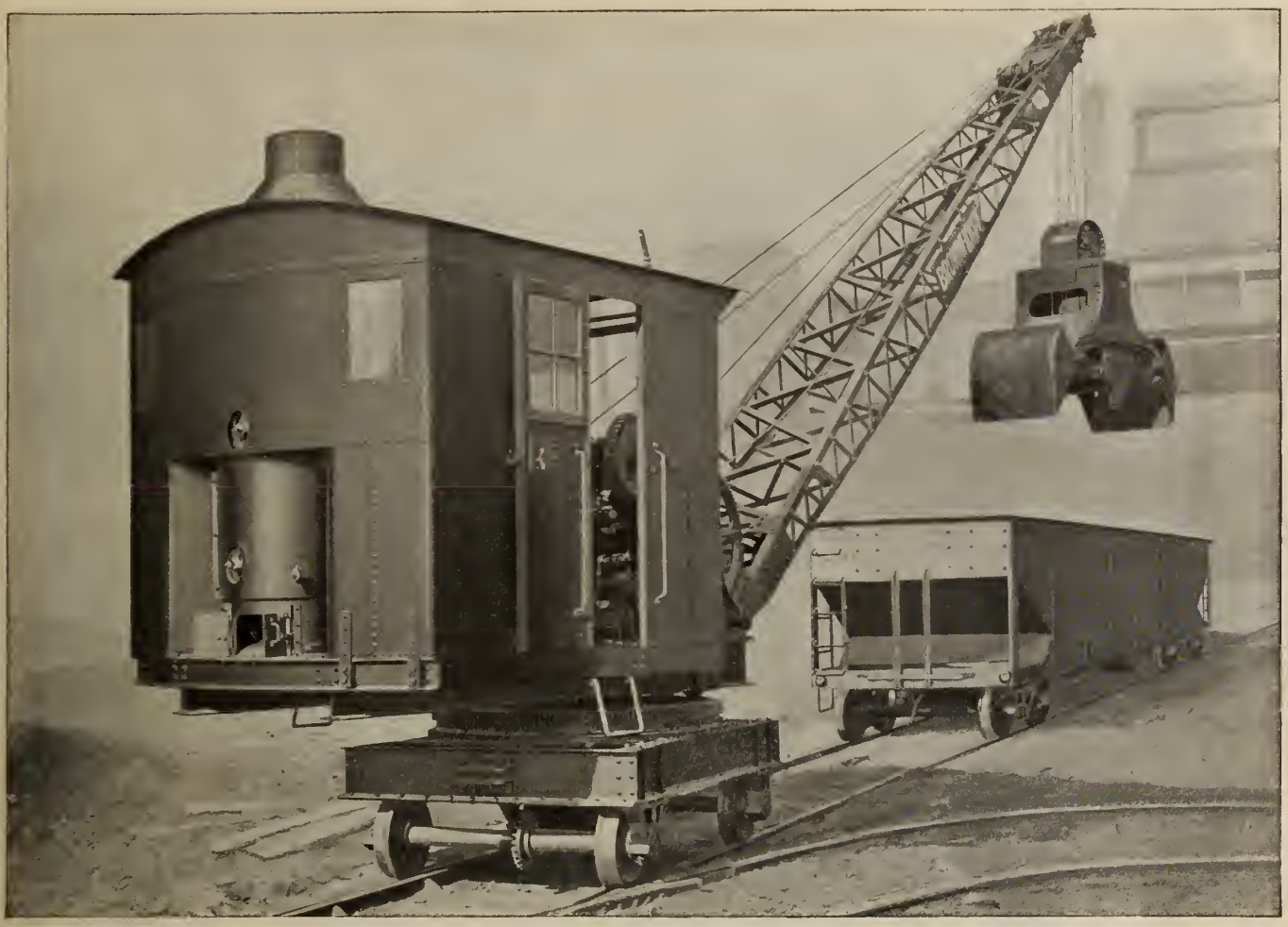
THE WM. KENNEDY & SONS, LIMITED : OWEN SOUND

ESTABLISHED 1860



For your handling need—
A small Brownhoist

Perhaps the materials you handle are not heavy nor bulky enough to use a large locomotive crane economically. But on many jobs a crane of smaller capacity would probably save you a good deal of time and money. To provide a small, versatile locomotive crane for this light handling work Brownhoist is now building a crane of smaller handling capacities.

Severe tests on all kinds of work have proved that this new No. 2 Brownhoist locomotive crane will do everything within its capacity that the larger Brownhoists are doing. And these larger types have won a reputation for hard, steady work on every kind of material handling. Many of them have been giving good service for over twenty years.

Some handling jobs similar to your own are probably shown in our new catalog K. Among these views are several of this new No. 2 Brownhoist. This book might suggest some ideas in regard to your handling. May we send you a copy?

BROWNHOIST

No. 2 Locomotive Cranes

are built to operate by steam, electricity or gasoline engine. They are supplied with railroad or traction road wheels or Brownhoist creeper trucks. And they have unusually fast operating speeds when handling either bucket, magnet, bottom block or other attachments.

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LAST AD.

The Brown Hoisting Machinery Company

40 Years in Crane Business — **Cleveland, Ohio, U.S.A.**

Engineers and Manufacturers of Heavy Dock Machinery, Bridge Cranes, etc., as well as smaller Cranes and Hoists.

Branch Offices in New York, Pittsburgh, Chicago and San Francisco.
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Cab Tire Cable

The Cable De Luxe for Industrial Purposes

This advertisement illustrates:

A length of Northern Electric Cab Tire Cable
One Northern Electric No. 511 Marine Plug and Receptacle
One Northern Electric No. 407 Cargo Cluster

This portable combination is specially adapted for use in shipping departments of industrial plants and in loading and unloading operations on board ships, in railway yards and in general construction work.

Cab Tire Cable is exceptionally flexible and durable and is ideal for use in localities where dampness or gas fumes abound and where other types of cable would be subject to mechanical injury.

Our nearest house will be glad to give your inquiries immediate attention.

Northern Electric Company
LIMITED

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The BERTRAM Page

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JB&SCo

48"X 48" Openside Planer

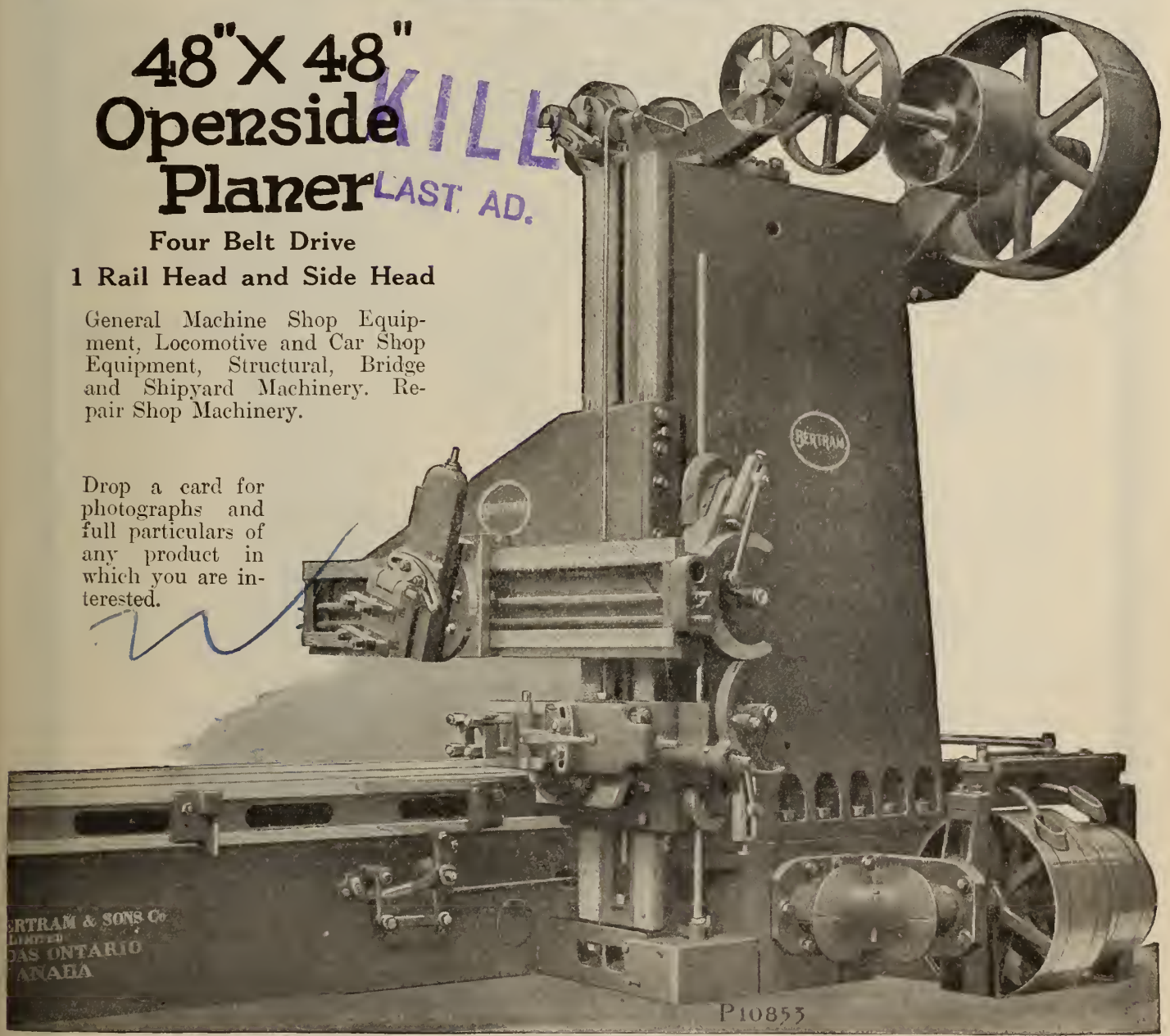
KILL LAST AD.

Four Belt Drive

1 Rail Head and Side Head

General Machine Shop Equipment, Locomotive and Car Shop Equipment, Structural, Bridge and Shipyard Machinery. Repair Shop Machinery.

Drop a card for photographs and full particulars of any product in which you are interested.



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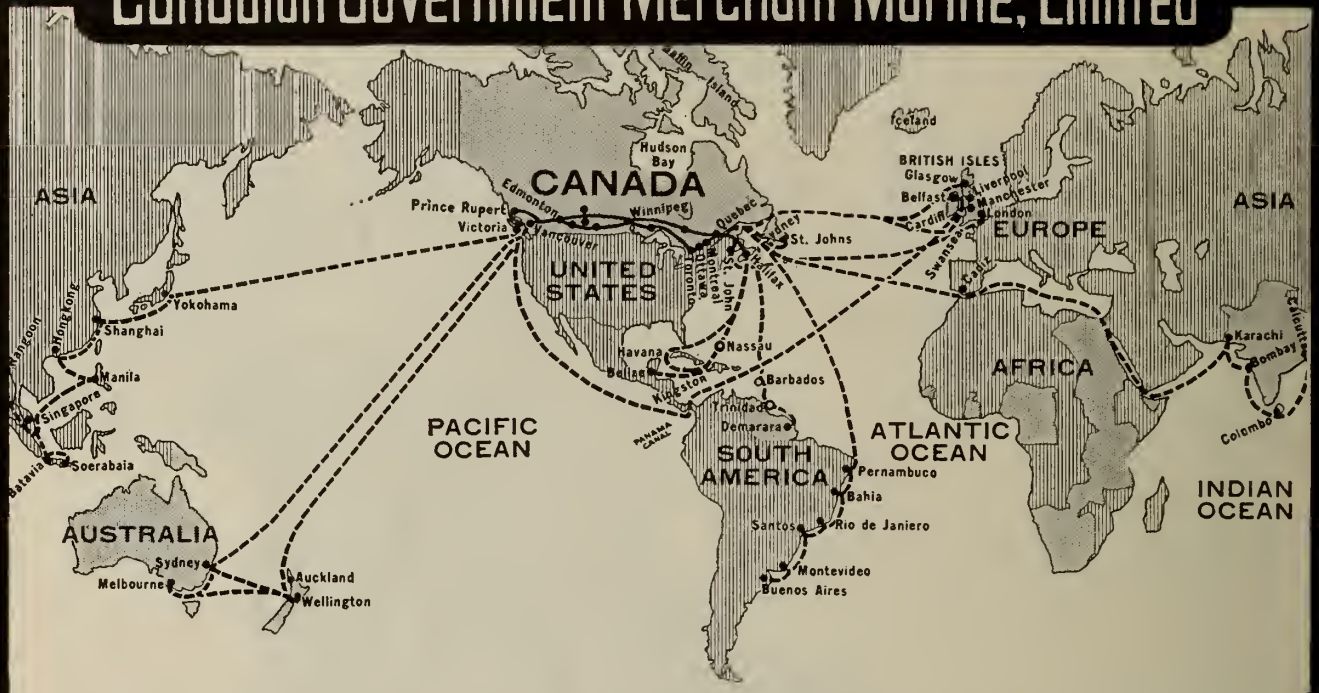
66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

Canadian Government Merchant Marine, Limited



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MONTHLY—To Australia and New Zealand.

MONTHLY—To China and Japan.

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General Agent, Vancouver, B.C.

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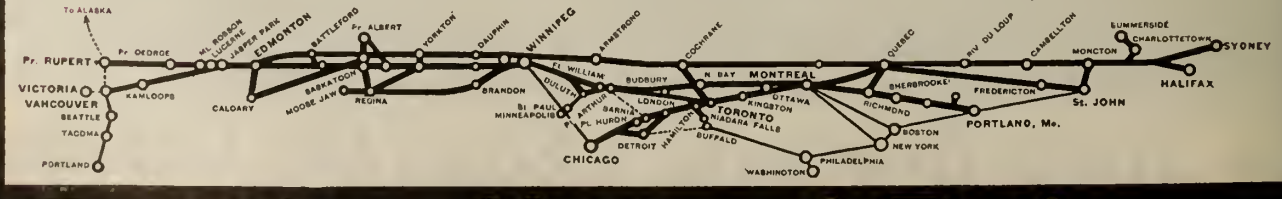

Canadian National Railways

Simplex Oval Sockets and Oval Poles

KILL
LAST AD.

End view of the Simplex Oval Socket

Simplex
No. 29
Cap. 15 tons
Height 28 ins.
Wt. 100 lbs.

Built without a machine screw.

The Grain of the pole is always vertical to the line of strain.

You cannot insert the Pole in the Socket "cross-grained."

Only with the Simplex Car Jack and the strength that the trunnions on the Oval Socket produce, is it practical to use a

6-foot Oval Pole

and only with the Simplex Jacks can you secure Oval Sockets and Oval Poles in which the safety of the Car Repairer is firmly established.

The additional length and strength of the Simplex Oval Pole produces greater leverage and insures a greater and safer day's work.

Again the merited award of the Gold Medal for Safety of Jacks to the Simplex Jacks—by the American Museum of Safety—is exemplified.

Templeton, Kenly & Co., Ltd.

Established 1899 Sole Manufacturers

131 Front Street, W.
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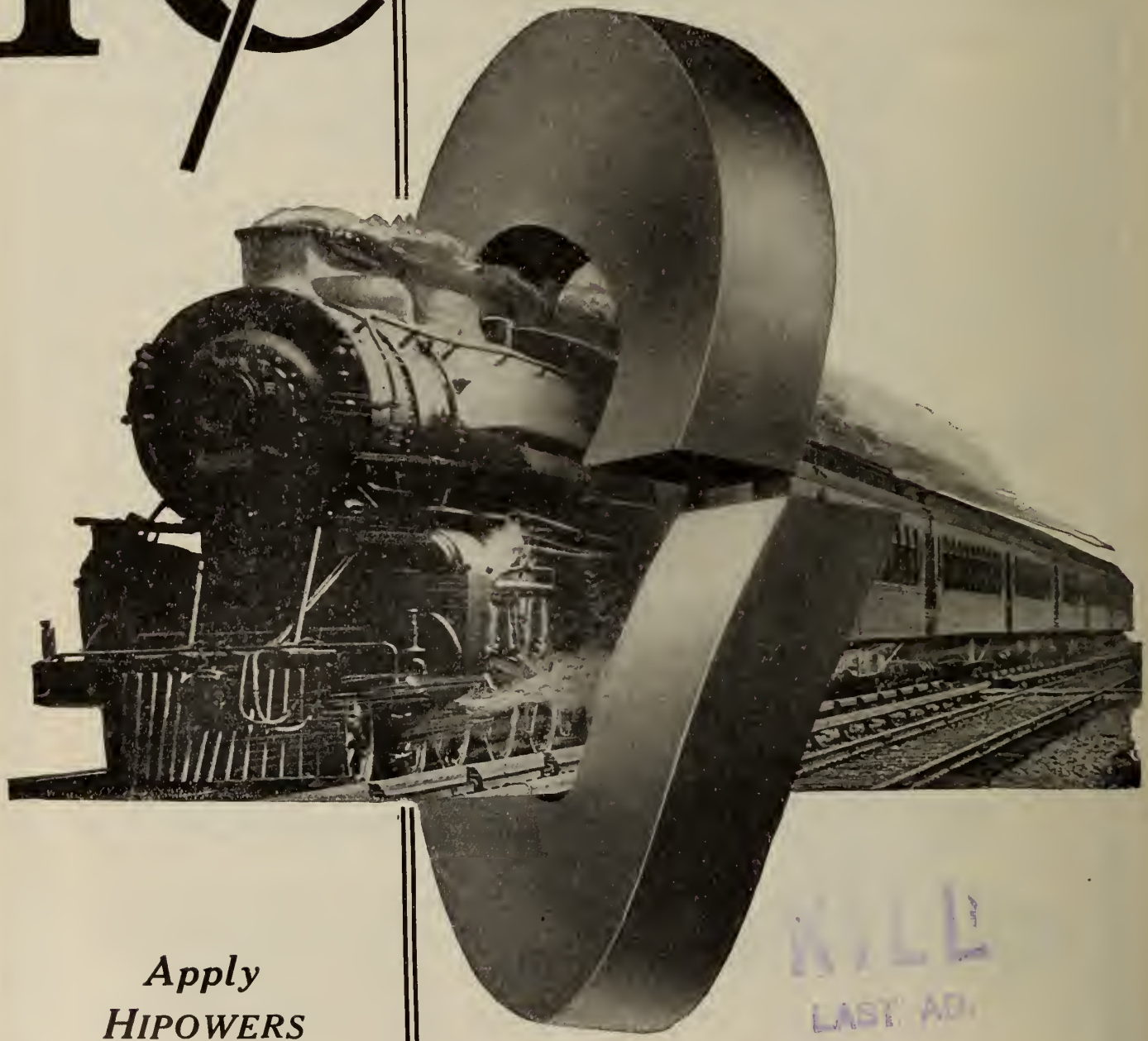
Chicago.	London.	Paris.	Sydney.
1020 So. Central Ave.	2 Norfolk St.	185 Rue Reamur.	387 George St.

Originators and Builders of Square Sockets for Track Jacks — Oval Sockets for Car Jacks, and Car Jacks in which no machine screws are used.

Rx

A Tonic For Your Entire System



Apply HIPOWERS on all Your Joints

The National Lock Washer Co.

Established 1886

Newark, N. J.

New York Chicago Detroit

EVAPORATORS

The New Weir Evaporator

WEIR PATENT
CONTINUOUS BRINING &
AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

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Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

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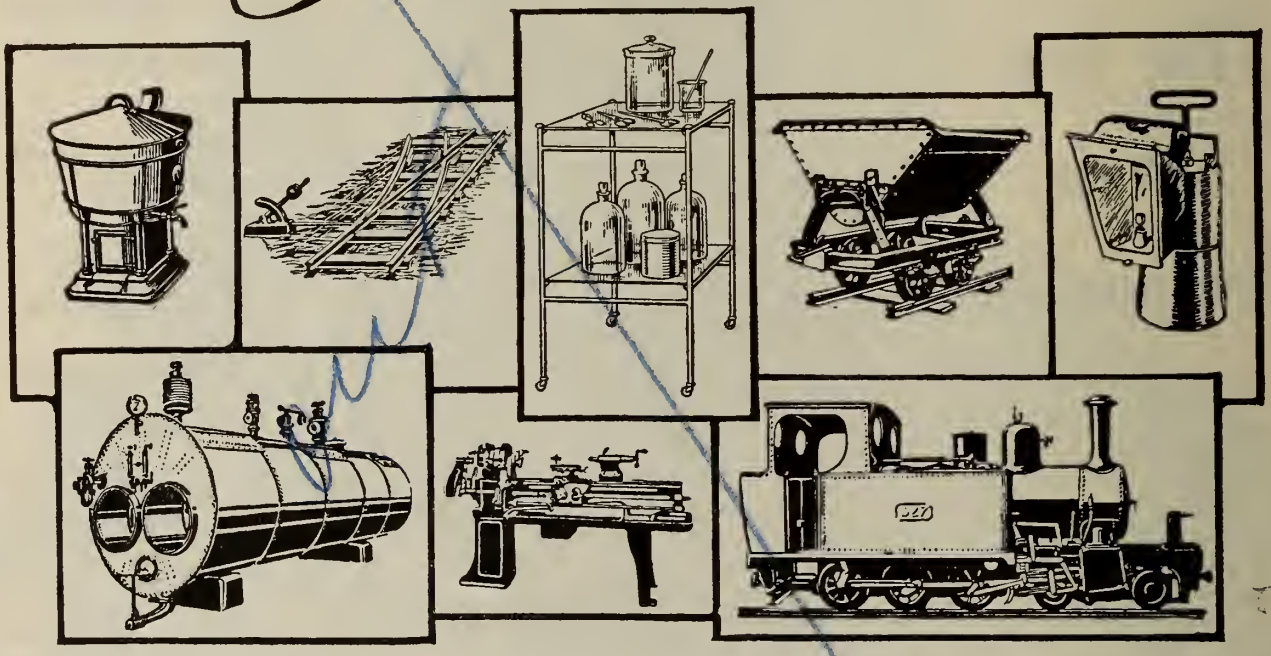

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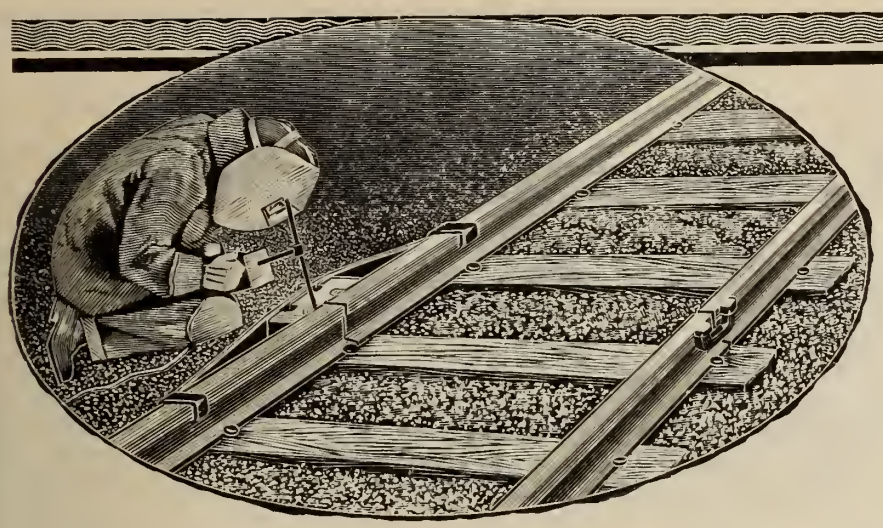


Applying Lincoln Bonds on open radial tracks.

KILL
LAST AD.

Let Our Engineers Explain to You—

why Lincoln Bonds are so serviceable, so adaptable and so superior. Let us explain also how it is possible for us to apply one in less than a minute—actual welding time. Let us show you why Lincoln Bonds are chosen by the leading radial railway companies all over the world.

And in fish plate welding let us show you why Lincoln process welding costs less, lasts longer, has greater conductivity and makes more permanent track construction than any other method.

Let us explain these points, and how the same machine can be used for building up cupped joints and for all kinds of shop repairs at a minimum of cost.

THE LINCOLN ELECTRIC CO. of Canada Limited

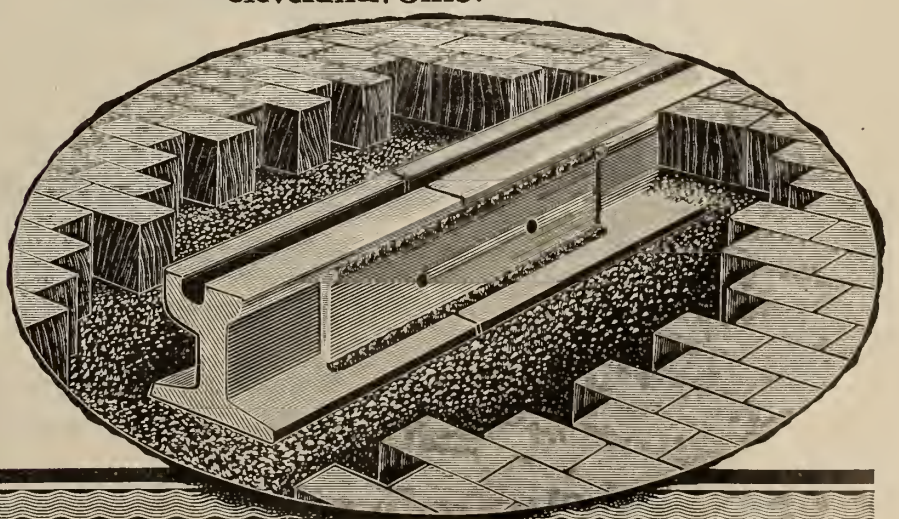
Head Office and Works:—136 John St., Toronto Phone Adelaide 7200
Montreal Branch:—Coristine Building

Canadian Representatives for

Rail Welding and Bonding Company

formerly The Lincoln Bonding Co.

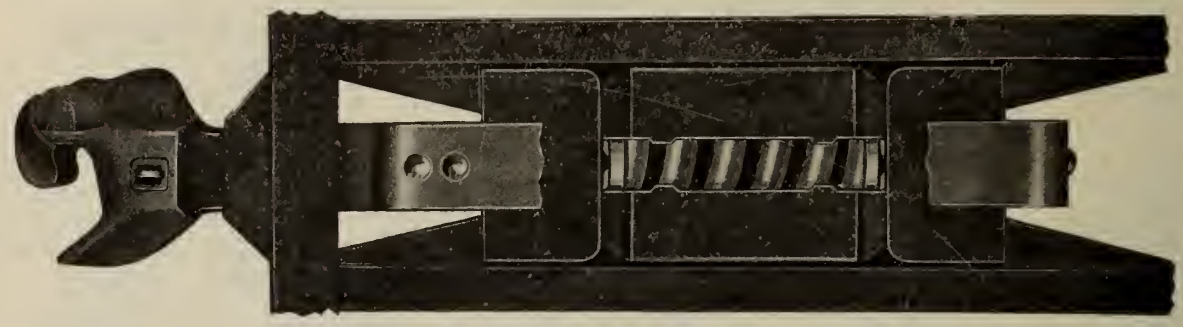
Cleveland, Ohio.



A Lincoln Welded Joint on paved street.

Murray Cast Steel Friction Draft Gear

MADE IN CANADA



If the superiority of this device has never been apparent to you, it will be upon thorough investigation. For it will reveal that our claims for excellence are based on actual facts.

May be used with any draft attachment.

In use on thousands of cars, including U.S.R.A. standard cars.

KEYOKE RAILWAY EQUIPMENT CO.

Monadnock Building

Chicago, Ill.

Canadian Agents: **Joliette Castings & Forgings Ltd.,**
Transportation Bldg., Montreal

DEARBORN METHODS OF WATER TREATMENT ARE BASED ON SCIENTIFIC PRINCIPLES

We take the bad water problem that is causing you delays in operation, waste of fuel, and increased labor expense, and by careful analysis determine the proper treatment to bring about the correction of these troubles and that general improvement of operating conditions which—accomplished on other lines—has made

DEARBORN TREATMENT STANDARD ON ONE HUNDRED RAILROADS

DEARBORN TREATMENT renders the mineral substances and acids in water powerless to attack boiler metal, allowing boilers to steam freely, enabling engines to haul heavier tonnage, obtaining greater mileage between boiler washings and effecting a vast saving in fuel and boiler repairs.

Gallon samples of the water supplies required for analysis before recommending treatment.

Dearborn Chemical Company of Canada, Limited

General Offices and Factory, TORONTO

Branch Offices:

Montreal, 263 St. James Street; Winnipeg, 413 McIntyre Block

CONSOLIDATED STEEL CORPORATION

165 Broadway, New York, U.S.A.

Cable Address CONSTECO, New York. Codes: Consolidated Steel Corporation, A B C 5th Edition Improved, Bentley's Complete Phrase, Western Union, Scott's 10th Edition, Lieber's.

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SOLE EXPORTER OF THE COMMERCIAL PRODUCTS OF

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We invite and will give prompt attention to inquiries for all forms of iron and steel products, including the following:

Agricultural Steel, such as Plow Discs, Harrow Discs, Drag Teeth, Cultivator Teeth, Rake Teeth, etc.
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Axles.
Bands.
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Billets.
Blooms.
Boiler Heads, Fronts, Flue Holes, Hand Holes, Man Holes, Tube Holes, Fittings, and Braces.
Boiler Tubes, Welded Steel and Charcoal.
Bolts and Nuts.
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Cars–Freight, Passenger, Tank, etc.
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Circular Sections, Forged and Rolled, such as Gear Blanks, Pipe Flanges, Crane Track Wheels, and Industrial Wheels of all kinds.
Conduit, Rigid and Flexible Electrical.
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Fabricated Structural Material.
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Frogs for Steam and Electric Railroads.
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Gas Strips.
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Hot and Cold Rolled Strip Steel.
Ingots.
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Machinery—Bethlehem Steel Company's Detrick and Harvey Planers, Horizontal Boring, Drilling and Milling Machines, Hydraulic Presses, Railway Shop Machinery, Rolling Mill Machinery, Shipyard Machinery.
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Ore Crushing Parts—Roll Shells, Ring Dies, Roller Tires, Stamp Shoes and Dies, Stamp Mill Parts, Crusher Balls.
Pig Iron.
Piling, Lackawanna Steel Sheet.
Pipe—English Gas and Steam, American Standard Weight, Extra and Double Extra Strong, Black and Galvanized Line Pipe, and Drive Pipe.
Plates—Tank, Hull, Flange, Boiler, Marine Boiler and Fire Box Quality.
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Pumps and Pumping Engines.
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Shafting, Cold Rolled and Cold Drawn.
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Sheets, Plain, Galvanized, Flat and Corrugated, Blue Annealed.
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Skelp.
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Tires.
Tool Steel.
Turnbuckles.
Washers.
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Wire Products—Plain Wire, Galvanized Wire of various grades, Annealed Wire, Bright Hard Wire, Bright Soft Wire, Nails, Fencing, and Barbed Wire.
Wire Rods.

As our Member Companies' annual ingot producing capacity is in excess of 12,000,000 tons, we are in a position to handle the largest requirements, as well as to give our customers fair prices, quick service, and dependable attention to every detail.

Inquiries should include exact specifications, giving quantities desired, particulars as to size, weight, packing, country of destination, etc., and purposes for which the materials are required.

Barrett Roofings, Cements Industrial Paints etc.

Everlastic "Rubber" Roofing. Barrett Specification Roofs.

Everlastic Liquid Roofing Cement.

BARRETT Products owe their great popularity to uniformly high quality and moderate price.

Each year they are used in increasingly large quantities by the railroads and leading manufacturing concerns throughout the Dominion. This, in itself, is strong evidence of their superiority.

Everjet Industrial Paints

HIGH-QUALITY protective carbon paints made in special grades for a wide range of uses. The line includes

Everjet Dipping Paint
Everjet Boiler Paint
Everjet Machinery Paint
Everjet Smokestack Paint
Everjet Bridge Paint
Everjet Penstock Paint

—each unequalled for its particular purpose, and all of them positively proof against weather, moisture, steam, acids, alkalies and fumes.

For general use, Everjet Elastic Carbon Paint provides a wonderfully durable and effective protective coating for exposed wood and metal surfaces.

If you are encountering difficulties in your dipping operations, we urge you to try Everjet Dipping Paint. Or, if your requirements are unusual, our chemical laboratories will be glad to co-operate with you in developing a paint that will give you satisfactory results. This service is entirely free.

Everjet Paints come, ready for use, in 1 and 5 gallon cans, ½ Barrels and Barrels.

Plastic Elastigum Patching Cement

"The plastic cement of a thousand uses"—the most convenient patching and repair material ever placed on the market.

Plastic Elastigum Patching Cement is tough, durable, acid-proof and waterproof. It sticks tenaciously to either wet or dry surfaces; can be used in all kinds of weather; it is easy to apply, low in price, and comes all ready for use.

To stop leaks in roofs, repair flashings, reline gutters, stuff cornices—for these and innumerable other purposes, Plastic Elastigum is in a class by itself.

Put up, ready for use, in packages of various sizes, from 1-lb. tins to barrels of about 600 lbs.

Nox-Aer-Leek Boiler Setting Cement

Leaky boiler settings are fatal to fuel economy. This is true even of a new setting, and the condition grows worse as the mortar dries out and crumbles away, leaving larger crevices through which the air can reach the fire chamber.

The result is faulty draft—improper combustion—reduced boiler efficiency—increased fuel expense.

Nox-Aer-Leek, applied to the outside surface, makes boiler settings absolutely air-tight and moisture-proof.

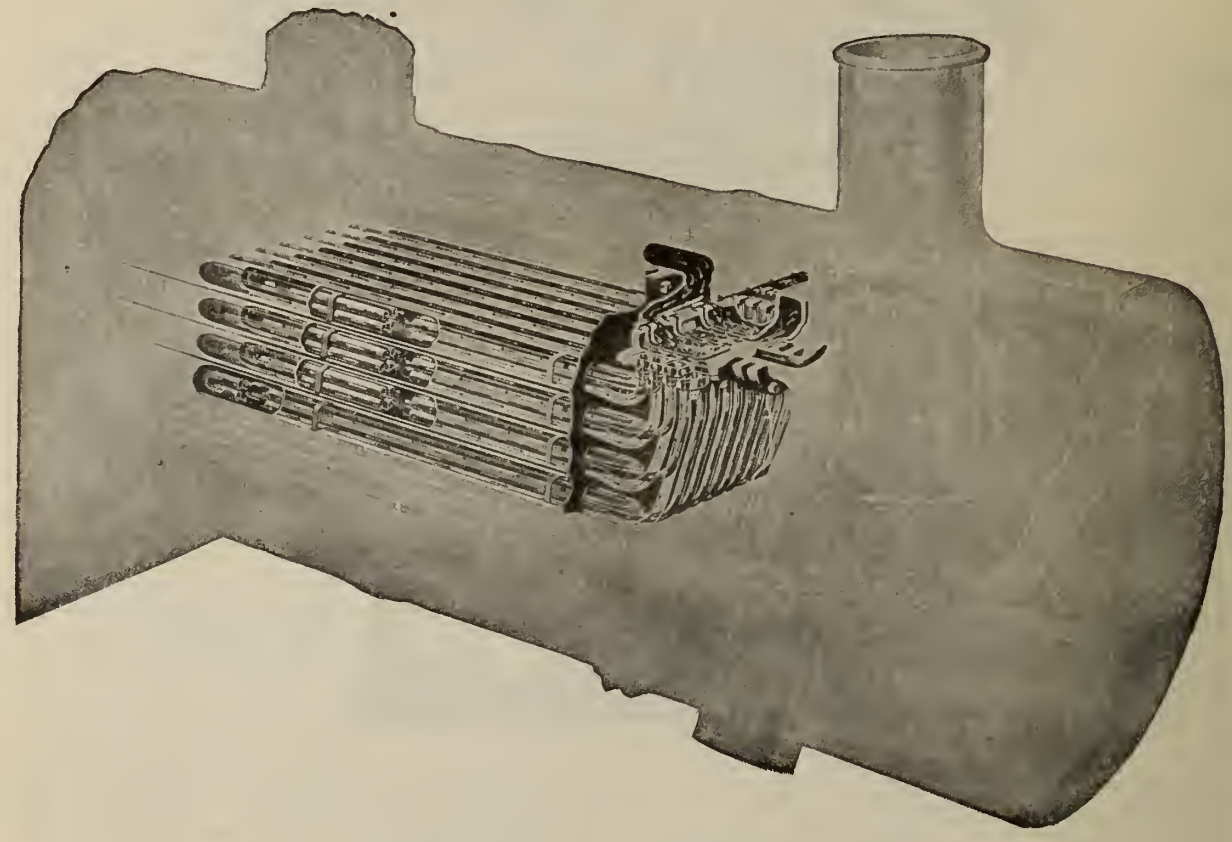
It is a plastic cement, composed of bitumen fused with non-drying oils and asbestos fibres. Is easily spread with a trowel. Comes ready for use in barrels (about 500 lbs.) and half barrels (about 300 lbs.).

WINNIPEG VANCOUVER
ST. JOHN, N.B.

The Barrett Company LIMITED

MONTREAL TORONTO
HALIFAX, N.S.

TYPE A SUPERHEATERS



Locomotives equipped with Type A Superheaters save 25% in fuel and 30% in water in identical service with saturated steam locomotives of the same type and general dimensions.

Type A Superheaters are simple in construction, readily accessible for maintenance and efficient in operation.

Type A Superheaters are designed and proportioned for the Class and type of locomotive in which they are installed. The material used in their construction is selected and all parts are subjected to a service test and rigid inspection before the superheater is installed.

Type A Superheaters can be delivered promptly and applied in your own shops. Let us show you the results that are being obtained by applying superheaters to existing locomotives.

The Superheater Co., Limited

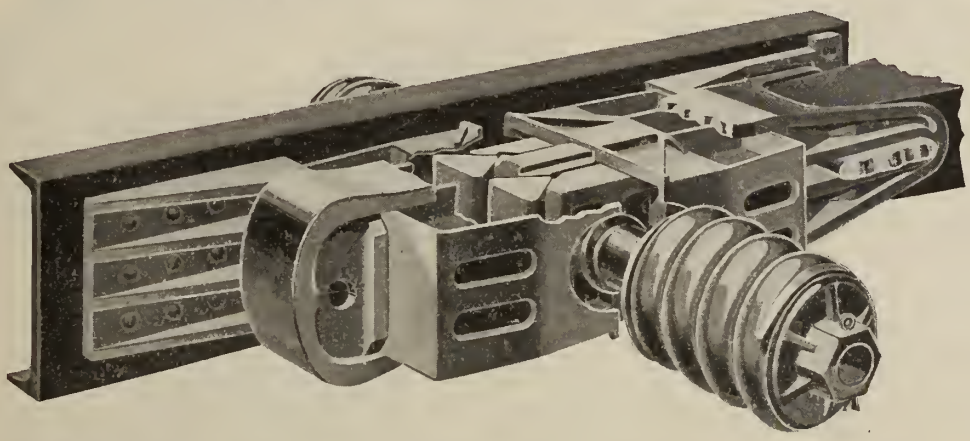
Transportation Building, MONTREAL

Works at Sherbrooke, Quebec

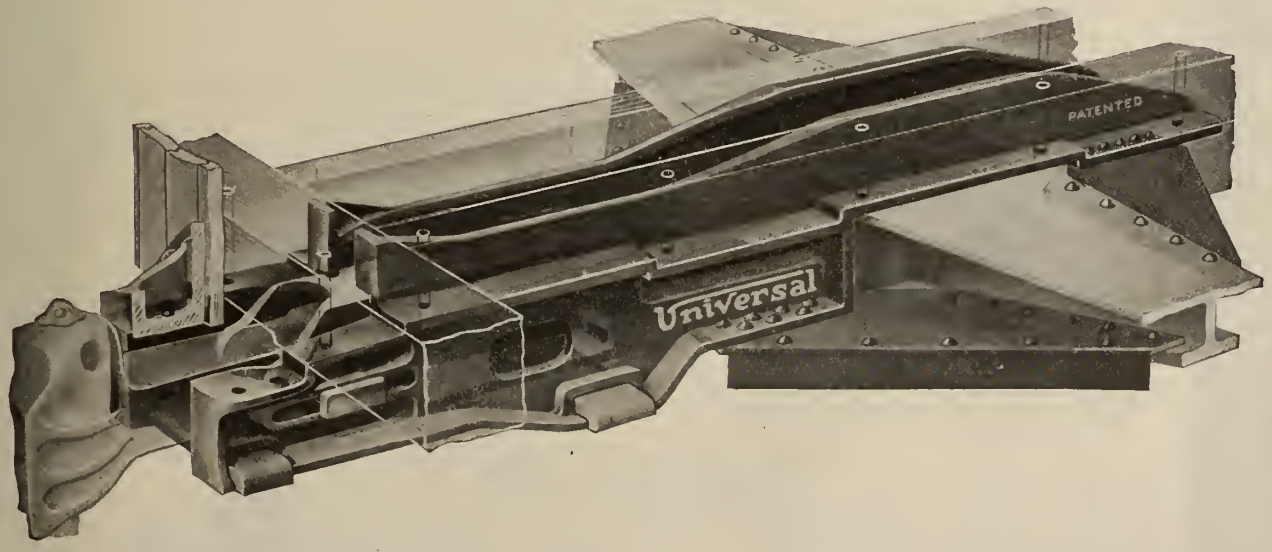
Designing Engineers and Manufacturers of ELESCO Steam Superheaters and Pipe Coils for all purposes.

MADE IN CANADA

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING
CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER
Transportation Building, MONTREAL

Lubrication Truths

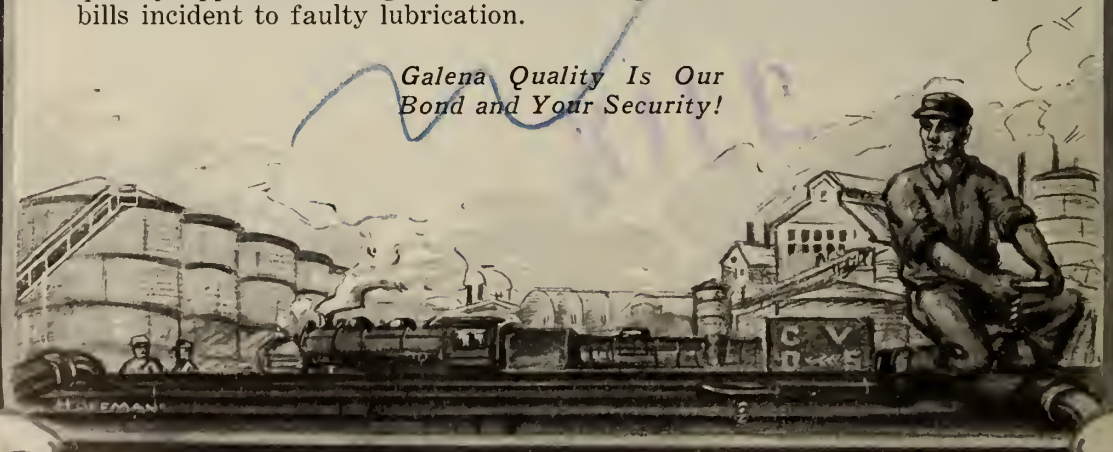
There are three fundamental truths concerning railway lubrication that are plainly evident to experienced mechanical men:

1. Operating efficiency is dependent upon correct lubrication to a greater degree than almost any other single factor.
2. Depreciation—life of equipment, the wear and tear of bearing surfaces, is regulated largely by the protective ability of the lubricants used.
3. Cost of oils and cost of lubrication are two entirely different things. Lubrication costs may be correctly figured only on a basis of service rendered in mileage and preservation of equipment.

The very nature of railway service demands the use of the highest grade lubricants; ordinary oils "break down" under the strain of the work required. When the oils break down the bearings break down also.

Galena Oils are made especially for railway work and are giving incomparable service on the world's greatest railroads. They have the extra strength and vitality essential to this class of service. Their economy is quickly apparent through increased mileage and reduction of the repair bills incident to faulty lubrication.

Galena Quality Is Our Bond and Your Security!



The Galena-Signal Oil Co. of Canada
Limited
TORONTO - MONTREAL

Banking Value of Mental Capital

Influence of Business Reading

CURRENT authorities on business and economics emphasize strongly the importance of Management in the successful conduct of business. The banker who lends money to an individual or company, generally is willing to forego something of security in fixed capital if he can count upon a greater degree of skillful management.

Mental capital—the ability and disposition to discharge an obligation—frequently is the best kind of collateral.

As a reader of this publication, it should be a source of satisfaction to know that good Business Papers are admitted to be the most effective single instruments in their respective fields, for the development of mental capital.

Successful managers are invariably close readers of their Business Papers. The editorial pages are richly laden with essential information, ideas and inspiration, while the advertising pages fulfill the function of a great market place of the industry.

The selection of a friend is no more important than the selection of your business reading with its wonderful influence for good or bad. Ask our advice if you are uncertain as to the best paper for YOU.

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Automobile Journal
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Dry Goods Economist
Drygoodsman
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Furniture Manufacturer and Artisan
Furniture Merchants' Trade Journal

Gas Age
Gas Record
Grand Rapids Furniture Record

Haberdasher
Hardware Age
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Lumber Trade Journal
Lumber World Review

Manufacturers' Record
Manufacturing Jeweler
Marine Engineering
Marine Review
Millinery Trade Review
Mill Supplies
Mining and Scientific Press
Modern Hospital
Motor Age
Motorcycle and Bicycle Illustrated
Motor Truck
Motor World

National Builder
National Petroleum News
Nautical Gazette
Northwest Commercial Bulletin
Northwestern Druggist
Nugent's, The Garment Weekly

Oil News
Oil Trade Journal

Plumber and Steam Fitter
Power
Power Boating
Power Farming Dealer
Power Plant Engineering
Price Current—Grain Reporter
Printers' Ink

Railway Age
Railway Electrical Engineer
Railway Maintenance Engineer
Railway Mechanical Engineer
Railway Signal Engineer
Retail Lumberman
Rubber Age and Tire News

Shoe Findings
Shoe and Leather Reporter
Shoe Retailer
Southern Engineer
Southern Hardware & Implement Journal
Sporting Goods Dealer
Starchroom Laundry Journal

Tea and Coffee Trade Journal
Textile World Journal

Welding Engineer
Woodworker

THE ASSOCIATED BUSINESS PAPERS, Inc.

JESSE H. NEAL, *Executive Secretary*

HEADQUARTERS: 220 WEST 42nd STREET NEW YORK CITY

PRODUCTS

Quality First

NATIONAL TROLLEY GUARD

The Ounce of Prevention

A grade crossing is a most likely, and the most dangerous place for the trolley to jump. There is no "cure" for grade crossing accidents after they have happened. But National Trolley Guard will prevent a car stalling on the track due to a wild trolley.

It is a trough made of wire mesh and inverted over the trolley wire. When the wheel jumps it runs on the guard which furnishes power to carry the car to safety.

National Guard is far less expensive than its protection warrants.

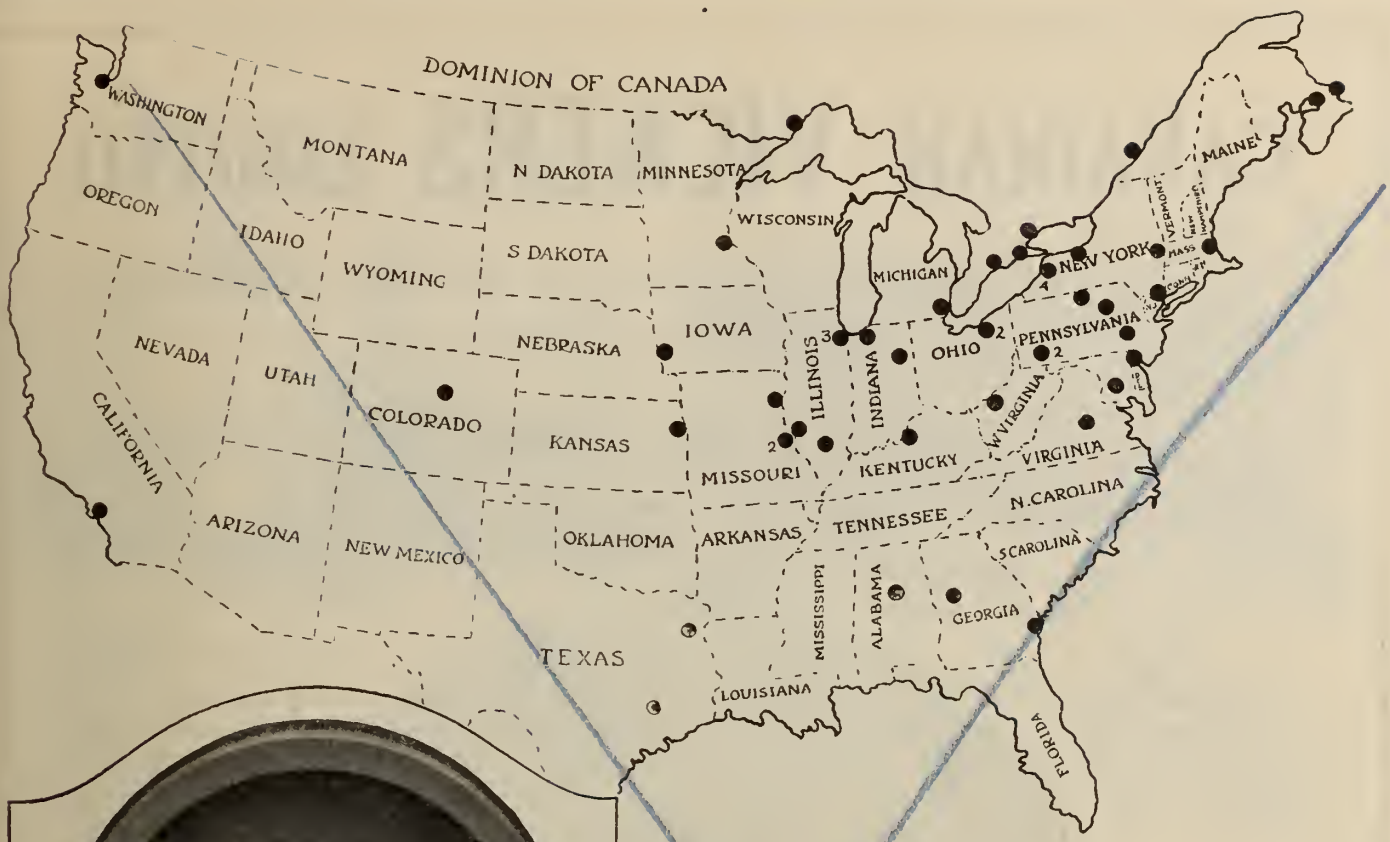
Because it is made of open wire mesh it is not seriously troubled by ice, snow, wind or locomotive exhaust. It is not hard to install and it is durable.

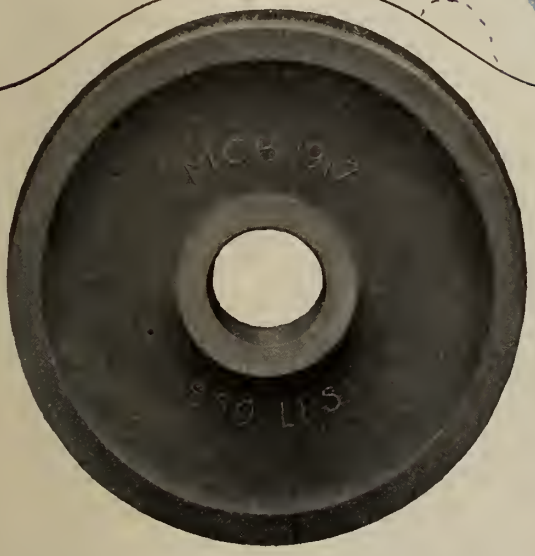
Send for "Guarding the Grade Crossings."

THE OHIO BRASS COMPANY, Mansfield, Ohio

End View Single Trolley

Side View Single Trolley (also made for Double Trolley)





49 *The map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels*

Chicago	3	Boston	Huntingdon W Va
St. Louis	2	Detroit	Wilmington, Del
Buffalo	4	St. Paul	Houston, Tex
Pittsburg	2	Kansas City, Kan	Hannibal Mo
Cleveland	2	Denver	Reading, Pa
Amherst N.S.		Tacoma	Baltimore
Montreal		Rochester, N.Y.	Richmond, Va
Mich City, Ind		Sayre, Pa	Ft. William, Ont
Louisville		Berwick, Pa.	St. Thomas, -
Mt Vernon, Ill		Albany	Hamilton,
Ft. Wayne, Ind		Toronto	Ramapo, N.Y.
Birmingham		New Glasgow N.S.	Marshall, Tex
Atlanta		Madison, Ill.	Los Angeles
Savannah			Council Bluffs

AMERICAN RAILROAD ASSOCIATION STANDARDS

650 lb wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy Years

Where CHILLED IRON WHEELS

are made for Railway and Street Car Service

Capacity 20,000 per day
25,000,000 in Service

Association of Manufacturers of Chilled Car Wheels

1847 Mc Cormick Bldg.
CHICAGO

CANADIAN VICKERS LIMITED

Shipbuilders, Engineers, Boilermakers and Repairers

MONTREAL, CANADA

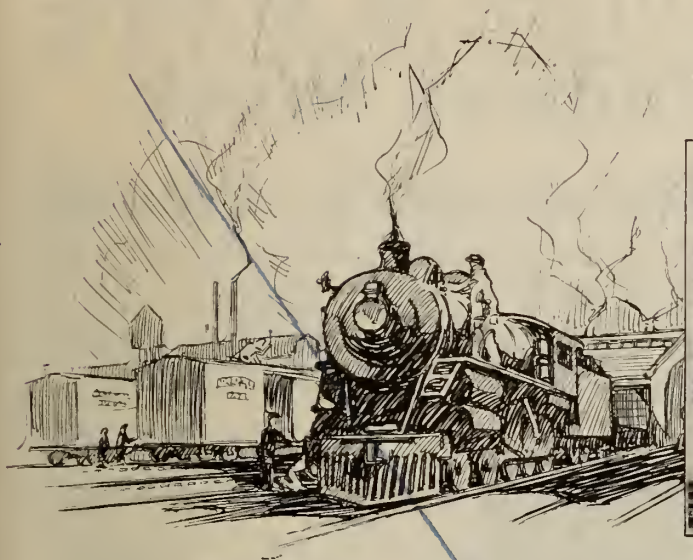
25,000-TON FLOATING DOCK, 600 FEET LONG
Operated in One or Two Sections.

S.S. "ALSACE"
Built for Cie Francaise d'Armement et d'Importation
de Nitrate de Soude, Paris, France

Makers Under License Best British Designs:—
WINCHES, WINDLASSES, ASH HOISTS,
STEERING GEARS, TELEMOTORS

Immediate Deliveries from Stock

Cables:
VICKERS, MONTREAL



PROTECTION of rolling stock and equipment is of first importance in connection with demands for uninterrupted service — economical maintenance.

In the selection of paint you can depend on only two things to back up your choice—satisfactory service records of the paint and the reputation of the manufacturer as a maker of good paint.

The consideration which these advantages are receiving is forcibly demonstrated by the extensive and growing use of *Degraco Paints* by railroads in every section of the country.

Degraco Steel Car Paints are manufactured under special formula which assures longer life to steel equipment. They produce a tough and elastic coating with unusual wear resisting qualities.

There is a *Degraco Paint* for every type of equipment — embracing paints for steel and wood cars, locomotive finishes, paints and enamels for underframes, trucks, handrails, coaches, canvas and metal roofs, car floor paints, station paints, etc.

Years of study of railroad paint requirements — the satisfactory service records of *Degraco Paints* — and the reputation of the Dominion Paint Works as makers of good paints are your assurance of satisfaction.

DOMINION PAINT WORKS, LIMITED

Makers of
Degraco Paints, Varnishes, Enamels.

WALKERVILLE - - - CANADA

Montreal
Quebec
Toronto

Winnipeg
Sydney
Vancouver

(26)

Superior Graphite Paint—*a protective coating for structural steel, bridges, metal roofs, stacks and all metal surfaces.*

Sta-White— *a pure white, light-reflecting oil paint for industrial interiors. It stays white. The mill white you can rely upon.*

Degraco Steel Car Paints— *withstand extremes of exposure; assure maximum service under railroad operating conditions.*

Degraco Paints, Varnishes and Enamels *are made in all colours for interiors and exteriors for every service requirement.*

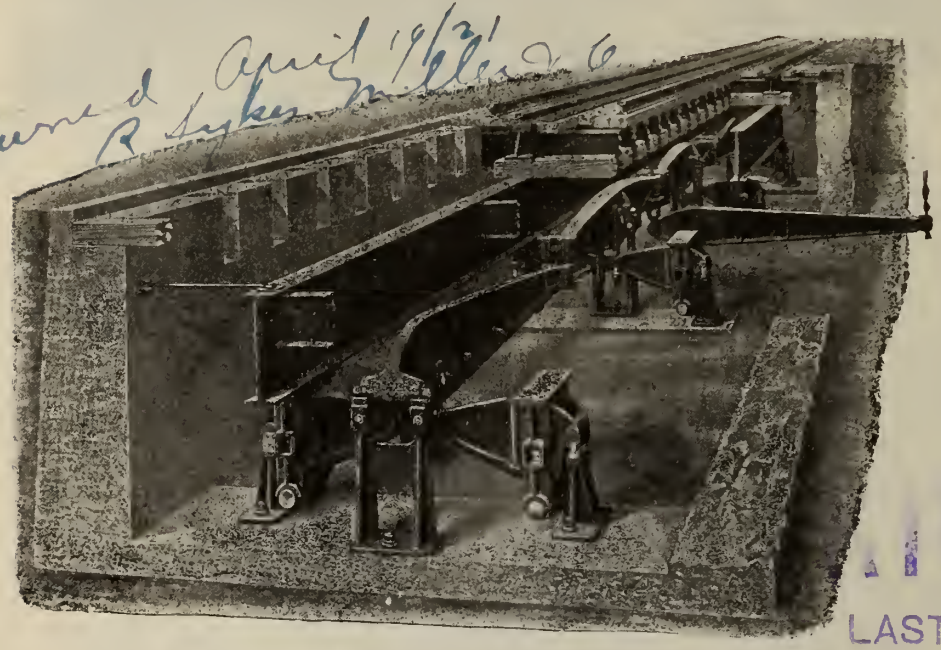
Degraco Station Paints— *for exteriors & interiors. High quality and durability assure positive protection, low ultimate cost.*

DEGRACO

Paints - Varnishes - Enamels

Sustained Accuracy of Weighing for all Railway Work

Wherever freight is handled, accurate and reliable weighing is not only desirable but essential. There is one sure way to have weight records that you know to be accurate. Install Fairbanks Track Scales and Fairbanks Dial Scales. They are backed by the experience gained in over ninety years of scientific scale construction.



Fairbanks Track Scales have suspended platform construction that keeps knife edges and bearings in continuous contact regardless of platform movement, which ensures consistent accuracy and long life.

Fairbanks Dial Scales are the most highly developed machine of their type for modern, quick weighing service. They combine simple construction with many exclusive features. Our nearest branch will be glad to send you any information you require.

If it isn't here —write us.

Fairbanks

Railway Track Scales
Dial Scales
Freight House Scales
Auto Truck Scales
Coal Scales
Automatic Scales
Fairbanks-Morse Railway Motor Cars
Coal Stations
Stand Pipes
Velocipede, Hand and Push Cars
Gasoline & Electric Locomotives.

The Canadian Fairbanks-Morse Co. Limited

Canada's Departmental House for Mechanical Goods

Halifax	Ottawa	St. Catharines	Winnipeg	Calgary
Quebec	Toronto	Windsor	Regina	Edmonton
St. John	Hamilton	Fort William	Saskatoon	Vancouver
Montreal				Victoria

A Plain Question

What is the Canadian National Newspapers and Periodicals Association?

And a Frank Answer

For many years prior to December, 1919, all the publications in Canada practically were grouped in one Association, known as the Canadian Press Association. In this Association there were three sections, Daily, Weekly, and Trade and Class. A little over a year ago it was mutually agreed by the publishers comprising these three groups that more effective work could be done for and by each section if separate organizations were formed, and, co-incident with that decision, there came into being the

Canadian National Newspapers and Periodicals Association

In this Association there are incorporated the following classes of publications:

Agricultural newspapers
Business newspapers
Educational newspapers
Religious newspapers
Technical newspapers and Magazines.

Membership in the Association involves certain obligations. Every paper admitted has subscribed to ten rigid Standards of Practice the purpose of which is to afford ample protection to both the subscriber and the advertiser. Every publisher pledges himself, before he is permitted to enjoy the benefits of membership, to

"Consider first the interests of the subscriber," to

"Work for truth and honesty in all departments," and, among others things, to

"Supply advertisers with full information regarding character and extent of circulation."

These are only a few of the conditions which have to be subscribed to precedent to admission to the Association, but they will give an idea of the high standard demanded.

There are already embraced in the membership of this Association a very large majority of the reputable and responsible publishers of the newspapers and magazines classed above, and it is believed that within a very short time, practically all that are eligible—all who can conscientiously endorse the Standards of Practice — will have been enrolled in our membership.

List of Members

The publications listed below—all of them members of the Canadian National Newspapers and Periodicals Association—should be given preferential consideration in the planning of an advertising campaign. They embrace mediums which appeal to the consumer (either city or farm dweller), merchant, business executive, purchasing agent, technical man, etc. The combined purchasing power of the readers of these papers is greater than that of the total of all other classes of publications in Canada. The facilities of the office of this Association are at the disposal of any firm planning an advertising campaign. We may be able to give you information that will make your advertising dollar buy better value.

AGRICULTURAL NEWSPAPERS

Agricultural Alberta
Canadian Countryman
Canadian Farmer
Canadian Poultry Review
Farmers' Advocate & Home Journal
Farmers' Advocate and Home Magazine
Farm and Home
Farmers' Magazine
Grain Growers' Guide
Maritime Farmer and Co-operative Dairyman
Nor'West Farmer
Weekly Witness and Canadian Homestead

BUSINESS NEWSPAPERS

Bookseller & Stationer
Business Review & Maritime Retailer
Canada Lumberman & Woodworker
Canadian Cigar & Tobacco Journal
Canadian Finance
Canadian Furniture World
Canadian Grocer
Canadian Hardware Journal
Canadian Insurance
Canadian Music Trades Journal
Canadian Optometrist & Optician
Canadian Woodworker & Furniture Manufacturer
Clothier & Haberdasher
The Commercial
Contract Record & Engineering Review
Dry Goods Review
Druggists' Weekly
Footwear in Canada
Financial Post
Hardware & Metal
Le Prix Courant
Marketing
Maritime Merchant
Men's Wear Review
Monetary Times
Le Moniteur du Commerce
Motoring
Motor Trade
Printer & Publisher
Phonograph Journal of Canada
Retail Grocer & Provisioner
Retail Druggist
Trader & Canadian Jeweller
Western Canada Coal Review
Western Canada Contractor
Western Lumberman
Women's Wear

RELIGIOUS AND EDUCATIONAL NEWSPAPERS

Canadian Churchman
Catholic Record
Christian Guardian
East & West
Northern Messenger
Pathfinder
Pioneer
Presbyterian Witness
The School
Teacher's Monthly

TECHNICAL NEWSPAPERS

Canadian Engineer
Canadian Foundryman
Canadian Machinery
Canadian Manufacturer
Canadian Railway & Marine World
Construction
Dominion Dental Journal
Electrical Dealer & Contractor
Electrical News
Marine Engineering
Municipal World
Power House
Sanitary Engineer

MAGAZINES

Canadian Forestry Magazine
Canadian Home Journal
Everywoman's World
La Canadienne
Maclean's Magazine
Motor Magazine
Needlecraft Companion
Saturday Night
Western Home Monthly
Woman's Century
World Wide

Canadian National Newspapers and Periodicals Association

Office - 70 Lombard Street - Toronto, Canada

Safety and Strength *with*

Q & C Rolled Steel Step Joints

MADE IN CANADA

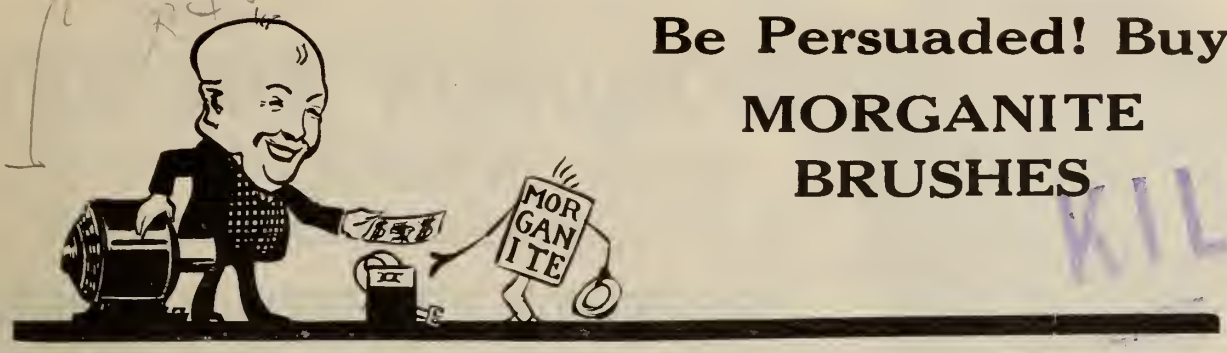
Combined with their feature of strength—which under actual test has been proven many times stronger than cast metal — Q & C Rolled Steel Compromise or Step Joints embody the factors of safety and economy. By our process of manufacture a rolled steel joint with the Bonzano and Thomson features (the strength giving depending flange and metal distribution at the head) is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the step joints that are most efficient. A card will bring you any information. Write us today.

The General Supply Co. of Canada, Ltd

MONTREAL
TORONTO

356 Sparks Street
OTTAWA

WINNIPEG
VANCOUVER



Be Persuaded! Buy MORGANITE BRUSHES

You will find them absolutely dependable and truly economical.

When you witness how finely they respond to the severest demands placed on them—how they increase the efficiency of motors and generators—you'll be glad you bought them.

Morganite

MORGANITE BRUSHES are made for every electrical brush need—from the smallest 1/50 h.p. motor to the 6,000 k.w. generator.

We will be glad to make recommendations for the particular brushes having the properties and characteristics *exactly* meeting your requirements.

Write for the Complete MORGANITE Catalogue.

MANUFACTURED BY

The MORGAN CRUCIBLE COMPANY Ltd.

Factories

London England - New York U.S.A. - Buenos Aires S.A.

Sole Agents and Representatives for Canada

RAILWAY & POWER ENGINEERING CORP. LTD.

Toronto - - Montreal - - Winnipeg

The **Strength** and **Toughness** of

"DOMINION" WIRE ROPE

Make it DURABLE,
SAFE and ECONOMICAL

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

For Coal or General Service

Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL

We carry only goods of the Highest grade, quote Lowest prices, and GIVE BEST OF SERVICE

"MARION" Steam Shovels

DITCHERS—UNLOADERS

"Industrial Works" Pile Drivers and Cranes

Branch:
108 Mail Building
TORONTO

F·H·Hopkins & Co.
Limited

Head Office:
MONTREAL

Files Get Dull: Keep Your Men Keen

Throw a file away and buy a new one at the first hint of dullness.

In this way you will keep your workmen keen on their jobs. They won't be contented if you let them work with dull files.

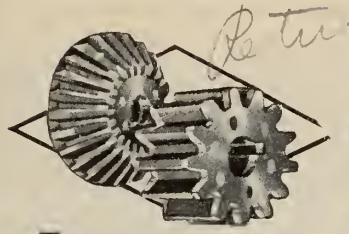
Specify one of the following brands when you order. They are standard quality, and give full value.

Kearney & Foot
Great Western
American
Arcade
Globe

FILES

Made in Canada by

Nicholson File Company
Port Hope - Ontario



Gears that give better Service

The secret of the universal satisfaction given by Diamond Fibre Gears is in the special grade of Fibre used in their manufacture. Its dense mixture, high tensile strength, unusual wearing qualities, low cost and slight elasticity make it a wonderfully serviceable gear material.

Diamond Fibre Gears are noiseless. They combine the efficiency and regularity of an all-metal gear-drive with the silent, smooth operation of a belt transmission. In your own interests, be sure to specify

DIAMOND FIBRE GEARS

New uses for Diamond Fibre are being discovered daily in the industrial, mechanical and electrical field. Even if you cannot think just now in what possible way Diamond Fibre can interest *you*, let us send you our new illustrated catalog. It is interesting and instructive and may show you some way in which the use of Diamond Fibre will decrease your production costs and increase your production.

Your copy is ready now—write for it.

Diamond State Fibre Company of Canada, Limited

Wrigley Building
Carlaw Avenue
Toronto, Canada

Diamond·F

The Star Brass Works

Largest Exclusive Trolley Wheel Makers in the World.

Kalamazoo **Michigan**

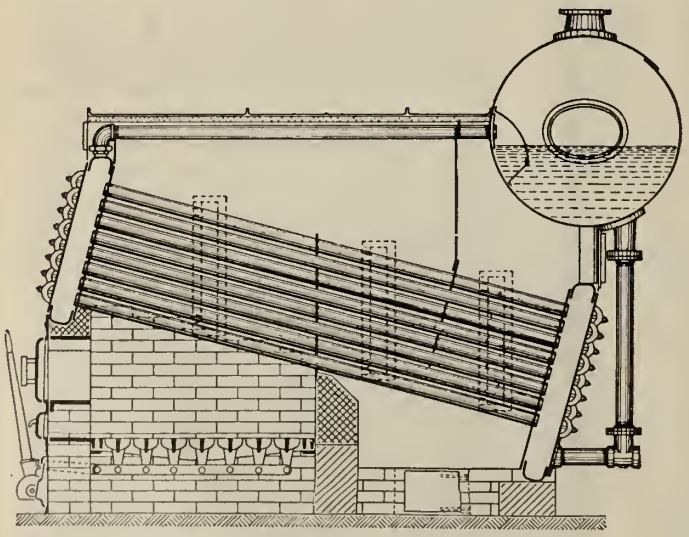
Canadian Representatives:

Northern Electric Company, Limited

Montreal - Halifax - Ottawa - Toronto - London - Winnipeg - Regina - Calgary - Vancouver

Dawson & Co., Limited, 148 McGill St., Montreal
352 Donald St., Winnipeg

The Victory Heating Boiler



Is a water tube boiler designed for heating, and is the safest boiler that can be used.

It has a steel case lined with asbestos and firebrick and requires no brick setting.

It may be shipped knocked down and taken into a building through ordinary doors.

Robb Engineering Works, Limited, - - Amherst, N. S.

Montreal Office:
16 Carthcart Street

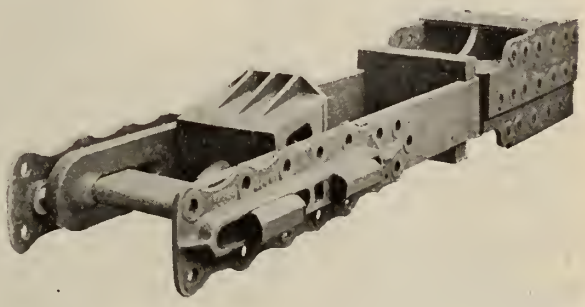
Toronto Office:
20 Victoria Street.

Symington Railway Specialties

Made in Canada

Symington Malleable Iron Journal Box equipped with Malleable Iron Torsion Spring Lid.

Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



The T. H. Symington Company

New York **Baltimore** **Chicago**

PEDLAR'S "PERFECT" TONCAN METAL CULVERTS

The Standard for Railway Drainage

THERE is no Culvert problem which cannot be satisfactorily solved by the use of Pedlar's Culverts. Their record of service under railway roadbeds throughout Canada is impressive evidence of their superior strength, convenience and durability. Made in diameters from 8 to 84 inches and in lengths up to 40 feet, they can be made up into units of any desired length by using the special coupling bands, which are supplied free.

Write for Culvert Booklet R. M.

THE PEDLAR PEOPLE LIMITED

(Established 1861)

Executive Offices and Factories, OSHAWA, Ont.
Branches: Montreal, Quebec, Halifax, St. John, Ottawa. Toronto, Winnipeg, Vancouver.

MINER
RAILWAY APPLIANCES

MANUFACTURED IN CANADA

CANUCK SUPPLY CO., Ltd.
MONTREAL

ROLLING ROCKER SIDE BEARINGS

IDEAL SAFETY HAND BRAKES

EFFICIENT FRICTION DRAFT GEARS

W. H. MINER
CHICAGO

THESE DEVICES ARE VERY EXTENSIVELY USED

Nova Scotia Steel & Coal Co., Limited

Can manufacture forgings up to 40 tons in weight to all Admiralty and Lloyd's Tests and specifications.

Also can supply forgings of all shapes and sizes made of ordinary or "Harmet" fluid compressed open-hearth steel, and satisfying the most severe specifications.

Our forges are modern in every respect—designed and installed after close study of the latest developments in all countries. Moreover, we produce the highest grades of steel by the most approved methods.

For prices and particulars write to

Head Office - - New Glasgow, Nova Scotia

Western Sales Office, Room 14, Windsor Hotel, Montreal

"WORLD" LOCOMOTIVE

POP VALVES
and
WHISTLES

Genuine "World" Loco. Pops and Whistles are standard equipment on Canadian railways.

When ordering always specify "World," and in ordering parts for whistles and pops, give part name and figure number.

T. McAVITY & SONS
LIMITED

MONTREAL
TORONTO

ST. JOHN, N.B.
CANADA

WINNIPEG
VANCOUVER

A Great Many Large Plants Are Using

COMMERCIAL ACETYLENE

On Small Work

Repairing a small cast iron bracket at a large shipbuilding plant. Our tanks are convenient, safe and guaranteed to hold quantity and quality gas.

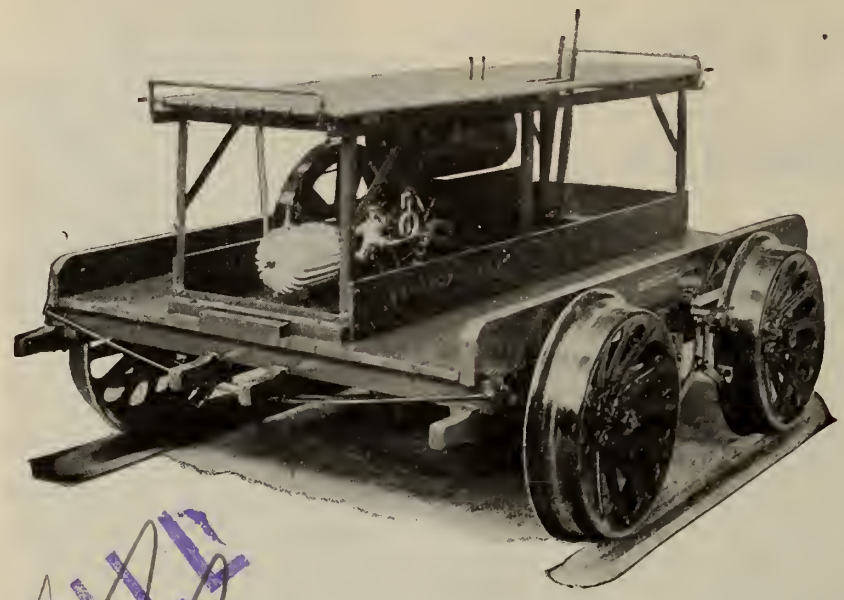
MAIN OFFICE:
80 Broadway, New York
BRANCHES:

ATLANTA, GA.
AURORA, ILL.
BOSTON, MASS.
BOUND BROOK, N.J.
EAST DEERFIELD, MASS.
SAN FRANCISCO, CALIF.
MOBERLY, MO.
W. BERKELEY, CALIF.

Commercial Acetylene Supply Company, Inc.

18 TORONTO STREET TORONTO

Kalamazoo No. 17 Motor Car



For Section Gangs. A sturdy, easy-running car for rough use.

This section car is equipped with a single cylinder two-cycle air-cooled motor of five horse power. Motor is exceptionally smooth running, all vibration being eliminated, and runs equally well in either direction.

Engine drives through short, heavy roller chain to perfected friction clutch on axle. Car is very light. Brake operates on all four wheels.

We manufacture a full line of railway motors for every purpose and would like to quote on your requirements. Hyatt roller bearings on all motor cars.

Kalamazoo Railway Supply Company

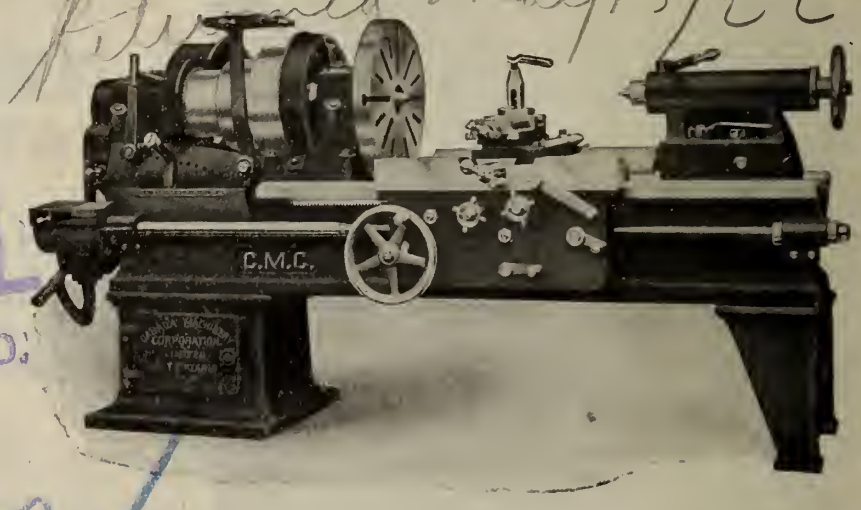
KALAMAZOO, MICH., U.S.A.

Canadian Representatives: { Kelly Powell Co., Ltd., Winnipeg.
{ Wonham, Bates & Goode Trading Corp., Montreal.

C.M.C.

20" x 8'

Engine Lathe



Feeds and screw cutting changes are instantly obtained by a movement of a lever to any of the different locations shown on the index plate. It is impossible to engage either the automatic or longitudinal feeds when the machine is set for screw cutting, or vice versa, and the feeds may be instantly reversed by a convenient lever in the apron.

Write for further particulars and prices.

CANADA MACHINERY CORPORATION, GALT, ONTARIO
LIMITED

MARINE REFRIGERATION

ANHYDROUS AMMONIA ($N.H_3$.) COLD AIR MACHINERY CARBONIC ANHYDRIDE ($C.O_2$.)

Improved Ethyl Chloride Systems

(MADE IN CANADA)

SOLE BRITISH LICENSEES AND MANUFACTURERS OF

"Viking" Rotary Pump — Rotary Air Pumps and Blowers

(MADE IN CANADA)

SOLE AGENTS IN CANADA FOR

THE STEAM FITTINGS COMPANY, LIMITED

Automatic Steam Traps — Thermostatic Control Valves and Fittings — Automatic Regulators

CANADIAN AGENTS OF:

UNION ANTI-FOULING COMPOSITION CO. LTD., GLASGOW

Makers of: "Union" Anti-Fouling and Anti-Corrosive Compositions. High grade material used by the British Government, Admiralty, and other prominent leading Organizations.

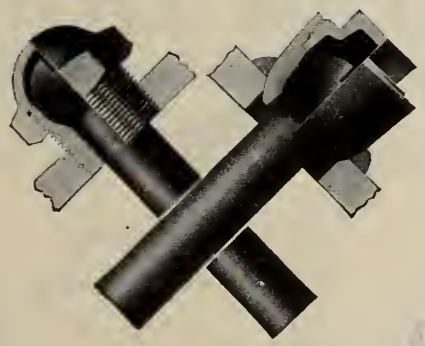
Shipbuilding Machinery and Ships Auxiliaries

A. G. KIDSTON & COMPANY

17 St. John St. - MONTREAL

STAYBOLTS

"TATE" THREADED CONNECTION



"F. B. C." WELDED CONNECTION

Our latest achievement, the **"F. B. C." FLEXIBLE STAYBOLT,** is as great an improvement over the present type of Tate bolt, as the Tate was over the ordinary rigid staybolt.

The Principal Improvements are

Non-Leakable Sleeves - Lower Cost of Application

Wrapper Sheet Strengthened

Three **"F. B. C."** sleeves replace seventeen types of threaded sleeves, thus reducing number of styles of sleeves to be carried in stock.

Specify "F. B. C." Flexible Staybolts for New Equipment and Order Them for Repairs.

FLANNERY BOLT COMPANY

Vanadium Building, Pittsburgh, Pa., U.S.A.

Manufactured and sold in Canada by CANADIAN ALLIS-CHALMERS, Limited, General Offices, Toronto, Ont.

Halifax Shipyards Limited

Halifax, Nova Scotia

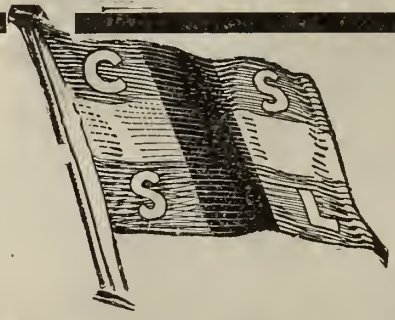
Steel Ship Builders and Ship Repairers

Dry Dock, 550 feet long, 102 feet wide

Hull Repairs Electric Welding
Boiler and Machinery Repairs.

Shipyards, Drydock and Shops - - Halifax, N. S.
Marine Slips and Repair Shops - Dartmouth, N.S.

Water Trips Everywhere



FRENCH SERVICE, HAVRE AND BORDEAUX

Compagnie Canadienne Transatlantique Limitee

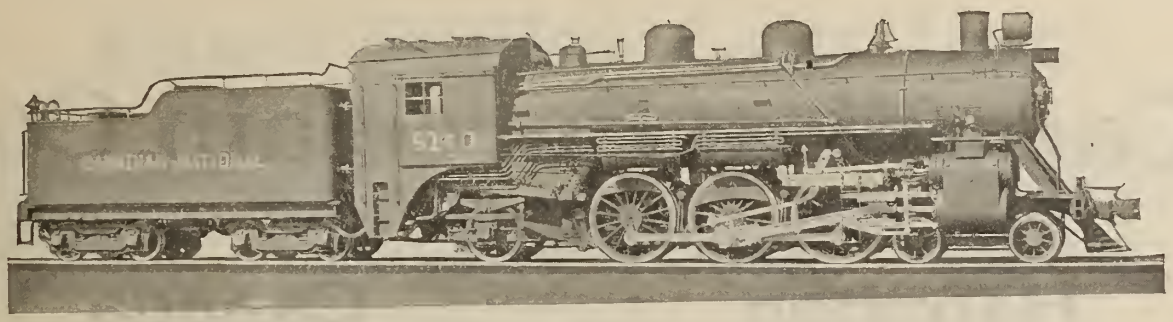
Passenger and Freight Service. Frequent Sailings from Montreal. Further particulars upon request.

SHIP YOUR FREIGHT BY WATER

Save both Time and Money. We have excellent facilities for Handling Freight of all Kinds. Through Bills of Lading issued via all Ocean Lines, via Montreal.

CANADA STEAMSHIP LINES, LIMITED

Toronto Office, 32 Front St. West | **Head Office, Victoria Square, MONTREAL** | **Toronto Ticket Office, 46 Yonge St.**



4-6-2 TYPE LOCOMOTIVE

Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

Montreal Locomotive Works, Limited

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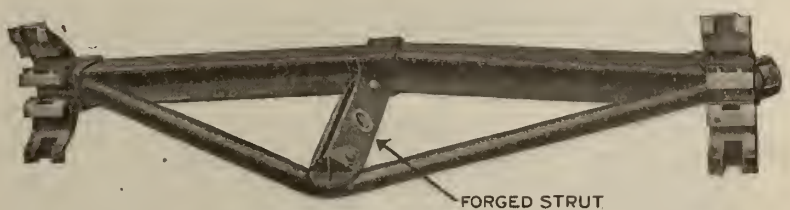

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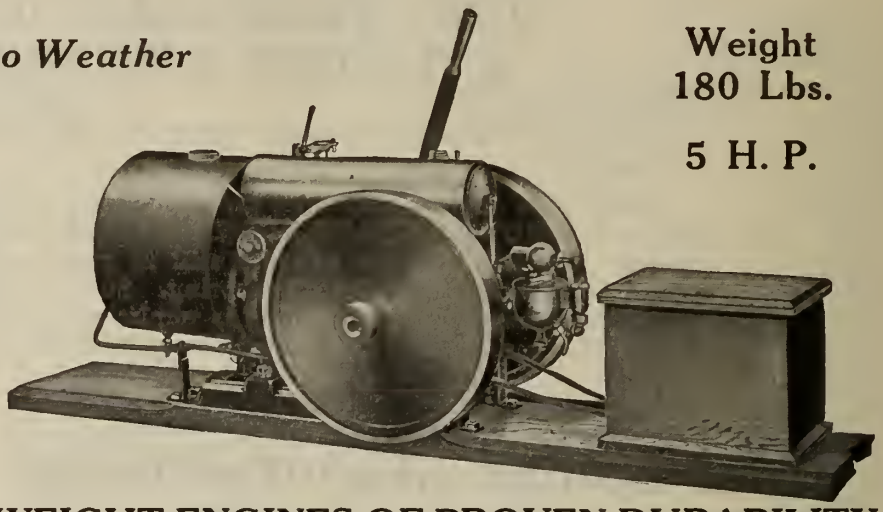

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Canadian Railway and Marine World

April, 1921

Some Phases of Railway Operation in Canada.

By Grant Hall, Vice President, Canadian Pacific Railway.

Grant Hall, Vice President, C.P.R., Montreal, addressed the New England Railroad Club, in Boston, Mass., recently, as follows:—I have no doubt that all of you here will appreciate that a railway such as the Canadian Pacific, extending as it does from ocean to ocean, going through such a diversified territory, presents a good many problems that to the operating man are decidedly interesting, if nothing else. Our main line proper extends from Montreal to Vancouver, 2,880 miles. Montreal, for about seven months in the year, is our ocean port. Our line extends further along the banks of the St. Lawrence River to the City of Quebec, 180 miles. A portion of the shipping in summer is taken care of at Quebec, because water conditions are not always satisfactory for the bigger ships to come up to Montreal. In winter, West St. John, N.B., is our port, our line extending from Montreal about 487 miles east to St. John, and to the southeast, as you call it, or south, as we call it, to Newport, where we connect with the Boston & Maine Rd. Altogether we have something like 13,770 miles of the C.P.R. We add to that a little over 6,000 miles when we take in the lines which we consider our subsidiaries, or which run in very close connection with us in the United States. We also have ships on the Atlantic and Pacific Oceans, running in connection with the railway, with a fleet of coastal vessels on the Pacific, numbering in all about 54. Then we have a further number of 26 ships on our British Columbia inland waters and the Great Lakes. All these ships, of course, are run directly not only in connection with the railway, but they are practically run as a part of the railway, except what are commonly called the deep sea ships on the Atlantic and Pacific, which could not possibly run on a time table such as we are supposed to run a railway on.

We have, in winter, our greatest troubles. At the eastern end of the line we have snow problems about the same as you have yours in this eastern territory, though perhaps between St. John and Montreal they may be more severe and continuous and the snowfall slightly heavier. Where our line skirts the north shore of Lake Superior, a rather bleak country, we have a heavy snowfall, and then following across the prairies the temperature ranges as low as 50° below zero in winter. Then, crossing five ranges of mountains, we have at last reached the Pacific Ocean.

Not very long ago it was necessary for me to speak to a commercial organization. It was indirectly connected with a subject that interests us and also interested you not so very long ago, viz., the increase in freight rates, or increase in remuneration for the work we have to do. I asked them if they had any idea just what the average locomotive was called upon to perform in its work on a railway. We were in a rather large hotel. I asked the manager how many boilers he had down stairs. I may say that in connection with this hotel the heating and lighting plant is also a central plant for other concerns. He said he had six boilers down stairs of 300 h. p. each, 1,800 h.p. in all. I turned to those gentlemen and said, "I think I am not far out in saying that any locomotive that takes the average passenger train tonight on any railway in this country, with the thermometer hovering around zero, with an average train of 10 cars, will have to develop in horsepower per hour just about as much or perhaps a little more than this gentleman's six boilers are doing down stairs." I said, "When you come to take that into consideration, and think that you are depending upon one man to perform that, going through space, under all sorts of climatic conditions, I don't think that you are giving the railways the credit that they are entitled to." I understand there are some technical gentlemen here tonight. My figure may be a little off, but I don't think it is very far. If it is, I think it is on the safe side.

We find it necessary on the C.P.R. for that stretch of territory to have 187 snow ploughs. There are 37 rotaries. Though our rotaries are practically used in the mountain sections, there have been occasions when we found it necessary to take them further on to the prairies, but very seldom. As a rule, they are simply used for clearing slides, and so on, in the mountain territory. We are very strict in regard to our snow fencing. Snow fencing at all vulnerable points is absolutely something that we must take care of every year. We use temporary snow fencing in the shape of slabs; we use ties that happen to be on the ground, placing them on end, end when we can get permission from the owners of the land near us, we have panel fencing that we put in and remove every spring. We have tried planting trees along the right of way. We have something like 65 miles protected in this manner. The principal difficulty that we have had in that connection, particularly in the western country, is to get a tree that will grow in that territory, and under those climatic conditions, and maintain any kind of foliage in winter. The evergreen in this eastern country of yours, I should think, is especially adapted to it, and I understand some of the eastern railways are using it now.

Our weather reporting system, we think, very complete. Every morning and evening there is a weather report sent over the whole system from each headquarters point. If there is any danger of a heavy snowfall, or if weather conditions are unfavorable, we do not in all cases allow our freight trains out. We have it distinctly understood that the train dispatcher, the local superintendent, who must be fully responsible for these things and are held so, must not allow freight trains out on the C.P. R. unless there is every reasonable chance for them to get through. It is considered a very serious matter if a freight train gets out and finds weather conditions existing on the road such that it cannot get through; it is a very serious matter indeed for the superintendent.

In the mountain territory we have also found it necessary to go to the use of snowsheds. Any of you who have ever passed over our lines to the Pacific coast or to the south will know what that means. The Great Northern and some of the railways to the south of us have found it necessary. We had altogether gone to the expense and trouble of building permanent or concrete snowsheds. We have not done that; we have not about seven miles of snowsheds; we were able to eliminate four miles of these when we pierced Mount Donald with a 5-mile double track tunnel. We were able to eliminate 4 miles of these snowsheds by going under the mountain instead of over the top of it.

There is another matter that I would like to mention in connection with the snow troubles, and that is the question of cleaning out sidings. We have a very rigid rule that not only has the main line to be ploughed, but all passing tracks are to be ploughed out at once upon the cessation of a heavy storm. We will not under any circumstances allow cars to be set out on passing tracks. Every operating man knows that there comes a time, through locomotive failure or some other cause, when it is absolutely necessary to clear your main line and put a train on a passing track. The dispatcher's first duty is to start at once everything out of the terminal to clear that passing track, and absolutely no excuse of any man is accepted unless that passing track is at once cleared and kept clear. If you have a single track and heavy business moving over it, every operating man here knows full well the necessity that all your passing tracks be clear, so that there can be no question of a train getting through quickly.

On the C.P.R. we have all classes of freight to handle. The heaviest, if I might say it, the largest or the greatest volume of any traffic that we have, is our grain traffic in the west. The 1915 crop was the heaviest that we were called upon to handle. That was 375,000,000 bush. of wheat. The grain belt of western Canada practically extends over 800 miles. The crop is moved to the head of the lakes, Fort William, there elevated, taken across the Great Lakes, there elevated again, and taken from there to the seaboard in cars. The largest portion of this movement has to take place between Sept. 15 and Dec. 15. Some of our friends to the south of us, in days gone by, when cars were a good deal more scarce than they are now, used to think that we were a little bit stingy in restricting absolutely the use of our cars. Every one of you will appreciate the absolute necessity of getting the largest amount of equipment, of getting the largest number of cars that we possibly can into the western territory prior to Sept. 15, so that there will be no question of delay in getting the crop moved to the seaboard by Dec. 15, or as large

a portion as possibly can be moved. In 1915, the period I refer to, when we had our largest crop, we succeeded in moving 142,000,000 bush. of wheat and 31,000,000 of coarse grains to the head of the lakes in that period. The average daily movement into Fort William was 1,018 cars for the three months, and the biggest for any single day 1,521 cars.

There is another matter that we are watching very closely, and that is the tendency that seems to creep into every railway that I have ever had any knowledge of, viz., the running of fast freights. Fast freights mean, as a rule, reduction of tonnage. I am talking now about the regular fast time freight that some of us have tried to run. It means the reduction of tonnage. It means detention to other classes of freight, and the consequent payment for detention to crews in other classes. I have been told several times that the shipper wants fast freight. I am not too sure about that. I cannot take issue with some of my traffic friends here on that point, because perhaps they might with good reason say that I am not as close to the shipper as they are, but I will say this, that any shipper that I ever met would be a good deal better satisfied with regular freight than he would with any fast freight. At present, with wages and cost of material mounting the way they are, it is absolutely necessary, in my opinion, that every railway should get the full use of a locomotive on every trip that it makes over the road, and that cannot be done, in my opinion, with fast freights, and we do not run them. The same thing, I think, applies more or less to fast passenger trains. Some years ago there was a regular craze for the fast passenger train. It resulted in a race on the part of some of the railways to maintain the fastest schedule. I am of the opinion that, as in the case of the freight schedules, what the great majority of the people want is a dependable passenger service, where they can be assured of arrival at a destination at a given time, rather than so much speed. The craze that I speak of induced various railways to engage in ruinous competition with each other, establishing train services that were not warranted, in an effort to secure fast travel by what I may term "body-snatching." We have, on the C.P.R., attempted in every case to cut out these so called fast passenger trains and absolutely cut out the fast freight trains. The result of these fast passenger trains was increased cost, and you have two or three roads handling two or three passenger trains where there is really only traffic sufficient for one. It always appeared to me that we were successful, in war times anyway, with reasonable conference with the other railways, in always being able to arrange a schedule which would allow each road the traffic which properly belonged to it. That is what we are aiming at on the C.P.R., and that is what I believe is the proper thing for all of us to do.

We have provided ourselves, we think, with excellent repairing plants. I know perfectly well that there are a great many of you that have never been up in our country, and I think that perhaps some information in regard to one of these plants may be of interest to you. We have a large shop at Montreal, another large shop at Winnipeg, and another large shop at Ogden. I won't weary you by giving you the details of all of these shops, but will simply mention the Angus shops in Montreal, which are the nearest to you. At present we have 32 miles of track inside of the fence at Angus, and inside of the fence are 200 acres. There is an annual pay roll for a normal year there of $13,000,000. We can repair 720 locomotives each year. We have a building capacity of 50 new ones. The passenger car repairs are 3,000 a year, and the building capacity is 180. The number of freight car repairs is 24,000 a year, and we can build 6,000. The shops are equipped with luncheon and rest rooms, fire fighting and protection force up to date in every respect. Yet at the same time we always find it necessary every 18 months or two years, thereabouts, or every year, to bring in some outside men and let them go over one of these shops to find out if there is anything that we have overlooked to bring it up to date, or that somebody else perhaps has got that we have not.

We have been a good deal interested in the north in the efforts that have been made by the U.S. railways in what I have heard described as your recuperative work after the roads were handed back by the Government. I don't know that it is generally known, but of course the Canadian roads were not placed exactly in that same position. During the war the control of the Canadian railways was not taken over by the Dominion Government. The management of these roads was left for themselves, as it had been, but the different heads of the roads were formed into an association. We were allowed the same authority exactly in maintaining our properties as we had before. The limitation, of course, and the only one that we had, was the drain on the man power, the commandeering of rolling mills, and certain other industries. These really were the only arrears that had to be overtaken by us. It is true that while transportation of the Canadian army and its equipment was under way, very expensive moves had to be made at times, but no one, I think, either here or in Canada, begrudged that, because that was an effort that went to advance the allied cause.

The C.P.R., like your eastern railways, has a large portion of its system engaged in handling products of highly organized manufactories and industrial concerns, while it also carries the onus of pioneering in territories which are being brought under settlement and development. As an illustration of this, I may say that since the fiscal year ended June 30, 1914, we have put into operation or have under construction, 1,645 miles of railway, in addition to which we have taken over for operation, on behalf of the owners, a system of lines running into the Peace River country, 450 miles in extent, a total in all of 2,100 miles during the period above mentioned.

I do not suppose that I could say anything in connection with railways in Canada without a few words in regard to our Canadian National Rys. Within the last two years our Government has found it necessary to take over the Grand Trunk, the Canadian Northern, the Grand Trunk Pacific and the National Transcontinental, and the merging of five separate units into one national unit. The experiment of government control in the U.S. is different from the policy followed by our Government, in that your property was only commandeered for the duration of the war, but with the Canadian railways all securities, assets, etc., have been acquired by the Government and the lines are owned by the Government outright. The mileage of these Government lines exceeds that of the C.P.R., their mileage being 20,752, and with the exception of the C.P.R., a few provincially owned lines and those forming part of U.S. systems, all Canadian railways have been nationalized. This problem of Government ownership, operating against a privately owned line, will, I have not any doubt, be watched with interest by you. We think that we offer a service on the C.P.R. that really is unequaled in any country, though I have to say it myself, and we insist on the handling of non-competitive traffic with as much care as we do competitive traffic.

Serving the large number of years that I have on the C.P.R., as I have been practically brought up on the road, I am pretty well known to the men from the oldest to the yougest. It has always been one of our prides that we think and feel sure we have loyalty from each one of them, which of course it is absolutely necessary to have if we are going to give that service to the public which they have the right to demand, and it is the object and wish of our executive that everything should be done to make conditions of employment as comfortable as possible. When I look back over the number of years that I have spent on the different portions of the C.P.R., the extreme weather and other conditions that men have been forced up against, the loyalty exercised in all cases contributed largely to the success attained by our road, and one reason certainly is the fact that the men all feel and know that the executive and directors of our company have their interest at heart and will see, as I said before, that everything possible is done to make their living conditions and working conditions comfortable.

Those of you who have read the C.P.R. annual report will have noted with what minuteness of detail the innumerable securities are set forth, yet there are three of the principal assets which have never been tabulated. First: The efficiency to which I refer, which commences with the vigorous effort that has always been in evidence to improve the condition of the property, reducing grade and revising our lines, enlarging terminal facilities, freight sheds, workshops and machinery, with a continual enlargement of motive power and other rolling stock, has made its facilities as modern and as fully abreast of the needs of its constituency as can be imagined, and these manned with the class of men I have referred to. In this connection I may say that at present we are constructing a larger sleeping car, dining car and other passenger equipment than is operating on any railway on the continent, and are turning out freight cars with a carrying capacity of 60½ tons. Secondly: The esprit de corps or morale of the staff, with jealous regard for the interest of the service as a whole and the zeal and confidence of individual and team service, but above all the enthusiasm for the interest of the service as a whole which prevails in every branch. As we know, these qualities, particularly the one of enthusiasm will carry the man of ordinary abilities past an abler man who lacks them. It was this quality that enabled the citizen soldiers of your country, ours, and those of the allies, to meet and beat the splendidly equipped, trained and officered German army. Thirdly: The courtesy of the staff, I was going to say from the highest to the lowest, but I will say from the oldest to the youngest, as each branch of our service we look upon as of the highest standard,

and no matter with whom employes are dealing, I feel sure the public is always treated with the greatest possible politeness and consideration. I venture to say that this spirit is not surpassed by any corporation in the world, and has been taught and imbued into every member of our force from the inception of the railway.

Regulations for Inspection of Railway Steam Boilers, other than Locomotive Boilers.

The Board of Railway Commissioners passed general order 330, Feb. 16, as follows:—Re suggested uniform regulations regarding inspection of railway boilers, other than locomotive boilers. Upon hearing the matter at Ottawa, Jan. 18, 1921, the Canadian National, Grand Trunk and Canadian Pacific Railways, and the Michigan Central and New York Central Railroads being represented, and what was alleged, in pursuance of the powers conferred upon the Board by sec. 287 of the Railway Act, 1919, and of all other powers possessed by it in that behalf, and upon the report and recommendation of the Board's Chief Operating Officer, the Board orders that railway companies adopt and put into force, not later than June 1, 1921, the Regulations Regarding the Inspection of Railway Steam Boilers, other than Locomotive Boilers, viz.

1. These rules shall apply to all steam boilers, and their appurtenances, operated by railway companies within the Board's jurisdiction, except boilers of locomotives, or boilers used solely for heating, which carry pressure not exceeding 15 lb. per sq. in.

2. The chief mechanical officer of each railway company will be held responsible for the general design, construction, and inspection of all boilers covered by these rules. He must know that all inspections are made in accordance with the rules, and that the defects disclosed by any inspections are properly repaired before the boiler is returned to service.

3. The working pressure of each boiler shall be determined by the mechanical engineer, using the formula commonly used in determining safe working pressure, and after a thorough inspection and report by a competent inspector. The minimum factor of safety allowed shall be four. In determining safe working pressure, the maximum allowable stress shall be 7,500 lb. per sq. in., for staybolts and 9,000 lb. per sq. in. for round or rectangular braces supporting flat surfaces.

4. Each boiler shall be given a serial number by the operating railway. A metal badge plate, showing this number and the safe working pressure, shall be attached to each boiler.

5. Specifications of each boiler shall be kept on file in the office of the chief mechanical officer of the railway company. Within one year after this rule becomes effective, each railway company will file report (Form 1) with the chief mechanical officer of the railway company, and a copy with the Board, for each boiler subject to these rules, giving all the data called for thereon.

6. Each boiler shall have at least one safety valve, of sufficient capacity to prevent an accumulation of pressure more than 5% above the working pressure, and shall be connected direct to the boiler. Safety valves shall be set at pressure not to exceed 6 lb. above the allowed working pressure. Working safety valves on boiler shall be tested each day boiler is in use. Failure of safety valve to open before an excess pressure of 10 lb. has been reached must immediately be reported to the proper authority and repairs made. Not less frequently than once each six months, all safety valves on boiler shall be tested, and adjustment made if necessary. At this test, as well as at all other tests where the safety valves are adjusted, two steam gauges shall be used, one of which shall be in full view of the person adjusting the valves.

7. Each boiler shall have a steam gauge, graduated to at least 50 lb. above the working pressure, connected direct to steam space of boiler, equipped with a suitable siphon, and with no more than one cock or valve between boiler and gauge. This cock to be located near steam gauge. Steam gauges shall be tested at least once each six months, or whenever any irregularity is shown, and shall also be tested before any adjustment is made of the safety valve. Each time gauge is tested siphone pipe and cock must be cleaned and examined.

8. Each boiler shall have at least three gauge cocks, and one waterglass, so located that the lowest reading shall be at least 3 in. above the lowest safe water line. Each waterglass shall be equipped with a valve at each end of glass, and with a blow-off or drain at bottom of glass. Gauge cocks, waterglass and water column valves, cocks, and connections shall be maintained in an operative condition, free from leaks, and shall be cleaned of scale each time boiler is washed. Suitable lights shall be provided for waterglass and steam gauge.

9. Before being placed in service, and not less than once each 12 months thereafter, each boiler shall be subjected to a hydrostatic pressure of 25% greater than the working pressure, and the boiler and appurtenances carefully examined while under pressure. After hydrostatic pressure has been applied, a thorough inspection shall be made of every accessible part of the boiler. Manholes shall be removed to permit of interior inspection. Boiler having lap joint longitudinal seams should be examined with special care, to detect grooving or cracks at edge of seams. Water tube boilers should be examined with special care, to detect blistering on the tubes, tubes bending, and leakage or corrosion where tubes are fastened to headers. Soot and cinders shall be cleaned from furnace and combustion chamber, and a thorough inspection made of the brick lining and setting, the fire wall, baffles, and grates. Threaded and flange joints on steam header, steam pipe, and blow-off line shall be examined carefully, for signs of corrosion or wasting. After repairs are completed, the boiler must be fired up, safety valves set, and boiler and appurtenances examined. All cocks, valves, seams, pipes, flanges, and joints must be tight under this pressure. All defects disclosed by any of the above inspections must be repaired before the boiler is returned to use. A certified report of the inspection and repairs (Form 2) shall be filed with the chief mechanical officer of the railway company, and a copy sent to the Board.

10. Locomotive type boilers, working under a pressure of 125 lb. or more, should have the staybolts tested at least once each six months. Locomotive type boilers working under a pressure of less than 125 lb., and vertical type boilers, to have staybolts tested annually. No boiler shall remain in service with five or more broken staybolts.

11. Boilers shall be thoroughly washed as often as water conditions require. Special care shall be given to water tube boilers, to prevent an accumulation of scale in the tubes, and the tubes must be scraped, if necessary. At washout periods, soot, ashes, and cinders shall be cleaned from furnace and combustion chamber, and brick lining, setting, and fire-wall examined.

11a. Not less frequently than once each six months, an inspection of the boiler under steam shall be made by a competent inspector. He shall test the safety valves, gauge cocks, and waterglass, blow-off valve, examine and test the feed pump or injectors, examine steam pipes for leaks, giving close attention to leaks around threaded joints, see that pipes are well braced, that all valves are operative, examine the netting of the boilers and the general condition of the boiler room, with special reference to fire risks. He shall report any defects found to the division officer in charge and to the local officer in charge, so that prompt repairs can be made. A certified report of the inspection and repairs (Form —) shall be filed with the chief mechanical officer of the railway company, and a copy sent to the Board.

12. Boilers in batteries, connected to same steam header, shall each have a suitable valve between boiler and header, which must be maintained in an operative condition.

13. Each steam outlet from boiler (except safety valve connections) shall be equipped with a suitable valve, which must be maintained in an operative condition.

14. Injectors and pumps must be kept in such condition that they will feed water into the boiler against the maximum pressure allowed on the boiler.

15. Boilers with any of the following defects shall be withdrawn from service until after proper repairs are made:—Cracks in cylindrical boilers or headers; bags or bulges in shells of external fired boilers or unstayed surfaces of internal fired boilers; bulges in arch or water tubes; more than one gauge cock inoperative; safety valve inoperative.

16. Boilers showing indications of having been low in water or of mud burning shall not be used until after inspection by a competent inspector.

17. Where necessary to plug flues, the plugs shall be tied together with a rod not less than ¾ in. in diameter, and a report of same made to the officer in charge, who will have proper repairs made.

18. When making internal inspection of one of a battery of boilers, another employe will be stationed outside of boiler, whose duty shall be to prevent steam valves from other boilers being opened into boiler being inspected.

19. An annual certificate of inspection shall be posted, under glass, in a conspicuous place in the boiler room. This certificate shall also show the number of the boiler, the allowed working pressure, the date of inspection, and the signature of inspector. Inspection certificates may be made in triplicate, and copy filed with Provincial Inspector of Boilers, if desired.

Repairs, or Maintenance, of Steel Freight Cars.

By S. Lynn, Master Car Builder, Pittsburg & Lake Erie Railroad.

By referring to the various railway publications for the last four or five years, it was noted that the subject assigned the writer of this paper has been discussed in one form or another, either before the different railway clubs, or by papers written for publication, and from the number of articles found, it would appear that almost every angle of the subject had been covered, and in order to prepare a paper that would deviate from those with which you are possibly familiar, I have taken the liberty to wander somewhat from the direct subject and include a brief outline of some features which, while not directly related to steel car repairs, nevertheless are essential to the proper maintennace of equipment. From what has previously been said and written, the subject of the evening may appear to be rather worn out, or an "old chestnut," but from the writer's viewpoint, it is not only timely, but is also one of the most important that concerns the railways of both Canada and the United States.

The history of the steel freight car is modern history, as it has been known in general service for less than 25 years. Its development has been gradual, starting with self clearing hoppers and drop bottom gondolas of 80,000 lb. capacity, and extending at the present time to every type of railway service. Heavier motive power, with greatly increased train tonnage, has created a demand for cars of increased capacity. The limit of capacity apparently has not yet been reached, since one of the large car companies has, within the year, built cars of 120 tons capacity.

While no accurate figures are available, it is estimated that approximately 75% of the 2,500,000 freight cars in service in North America are either of all steel, steel underframe or steel center construction. As this number of cars represents an investment of over three billions of dollars, the importannce of keeping them in good repair and in service is self evident.

Repairs to steel cars are necessitated by the following causes: deterioration, caused by age and ordinary wear and tear; and abuse, caused by rough handling and damage done in loading and unloading. The latter of these causes will not be discussed in this paper, since such damage varies greatly with the locality, and with the service in which the cars are used, and is a matter for correction by individual roads and shippers.

Freight cars should be designed of sufficient strength to withstand the shocks incident to modern service, such as the starting and stopping of trains, and necessary handling in yard switching. Some of the earlier cars were designed with a view of decreasing the dead weight, and our experience has proved that the weight had been reduced too low to be consistent with satisfactory service. The tendency for a number of years past has been to increase somewhat the weight of the cars, not by using heavier steel plate for the sides of floors, but by strengthening the sills, and also the sides, by the application of angles along the top of the sides of the cars, and by the application of heavier draft gear.

Cars with wooden center sills and draft timbers have proved inadequate and this has led to the various reinforcement programmes now in use on many railways as a means of continuing their cars in service. The center sills, draft sills, and draft gears should have sufficient strength to withstand the shocks to which they are subjected, or they will be broken, bent or buckled, with consequent extensive damage to the superstructure.

A casual inspection in almost any classification yard will reveal the fact that repairs to steel cars have been badly neglected during the past few years. Large numbers of cars may be seen with floor, hopper and side sheets badly corroded, and, in many cases, rusted and worn entirely through. A close inspection will usually develop the fact that center sills are buckled, either in front of, or between, the body bolsters. This condition is due either to faulty construction, sills of insufficient area, abuse in service, or neglected maintenance. Conditions existing during the recent world war imposed many hardships upon the railways generally, making it almost impossible for them to keep the maintenance of their freight equipment up to pre-war standards. Shortage of labor and materials, coupled with the pooling of equipment, had a tendency toward deferred maintenance, which resulted in merely patching up worn out cars and keeping them in service long after they would have been shopped for rebuilding under a normal maintenance programme. The large percentage of home cars on foreign roads resulted in neglect, since proper material for repairs of foreign cars was not generally carried in stock. This resulted in makeshift repairs, most roads doing only enough work on foreign equipment so that it would haul one more load, in the hope that it would carry that one load off the line and never return. The results of this practice are now most evident, when cars are being returned to the home roads in large numbers and in universal bad order.

In the matter of painting, steel cars have also suffered from neglect. While it may be a debatable question as to whether or not it pays to keep the bodies of open top steel cars well painted, all will agree that it is at least necessary to preserve the identity of the car. The writer believes that the exterior of steel cars should be kept well painted, as by this process at least one side of the steel is protected against corrosion, and, in addition to this, well painted equipment is a good advertisement for any road. It is obviously impractical to attempt painting the interior of open top steel cars, since the commodities usually carried in such cars consist of coal, coke, iron ore, limestone, furnace slag and mill products, which, in the process of loading and unloading so badly damage the paint that it would serve no purpose as a protective coating. The interior of steel equipment is where corrosion is the most evident, and is probably due to moisture laden with acids from the products of the mines and mills, or to electrolysis caused by impurities existing in the steel itself.

There is also a difference of opinion among mechanical officers as to the maintenance of steel cars. Some recommend patching up the holes, and repairing the damage caused by wear and corrosion, as long as practicable, and when deterioration becomes too extensive to warrant further patching, the car body is cut up and scrapped, and new bodies built and placed on the old trucks, or, if the trucks are of insufficient capacity, or poorly designed, the entire car is scrapped and replaced with a new unit of equipment. Others maintain that it is better to give the car current repairs, by renewing the parts as fast as they become defective, thereby prolonging the life of the car indefinitely.

It is not the purpose of this paper to try to convert anyone to either of these systems, as both have their merits. So many things must be taken into consideration in a discussion of this subject, that it is impossible to give them more than passing notice here. The reproduction cost of the body, the cost of providing necessary additions and betterments, the condition of the trucks, the capacity of the car, the class of service for which it is intended, and the expectation of future life in service, must also be taken into consideration. Another feature that cannot be overlooked is the repair facilities of the home road and the number of cars awaiting rebuilding. It may develop that several series of cars fail at about the same time, and, with a large number of cars standing out awaiting extensive repairs, amounting practically to rebuilding, at a time when they are badly needed in service, it might be advisable to retire one or two series in favor of new equipment, which could be built by outside companies in much less time than would be required to repair the bad order cars on hand at the shops of the owning road.

Up to this point the steel car has been dealt with in general terms and I would like now to state a few things that in my opinion are necessary to maintain steel car equipment properly and economically. Shops should be provided at points where heavy repair steel car work is to be performed. They should be well lighted and ventilated, and, in the colder sections of the country, should be properly heated. Overhead crane service is desirable, and, by proper arrangement, eliminates the necessity for material tracks between the working tracks, thereby decreasing floor space. Small wall or jib cranes should be installed to handle yoke riveters, etc. The money expended for shops will repay the investment many times over in a few years and it is a fallacy not to provide them. While I would not say that a steel car cannot be repaired outside, under adverse weather conditions, I believe that the work can be carried on more successfully where shops are provided.

Shops should be well equipped with suitable machinery, properly located, so that repair parts may be made economically, without any lost motion or backward movement. It is a question whether or not it pays to attempt the manufacture of all steel car parts in the average railway shop. Some of the larger roads buy most of their car repair parts, already punched and pressed into the proper shape ready for application. However, it is necessary to have sufficient machinery to make odd parts, or to extend the supply when exhausted, as it is almost impossible to keep sufficient parts on hand to meet all conditions. Punches, shears, hydraulic presses, heating furnaces, and a good supply of efficient pneumatic tools, are indispensable in the

modern shop and will soon repay the initial cost of installation. Sufficient compressor capacity, with facilities for supplying dry air at all times, is necessary for the economic use of pneumatic tools. Proper facilities should also be provided to take care of the scrap parts that will accumulate, and the shop and surroundings should be kept clean at all times. While this may not seem important to some, nevertheless it has a certain moral effect on the workman which should not be underestimated.

Other facilities must be provided, such as store houses, storage yards, air brake shops, paint shops, oil houses, etc., depending on the size of the shops. The storehouse or material supply house should be located as near the shops as possible, and electric tractor service, or other means, installed for convenient and economical transportation of materials. Fuel supplies and stores should be under direct supervision of the foremen in charge, or, if the shop organization does not permit this, the storekeeper and car foreman should be very close together, and work in perfect harmony.

Another and probably one of the most important factors in repairs to steel cars, is the quality and quantity of supervision. Sufficient intelligent supervision must be furnished, or the work will lag, and both the quality and quantity of the output will suffer. The gang foreman who comes into daily personal contact with every man under him is the keystone of any organization. He forms the contact point between the management and the men, and when the contact is broken the current ceases to flow. These men should be selected from the ranks, if possible, and should be men who have developed ability and initiative in their work and they should also have ability to handle the workmen. While a thorough knowledge of how to perform the work is necessary, this is not the first requisite, as ability to handle men, and personality, stand above this qualification. Foremen should be intelligent, and fairly well educated, in order that they may read the rules, blueprints and instructions, and apply them intelligently, and also that they may be eligible for promotion to higher positions as vacancies occur. Wages paid foremen should be sufficiently attractive to create an incentive for the men working under them to fit themselves for their positions. The successful supervisor, in addition to his knowledge of the work, should show loyalty toward his employer, have the courage to enforce discipline, insist on and obtain a fair day's work from every man in the service, and be absolutely impartial in handling his men, in order to obtain and hold their co-operation and respect. He should also have the vision and ability necessary to discover trouble makers and weed them out before the remainder of the organization becomes contaminated. No man should be placed in the position of foreman unless the appointing officer feels that the man selected is capable of developing the necessary initiative and ability to accept any position up to the top of the shop organization, as those men selected for the bottom round of the ladder should be capable of advancing step by step until they reach the top. Most higher supervisory officers have not the time to mingle with the workmen, and they must depend on their foremen to provide the little touches of personality and co-operation that are the life of any organization.

Another important feature is the personnel of the shops. Wages paid, and working conditions, should be such that they attract capable young men to seek employment in railway shops. Unless this is done, there is a tendency for skilled mechanics to seek more remunerative employment in industrial work. This is particularly true in the large industrial centers. The tendency prior to Federal control, in some sections of the United States, due to shortage of mechanics and inability to induce young men to enter the service, has been to hire foreigners from central and southern Europe, men who have never had any mechanical training, and to try to make mechanics out of them. These men come to us wholly unacquainted with our language, our customs, and our laws, and must be assimilated into our organizations. While at first a rather costly proposition, with proper and tactful handling, they usually learn very rapidly, and have become the mainstay of some of our car shop organizations. It is very important that those charged with the handling of these men should by careful and tactful treatment, instill in them the principle of loyalty to their employers, and with proper encouragement and fair dealing on the part of their foreman, the majority of them readily become acquainted with our methods of work. The nationalization of foreigners has become an important subject and it is very generally conceded that they are more easily reached in the shops than in their homes. However, any tendency toward radicalism should be carefully watched, and immediate steps taken to circumvent it.

This outline of facilities, when sufficiently elaborated, should furnish any railway with the proper equipment to keep its steel freight cars in good repair, provided, of course, that sufficient capacity is furnished to take care of its equipment as fast as same is marked out for the shop.

The only commodity a railway has to sell is transportation. Anything that tends to increase the quantity or speed of transportation is a distinct addition to the wealth and resources of the country. Good efficient motive power may be essential, but without freight cars the railways would have little use for locomotives. Estimating that 4% of all the cars in the country are shopped, every day of unnecessary delay in returning them to service represents a perdiem loss to the railways of approximately $100,000. The importance of providing adequate shop facilities is self evident.

In the actual work of repairs it is suggested that draft attachments and center construction be sufficiently strengthened, so that the shocks incident to modern service will be absorbed and distributed throughout the car, without causing extensive damage to the superstructure. Center and draft sills should have sufficient area, and should be protected against buckling by the use of cover plates. A common cause of failure is due to bodies of hopper cars not being securely fastened to center sills. A few rivets are driven in inside hopper sheets, to hold the body of the sills, and the heads corrode and wear off the rivets, allowing them to pull through the sheets. This results in the whole strain being thrown on the body bolsters, which are usually of a wide single plate type, with the result that they are unable to stand up under the strain. The sills start moving back and forth under the car, and it soon gets in such condition that permanent repairs become a rather expensive proposition. Sides and ends of steel equipment should be properly re-inforced, to prevent bulging out under load. Drop door equipment should be kept in proper working order to facilitate unloading. Care should be taken, in repairing trucks, to provide side bearing clearance, and to see that brakes and all running gear are kept in good condition.

A well defined programme of re-inforcement should be outlined and put into practice on all roads. The cost of such additions and betterments is usually insignificant, when the future life and productive service of the car are considered. Money appropriated for such features is a good sound investment, when judiciously used, and should pay large dividends. Many roads make the mistake of repairing their older equipment in kind, as they did not have exacting conditions on their lines. Such equipment should either be re-inforced or kept on their own lines and not offered in interchange, where there is a possibility of it getting out into the large industrial centers and in heavy tonnage trains, when it is almost an impossibility to keep it off the repair tracks. This places an unnecessary burden of expense on both the owner and the handling line. As cars come into the shop for general repairs, a careful inspection should be made, and if the car has not deteriorated to the extent that it is felt advisable to scrap it, it should be repaired in accordance with a well defined re-inforcement programme, as outlined. Otherwire, if this is not done, after considerable money has been spent on the car, it will again, due to inherent weakness, be back on the shop track.

In conclusion, if the railways were provided with the facilities, and a maintenance programme similar to that suggested in this paper was adopted by all roads, and an honest effort was made to maintain the cars in accordance with that programme, the steel cars in the country would give the owner a better return for the money invested, in the way of better service and in increased life of the cars.

The foregoing paper was read before the Canadian Railway Club, in Montreal, recently.

Editor's note:—In the last paragraph but one of Mr. Lynn's paper he says that "many roads make the mistake of repairing their older equipment in kind." While this a term frequently used by car men, in talking of repairs to equipment when shopped, it may not be quite clear to some readers. It means that many railways, when making extensive repairs to their older cars, instead of making a study to determine weak parts and re-inforce them, go ahead and make the repairs in kind, i.e., following the same manner of construction as when the cars were built originally. In other words, they perpetuate a weak construction, when actual service has shown that certain parts of the car failed very rapidly, and to get the best results some alterations and changes in that particular part of the car should have been made, as, instead of developing the improvements necessary to strengthen the car, they still maintain it according to the original specifications.

Rental of Railway Owned Equipment.

The Railway Association of Canada has issued a circular to member companies, recommending standard minimum rates of rental for use of railway owned equipment, loaned to other railways, or to outside concerns.

Steam Railway Income Statistics for Year Ended June 30, 1919.

Canadian Railway and Marine World for March contained a table giving the mileage of steam railways in Canada, with details of the freight and passenger earnings of the operating expenses and net operating earnings or deficits. In the following table the 1st column shows the net revenue or deficit on the railway operations of the several companies; where there was a deficit the figures are preceded by a minus mark, thus —; the 2nd the profit or loss from operations outside railways, and the 3rd the income from all other sources. The 4th column shows the taxes paid, the 5th gives the gross corporate income, from which is deducted the amounts in the 6th column, viz.: rents, interest on funded debt, sinking fund, etc.; the 7th column shows the net corporate income available for special appropriations, dividends on common and preferred stock, or held in profit and loss account. The cents have been omitted in the columns, but are included in the totals.

Name of Railway	Net operating revenue or deficit	Profit or loss from outside operations	Other income from all sources	Taxes deduction	Gross corporate income or loss	Rents, interest, sinking funds, etc.	Net corporate income or loss
Alberta & Great Waterways	$ —13,932	$ —2,196	$ 18,741	$ 2,708	$ —96	$ 174,938	$ —175,034
Algoma Central & Hudson Bay	509,754	.....	115,645	33,321	592,078	810,358	—218,279
Algoma Eastern .	349,626	.....	1,133	2,283	348,276	331,237	17,238
Atlantic, Quebec & Western	—24,643	.....	57,974	3,288	30,042	30,042	.....
Brandon, Saskatchewan & H.B.	—152,846	.....	641	895	—153,099	1,668	—154,768
British Yukon . .	64,396	.....	15,965	6,821	73,539	106,669	—33,129
Canada & Gulf Terminal	18,336	.....	570	1,214	17,692	.....	17,692
Canada Southern . .	8,084,361	.....	258,331	341,286	8,001,406	4,018,819	3,982,586
Canadian National Rys.—							
Canadian Northern . .	—1,477,582	351,448	1,215,177	816,721	—727,678	19,466,307	—20,193,986
Elgin & Havelock	—44,753	.....	.....	.....	—44,753	1,383	—46,137
Intercolonial . .	—4,511,878	.....	618,477	.....	—2,224,291	67,810	—2,292,102
International of N.B.	—253,917	.....	806	.....	—253,051	21,352	—274,404
Moncton & Buctouche .	—44,096	.....	79	.....	—44,017	1,294	—45,312
National Transcontinental .	—716,543	.....	4,166	11,153	—2,392,640	769,541	—3,102,182
Prince Edward Island	—842,818	.....	333	.....	—842,485	.....	—842,485
St. John & Quebec	—70,844	.....	.....	.....	—70,844	33,505	—104,350
St. Martins . .	—38,229	.....	.....	.....	—38,229	898	—39,128
Salisbury & Albert	—72,707	.....	18	.....	—72,689	3,502	—76,191
York & Carleton .	—19,167	.....	.....	.....	—19,167	759	—19,926
Canadian Pacific .	32,429,475	1,549,983	8,753,896	2,668,727	40,067,627	3,087,364	36,977,263
Cape Breton .	—5,685	.....	.....	.....	—5,685	730	—6,415
Central Canada . .	—31,032	.....	.....	24	—31,057	56,761	—87,819
Central Vermont .	—71,898	.....	22,489	5,309	—54,717	43,447	—98,165
Crows Nest Southern	—249,670	.....	217	3,663	—253,116	5,201	—258,318
Cumberland . .	24,720	.....	.....	.....	24,720	.....	24,720
Dominion Atlantic .	210,639	—1,690	15,375	950	223,374	345,179	—121,805
Eastern British Columbia	—17,560	.....	.....	2,746	—20,306	5,216	—25,523
Edmonton, Dunvegan & B.C.	59,896	—388	16,124	3,496	72,136	448,161	—376,024
Esquimalt & Nanaimo	311,337	.....	.....	28,423	282,913	246,265	36,647
Essex Terminal .	44,018	.....	.....	.....	44,018	21,000	23,018
Fredericton & Grand Lake C. & R. Co.	40,798	.....	.....	3,328	33,649	82,331	—44,681
Grand Trunk . .	9,432,819	.....	2,596,823	1,055,152	10,965,489	11,986,476	—1,020,986
Grand Trunk Pacific	—4,152,922	74,058	3,683,477	54,799	—450,784	*10,629,426	—11,079,611
G.T. Pacific Branch Lines*	—1,220,596	.....	1,920	25,053	1,244,329	1,230,073	*—2,474,403
Hereford ..	—140,057	.....	28	1,814	141,843	33,110	—174,954
Kettle Valley . .	—157,575	.....	207,652	8,603	41,474	723,435	—681,961
Lotbiniere & Megantic	5,395	.....	.....	900	4,495	2,057	2,438
Maine Central . .	1,404	.....	.....	626	778	3,201	—2,432
Manitoba Great Northern	—140,731	.....	461	620	—140,890	5,285	—146,176
Maritime Coal, Ry. & Power Co.	33,081	.....	.....	.....	33,081	8,417	24,663
Massawippi Valley .	—129,852	.....	1,333	2,761	—131,281	37,551	—168,832
Midland of Manitoba	—107,006	.....	30,371	29,896	—106,531	67,481	—174,012
Montreal & Atlantic	78,701	.....	1,400	20,966	59,134	118,342	—59,207
Morrissey, Fernie & Michel	—4,039	.....	16	178	—4,200	.....	—4,200
Napierville Jct. .	148,668	.....	6,576	2,235	153,010	26,618	124,391
Nelson & Fort Sheppard	—95,511	.....	3,950	48	—91,609	3,833	—95,442
New Brunswick Coal & Ry.	—26,014	.....	.....	38	—26,053	2,850	—28,903
New Westminster Southern	—14,320	.....	211	221	—14,330	11	—14,342
Ottawa & New York	—61,633	.....	121	7,372	—68,885	24,358	—93,243
Pacific Great Eastern	—175,503	.....	.....	.....	—175,503	.....	—175,503
Pere Marquette . .	1,945,699	.....	2,769	1,220	1,947,249	677,556	1,269,693
Quebec Central .	620,752	.....	7,370	21,169	606,953	332,211	274,741
Quebec, Montreal & Southern	—112,313	.....	278,560	7,623	158,623	265,806	—107,183
Quebec Oriental . .	26,594	.....	6	3,093	23,506	132,290	—108,784
Quebec Ry., Light & Power Co.	19,551	.....	.....	3,226	16,325	.....	16,325
Red Mountain . .	—27,569	.....	65	1,546	—29,050	219	—29,270
Roberval-Saguenay . .	74,310	.....	50,201	554	123,958	106,447	17,510
Rutland & Noyan	—1,905	.....	4,000	28	2,066	4,000	—1,933
St. Lawrence & Adirondack	260,018	.....	.....	12,094	247,923	269,264	—21,340
Sydney & Louisburg	114,966	.....	.....	.....	114,966	.....	114,966
Temiscouata . .	54,632	.....	1,378	4,720	51,291	37,329	13,961
Timiskaming & Northern Ontario	142,406	.....	74,046	.....	216,452	77,029	139,423
Toronto, Hamilton & Buffalo	811,110	.....	185,060	33,985	962,184	301,998	660,186
Vancouver, Victoria & Eastern	—843,195	.....	246,851	76,705	—673,049	240,240	—913,290
Victoria & Sidney	—8,712	.....	.....	1,075	—9,787	.....	—9,787
Victoria Terminal Ry. & Ferry Co.	—820	33	311	1,415	—1,891	108	—2,000
Wabash (in Canada)	1,281,829	.....	.....	.....	1,281,829	.....	1,281,829
Total	$57,190,484	$1,975,523	$18,501,190	$5,316,713	$66,823,470	$57,530,798	$45,019,297
	—16,080,492	—4,275			—10,557,352		—46,283,987
	$41,110,392	$1,971,248			$56,266,118		—$1,264,690

*See Notes to Steam Railway Income Statistics on page 183.

Notes to Steam Railway Income Statistics.

In the table of steam railway operating statistics for year ended June 30, 1919, on the preceding page, the item of $10,629,426.96, shown under rents, interest, sinking fund, etc., for Grand Trunk Pacific Ry., includes a loss of $2,673,248.13 on G.T.R. separately owned properties, $2,474,403.55 of which was on G.T.P. Branch Lines. The latter amount is also shown as a loss on G.T.P. Branch Lines.

The following table gives the totals of the several columns of the table on the preceding page, showing the income of the various railways, and its disposal, compared with the corresponding figures for the year ended June 30, 1918.

	1919.	1918.
Net operating revenue..	$57,190,484	$63,776,500
Net operating deficit....	16,080,492	7,511,785
Total operating revenue	$41,110,392	$56,264,715
Profit from outside operation	$1,975,523	$1,693,114
Loss from outside operations.	4,275	3,763
Total profit from outside operations	$1,971,248	$1,679,351
Other income from all sources	$18,501,190	$19,625,863
Tax deductions	$5,316,713	$4,711,262
Gross corporate income	$66,823,470	$79,882,353
Gross corporate loss.....	10,557,352	7,021,687
Total corporate income	$56,266,128	$72,860,666
Rents, interest, sinking fund, etc.....	$57,530,798	$54,523,437
Net corporate income....	$45,019,297	$49,657,540
Net corporate loss.....	46,283,987	31,329,311
Total corporate profit or loss	—$1,263,690	+$18,328,229

Wanted a "Lower."

"Hello," called a feminine voice, as the Secretary of the Hamilton, Ont., Cemetery Board answered the telephone in his office.

"Give me a lower for to-morrow afternoon," requested the lady.

"Who is it for?" he queried.

"It's for myself, I want a lower berth for the 4 o'clock train," cheerfully replied the voice at the other end of the wire.

"You want a lower berth for 4 o'clock to-morrow afternoon," repeated the Secretary, then added, "Madam, this is the cemetery."

"Oh, my God!" came in terrified tones from the lady; "I thought it was the T. H. & B. Ry."

The cemetery telephone number is 1320 and the T. H. & B. Ry. 7320.

Mount Royal Hotel Co. Ltd.—The organization of this company, which has been formed to build a large hotel, on the old high school site on Peel St., Montreal, and which has an authorized capital of $9,000,000, is reported to have been completed and to include among its directors the following:—H. G. Kelley, President, G.T.R.; J. K. L. Ross and Hon. W. J. Shaughnessy, directors, C.P.R.; A. D. MacTier, Vice President, Eastern Lines, C.P.R.; J. T. Loree, General Manager, Delaware & Hudson Co.; G. H. Duggan, President, Dominion Bridge Co.; W. W. Butler, President, Canadian Car & Foundry Co.

Thieves Punished. — Four C.P.R. employes, engaged formerly at the Sortin yards, Montreal, were sentenced on Mar. 8 to five years in St. Vincent de Paul penitentiary, for stealing about $43,000 of cigarettes from freight cars. They pleaded guilty.

Birthdays of Transportation Men in April.

Many happy returns of the day to:—

F. G. Adams, Assistant General Freight Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at St. John's, Nfld., April 6, 1878.

W. H. Ardley, ex Comptroller, G.T.R.. and Grand Trunk Pacific Ry., Montreal, born at London, Eng., April 24, 1858.

Jas. Black, Freight Claim Agent, C. P.R., Vancouver, B.C., born near Seaforth, Ont., April 19, 1858.

C. G. Bowker, General Superintendent, Ontario Lines, G.T.R., Toronto, born at Medford, N.J., April 21, 1871.

G. C. Briggs, Supervisor of Buildings, Eastern Lines, Canadian National Rys., Toronto, born at Cockermouth, Eng., April 23, 1886.

Major F. D. Burpee, Manager, Ottawa Electric Ry., and Vice President, Canadian Electric Railway Association, Ottawa, Ont., born there, Apr. 25, 1876.

J. R. Caswell, Division Engineer, Sudbury Division, Ontario District, Sudbury, Ont., born at Coldwater, Ont., Apr. 13, 1892.

G. Cobb, Superintendent, Western Division, Reid Newfoundland Co., Bishop's Falls, Nfld., born at Coupar Angus, Scotland, April 21, 1885.

A. V. Collins, Travelling Auditor, Canada Steamship Lines Ltd., Toronto, born at Island Pond, Vt., April 21, 1868.

J. P. Doherty, Export Freight Agent, Canadian Government Merchant Marine Ltd., Montreal, born at Portland, Me., April 8, 1889.

W. A. Duff, Assistant Chief Engineer, Canadian Government Railways (Canadian National Rys.), Moncton, N.B., born at Hamilton, Ont., April 20, 1877.

A. Gaboury, Superintendent, Montreal Tramways Co., Montreal, born at Montreal, April 6, 1875.

Lieut.-Col. F. A. Gascoigne, D.S.O., Secretary-Treasurer, Canadian Pacific Ocean Services Ltd., Montreal, born at Gosport, Hants, Eng., April 2, 1866.

J. Murray Gibbon, General Publicity Agent, C.P.R., Montreal, born at Udewella, Ceylon, April 12, 1875.

V. A. Harshaw, Manager, Fredericton & Grand Lake Coal & Ry. Co., and New Brunswick Coal & Ry., Fredericton, N.B., born at Mono, Ont., April 26, 1865.

L. M. Hatfield, Assistant Marine Superintendent, Canadian Government Merchant Marine Ltd., Montreal, born at Yarmouth, N.S., Apr. 4, 1880.

E. J. Hilliard, Division Freight Agent, Canadian National-Grand Trunk Rys., Ottawa, Ont., born at Montreal, April 14, 1870.

J. H. Johnston, Stores Department, G.T.R., Montreal, born at Uxbridge, Ont., April 22, 1866.

Capt. A. H. Kendall, M.C., Master Mechanic, Quebec District, C.P.R., Montreal, born at Aspatria, Cumberland, Eng., April 4, 1878.

A. A. Larocque, President, Sincennes-McNaughton Line Ltd., Montreal, born at Henryville, Que., April 30, 1865.

G. W. Lee, Chairman, Timiskaming & Northern Ontario Ry. Commission, North Bay, Ont., born at Renfrew, Ont., April 15, 1871.

W. E. McGill, Assistant Superintendent, Montreal Terminals Division, Quebec District, C.P.R., Montreal, born at Toronto, April 5, 1884.

J. A. Macgregor, Manager, Edmonton, Dunvegan & British Columbia Ry., Edmonton, Alta., born at Dufftown, Scotland, April 5, 1873.

G. P. MacLaren, Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry., Toronto, born at London, Ont., April 4, 1878.

B. R. Marsales, District Freight Agent, Canadian National-Grand Trunk Pacific Rys., Saskatoon, Sask., born at Guelph, Ont., April 13, 1887.

Paul J. Myler, President, Canadian Westinghouse Co., Ltd., Hamilton, Ont., born at Pittsburg, Pa., April 24, 1869.

J. H. Norton, Assistant General Freight Agent, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Shaftesbury, Eng., April 21, 1884.

T. R. Percy, General Agent, Canadian Pacific Ocean Services Ltd., Yokohama, Japan, born in Ireland, April 21, 1888.

G. D. Perry, General Manager, Canadian National Telegraphs, Toronto, born at Whitby, Ont., April 19, 1858.

S. J. L. Potter, Local Treasurer, Eastern Lines, Canadian Northern Ry., Toronto, born at Burrington, Devonshire, Eng., April 5, 1887.

R. A. Pyne, Superintendent of Motive Power and Car Department, Western Lines, C.P.R., Winnipeg, born at Toronto, April 10, 1874.

Lieut. R. S. Richardson, Superintendent, Canadian National Rys., Fort William, Ont., born at Napanee, Ont., Apr. 9, 1865.

E. W. Smith, Superintendent, Dining and Parlor Car Service, G.T.R., Toronto, born at North Bridge, Mass., April 21, 1869.

J. A. Sutton, General Fuel Agent's office, Canadian National Rys., born at Moncton, N.B., April 12, 1894.

J. J. Sullivan, Roadmaster, C.P.R., Lauder, Man., born at Fishers, N.Y., April 29, 1866.

G. M. Thomas, Commercial Agent, Canadian National-Grand Trunk Rys., Windsor, Ont., born at Dundas, Ont., April 21, 1876.

W. S. Tilston, Manager, Montreal Board of Trade Transportation Bureau, born at Manchester, Eng., April 14, 1877.

C. H. Towle, Assistant Superintendent, Smiths Falls Division, Quebec District, C.P.R., Smiths Falls, Ont., born at Enfield, Me., April 13, 1878.

W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., Montreal, born at Hope, Ind., April 2, 1884.

W. Woolatt, Vice President and General Manager, Essex Terminal Ry., Walkerville, Ont., born at Weedon, Hertfordshire, Eng., April 2, 1855.

Car Service Rules.—F. Price, Superintendent Car Service, G.T.R., has been having a series of meetings of employes, at the company's various terminals, to educate them in the proper interpretation and application of car service rules, governing the handling of foreign cars on the company's line. Although the rules have been in effect for some time, there appears to have been a lack of uniform understanding and the meetings were held to remove this disability.

Timiskaming & Northern Ontario Ry. Offices.—The T. & N.O. Ry. Commissioners' offices at 56 Church St., Toronto, were closed on Feb. 26 and the staff transferred to North Bay. The Chairman of the Commission, G. W. Lee, had established his office at North Bay previously, and the Secretary-Treasurer, W. H. Maund, and the Auditor of Disbursements and Accountant, D. Hamilton, are also now located there with their staffs.

Air-operated Rail Handling Machine.

An air-operated machine, which greatly facilitates the handling of steel rails, and which is similar to others used at different points on the C.P.R. lines, is in use at that company's Toronto shops. In fig. 1, given herewith, the large horizontal gear wheel has its gear teeth meshing with those of a smaller one, to the left as in the illustration (the smaller one being hidden behind the pulley). The smaller gear meshes with horizontal gearing at the bottom of the vertical shaft of the air operated motor, shown in the illustration. This motor is reversible, and its function is to afford power for, and govern, the swinging horizontal movement of the boom. The vertical movement is accomplished by means of the vertical compressed air cylinder, shown in fig. 2, the operation of which is controlled by a valve, conveniently located to the left of the operator, the function of the valve and its pipe connections being to admit air to, and exhaust air from, the cylinder, to raise and lower the boom.

At one time this rail handling machine was used at the West Toronto shops in the same way that it would be used on the road, i.e., in connection with a locomotive, compressed air being taken from the main reservoir of the locomotive, by coupling up a hose to the rail loader from the train line connection, and placing the handle of the automatic brake valve in full release position. The expense in connection with a locomotive and crew was demonstrated to be unnecessary, by the introduction of a 1 in. pipe, extending through the material yard and adjacent to the tracks serving the rail storage. Compressed air from the shop compressor is supplied through this pipe to the rail loading machine. This loader can load or unload rails very rapidly and efficiently, and is a great improvement over older methods, as concerns speed and economy, in handling steel. We are indebted to J. E. McEwan, Foreman, Material Reclaiming Department, West Toronto Shops, C.P.R., for this information.

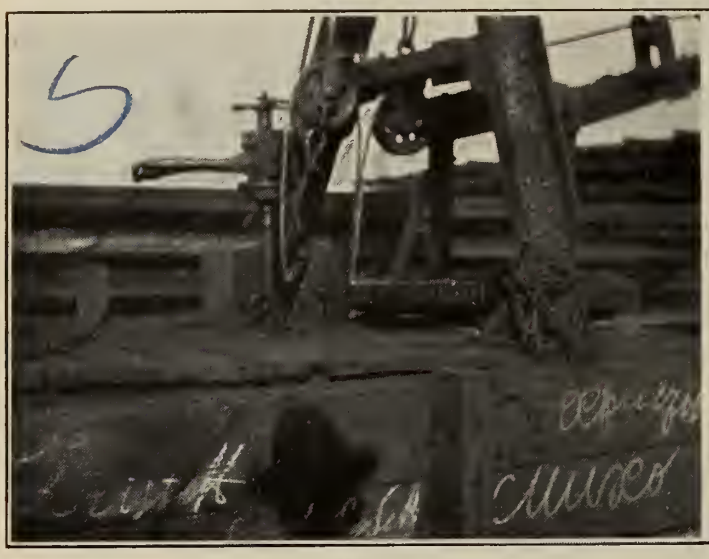


Fig. 1. Air Operated Rail Handling Machine.

Fig. 2. Air Operated Rail Handling Machine.

New England railways are reported to have presented evidence to Interstate Commerce Commission to show that they are losing 3.6c. per ton mile on freight, while roads west of the Hudson River are making a profit of 3.2c. per ton mile.

Standard Locomotive Headlight and Cab Wiring, Canadian National Rys.

The headlight, cab lights and classification lights are an important part of locomotive equipment, a failure of which, while the locomotive is on the road, causes a great deal of inconvenience. The Canadian National Rys. standard locomotive wiring plans, which are shown in the accompanying illustrations, are designed to afford permanence and reliability in this connection.

The insulated wires to the headlight run from the terminal box through the handrail to the headlight, classification lights, number light, and snow plough connection. Where headlight is equipped with pilot light socket, as shown in fig. 1, it should be wired in multiple with snow plough circuit.

Wires to the tail light, tender marker lights and water funnel light run, in conduit, from the terminal box back through the switches in cab, thence through a loose steel flexible conduit used between locomotive and tender (this being fitted with a 3-point plug which connects into a q.h.b. receptacle, allowing the locomo-

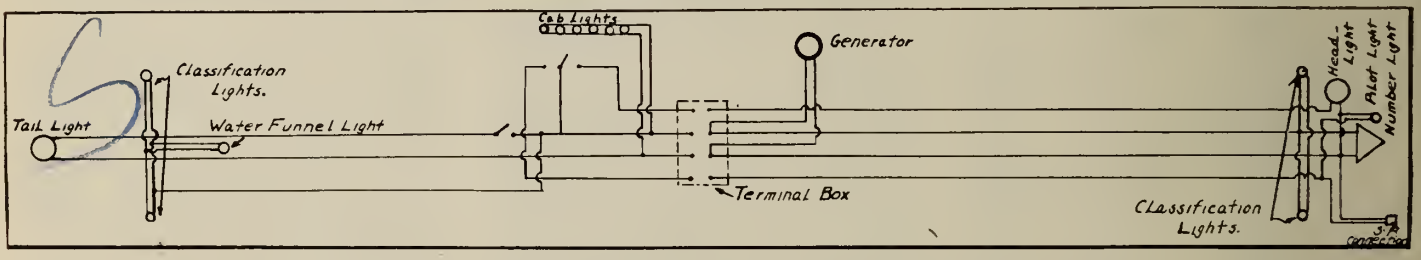


Fig. 1. Standard Locomotive Headlights and Cab Wiring, Canadian National Railways.

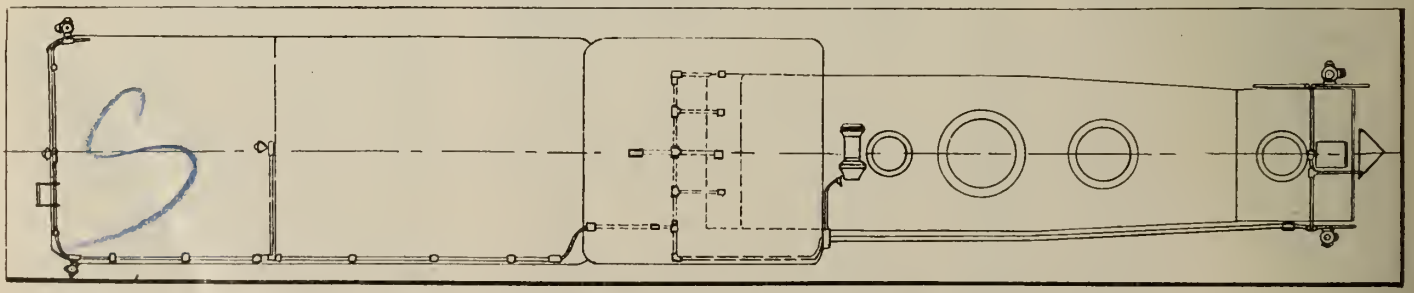


Fig. 2. Standard Locomotive Headlights and Cab Wiring, Canadian National Railways.

tive and tender to be disconnected without the necessity of severing the wires), and thence through the handrail on the tender. Condulets are fitted at the required places, to permit the various lights on the tender to be applied. The lights in the cab are capable of being detached at any time, without interfering with the permanent conduit work. Benjamin 903G plugs are used for this purpose, with steel flexible conduit and asbestos covered cord.

In practically all of the locomotive headlights, 250 watt nitrogen bulbs are used, in place of the arc light which was formerly standard with locomotive electric lighting equipment.

We are indebted to J. Stirling, Foreman Electrician, C.N.R. Leaside Shops, Toronto, for this information.

Freight and Passenger Traffic Notes.

Thomas Cook & Sons, tourist agents, have opened an office at 732 George St., Vancouver, B.C., and it is reported that F. Bew, from the company's New York office, has been placed in charge.

The Canadian National Rys. have made a very extensive curtailment of train services. Through trains are not affected, but locals and branch line services have been cut down to the minimum.

The Board of Railway Commissioners will hold a series of sittings at western points in connection with the equalization of eastern and western freight rates as follows:—Vancouver, April 7; Victoria, April 11; Calgary, April 18; Edmonton, April 20; Saskatoon, April 21; Regina, April 22; Brandon, April 23; Winnipeg, April 25.

The Canadian National Rys. freight and passenger staffs at Victoria, B.C., expected to move by the end of March into their new quarters at 911 Government St., the entire building to be occupied by the several departments. The building has been remodelled and refitted at a cost of approximately $16,000.

The Canadian National Rys., on March 10, restored the train service on the St. John & Quebec Ry. between Fredericton and Centerville, N.B., to what was in effect prior to Feb. 27, when a reduced train service was started. The restored service is a daily, except Sunday, passenger train each way, and a tri-weekly mixed train each way.

The Canadian National Railways announced March 10 that the following train service would be operated on the Hudson Bay Ry. from Pas, Man., to Pitqucknay, mile 214:—Leaving Pas at 7 a. m. on the second and fourth Wednesdays of the month, reaching Thickett, mile 185 at 10 p.m., and leaving there at 7 a.m. on the following morning, reaching mile 214 at 9 a.m. The return train leaves mile 214 at 8 a.m. on the second and fourth Fridays of the month, reaching Read at 7 p.m. the same day, and leaving there at 7 a.m. on the following morning, arrives at Pas at 1 p.m. Meals are served at Read, at a public eating house at 75c., with beds at $1.50; and dinner can be had at Thickett, at 75c. Service at all places on the line is uncertain, and passengers should provide for their needs before leaving Pas. The fare is 5c. a mile, without any reduction for return tickets, and tickets through to points on the H.B.R. are not to be sold by C.N.R. agents.

No Railway Mechanical Exhibits at Atlantic City This Year.

The Railway Supply Manufacturers Association's executive committee has issued the following circular to members, from its headquarters at Chicago:—After a thorough canvass and study of the entire situation, both among the manufacturers composing this organization and the railway executives, your executive committee has unanimously decided it the part of wisdom and good business judgment to postpone the June 1921 R. S.M.A. exhibit at Atlantic City, for the following reasons:

We are all familiar with the present depression in railway and general business, and the attendant desire and demand to curtail expenditures in every possible direction, to strengthen the existing financial situation, with the prime motive of developing greater economy and efficiency in operation.

In the opinion of men of mature judgment in the manufacturing, as well as the railway fields we are confronted today with the serious situation of not knowing with any degree of certainty as to just when business conditions will improve. Many manufacturing concerns engaged in the production of railway devices and specialties are either shut down or running at an unusually low rate of operation.

While we realize this action is drastic, we feel that present conditions demand it. We are confident, however, that it will meet with full approval of the business interests of the country, and we further believe that the future will warrant our framing plans at a later date for the 1922 exhibit, as in former years.

Hudson Bay Railway Construction.

J. A. Campbell, M.P. for Nelson, Man., moved in the House of Commons, March 16, "That in the opinion of this House, work on the Hudson Bay Ry., which was commenced in 1910 and continued to the end of 1918, should be resumed as early this year as possible, and the project completed without any further delay." He said that the potential value of the line for commercial and other purposes had been generally admitted; that its construction had been repeatedly promised to the western people, and that up to present the Government had expended $23,000,000 upon it. The construction was undertaken originally to facilitate overseas transportation, but since the line had been under construction it had been shown that the natural resources, not only of the district along the line, but of the Bay itself, would warrant the building of the line for development purposes only.

The Minister of Railways stated that the financial conditions of the country are such that the Government has been prevented from proceeding with, not only the Hudson Bay Ry., but many other projects. Many other railways in the prairie provinces were commenced prior to the war, and it is necessary that they should be extended and completed. The Government has not abandoned the H.B. line, but further construction will not be undertaken until financial conditions warrant it. The Government has put on a train service, twice a week on the 310 miles on which track has been laid, but the revenue has never been sufficient to pay the train crew's wages.

After discussion, T. Hay, Selkirk, Man., moved in amendment: "That in the opinion of this House work on the Hudson Bay Ry. shall be resumed as soon as financial conditions permit, and that the project shall be completed with the least possible delay."

Hon. T. A. Crerar, Marquette, Man., said he believed that one day the ocean route from Churchill or Nelson to Liverpool would become one of the great trade routes of the world, and that the H.B. railway would be utilized in a large measure to carry the commerce of America and Europe. He supported the amendment, as he did not think any great harm would be done by postponing the completion of the work until financial conditions were easier.

The amendment was agreed to, but before Mr. Campbell could close the debate, the 6 o'clock rule brought the discussion to a termination, and the matter will appear on the order paper again.

Canadian National Railways Earnings.

The following are the gross earnings for the system, monthly, during 1921, compared with 1920:—

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
	$16,932,180	$13,783,621

Approximate earnings for three weeks ended March 21, $6,409,833, against $4,892,646 for March 1920.

Canadian Northern Railway.

The following were the gross earnings of the Canadian Northern Ry. System for 1920 and 1919 respectively:—

	1920	1919
January	$4,200,700	$4,026,000
February	3,862,300	3,363,800
March	4,587,700	3,554,350
April	4,732,623	3,878,149
May	4,863,500	4,337,750
June	4,364,600	3,131,000
July	5,168,500	4,347,300
August	5,900,700	4,901,150
September	6,140,500	5,260,500
October	7,620,000	5,799,400
November	7,602,700	5,393,000
December	8,002,260	5,263,400
Totals	$67,046,083	$53,255,799

Canadian Pacific Railway Earnings, Expenses, Etc.

The following are the gross earnings, operating expenses, and net earnings, for 1921, compared with those for 1920:—

Jan.	$14,465,430	$13,824,005	$641,423	$55,484
Incr.	$550,861	$495,377	$55,484	

Approximate earnings for February, $12,394,000, and for three weeks ended March 21, $9,642,000, against $13,226,000 and $9,657,000 for same periods 1920.

During March, the mileage operated was increased to 13,402.

Grand Trunk Railway Earnings.

The following are the gross earnings monthly during 1921, compared with 1920:—

	1921	1920
January	$6,402,543	$5,054,038
February	5,732,242	4,664,778
	$12,134,785	$9,718,816

Approximate earnings for three weeks ended March 21, $5,356,566, against $5,262,656 for same period 1920.

Fred. Miller, of Roger Miller & Sons, contractors, who have a large contract on Toronto harbor works, and who himself is a member of the Toronto Transportation Commission, was operated on in Chicago recently for stomach trouble. He had been spending some time in Texas.

Projected Railway to Flinflon Mining District.

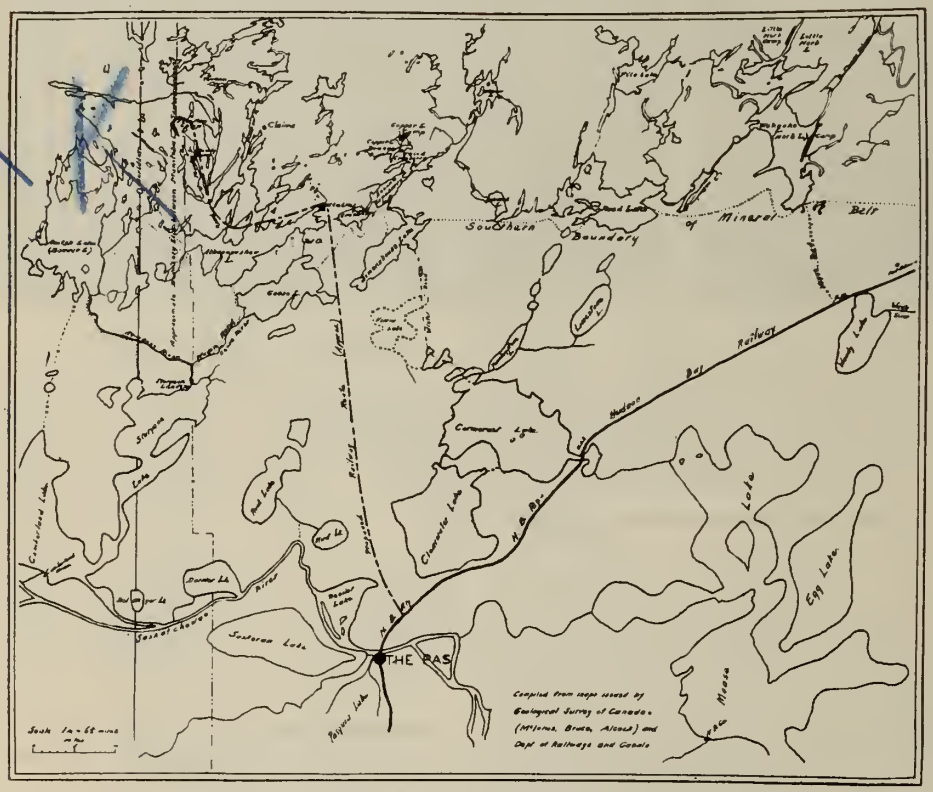
A report and recommendations of R. C. Wallace, Commissioner of Northern Manitoba, was presented to the Manitoba Legislature recently, dealing with the proposed construction of a railway from Pas to the mining area of which the Flinflon mine is the central proposition.

On the Flinflon property 25,664 ft. of diamond drilling has been done, checked by cross-cutting and drifting in the 100, 200 and 300 ft. levels; the drilling has been continued to a depth of 900 ft., but the ore body runs below this. It is calculated that the ore body contains 16,000,000 tons of ore, containing gold, silver, copper and zinc. On the basis of an output of 2,000 tons a day, the proposition would carry on for 27 years, and the number of men employed would be about 1,000. The equipment necessary for the operation of the mine, furnaces, etc., would provide an initial traffic of about 60,000 tons. A water power capable of developing the 10,000 h.p. necessary for the operation of the property is available at Scoop Rapids, on the Sturgeon-Weir River, 35 miles west of the property, and across the Saskatchewan boundary line, for the development of which a light railway would have to be built. It is estimated that after the initial traffic there would be a daily traffic of 593 tons from the operation of the property. In addition, the railway would carry supplies for a population of about 4,000.

The projected railway would, for 35 miles, from Cranberry Portage to the Flinflon property, run through a mineral belt in which considerable discoveries have been made, but on which very little development work has been done with the exception of the Flinflon property, and the Mandy mine, from which 26,000 tons of high grade copper ore were taken out and transported by wagon to the Hudson Bay Ry. and thence to the smelter at Trail, B.C. The line would run through a territory in which there is land available for stock raising, agriculture and garden produce, and the numerous lakes in the area opened up would stimulate the fishing industry. At Cranberry Portage there is a suitable site for a town, which would be the supply post for tourist traffic to Athapapuskow Lake, which is an ideal resort for tourists, sportsmen and summer residents.

The report points out that without a railway the copper properties of the district are practically valueless, and if it is not provided the effect on the mining situation and on the development of the north country will be serious. The Commissioner refers to the construction of the Timiskaming & Northern Ontario Ry., which was built primarily as a colonization road, with the object of opening up Northern Ontario's clay belt. The construction of this line resulted in the discovery of valuable minerals, the output of which from 1903 to 1919 had a total value of $249,488,555, and produced a revenue to the Ontario Government of $4,644,045.72. The prospects of the Northern Manitoba area are in the Commissioner's opinion more favorable than were the prospects of Northern Ontario when T. & N.O. Ry. construction was undertaken in 1903.

The Commissioner recommends that the Manitoba Government undertake the building of a railway from Pas to the Flinflon property along the route followed in the preliminary survey completed recently, at an estimated cost of $2,500,000; provided the Flinflon syndicate will guarantee that the purchase of the property will be proceeded with at once; that the mine and smelter will be operated on the completion of the railway, on a basis of at least 2,000 tons of ore a day, and that adequate security be deposited to protect the Government in the undertaking until such time as the mine and smelter are in operation. This recommendation is made, the Commissioner says, with a full sense of the issues involved in the Government entering into the field of railway ownership, and after a most careful consideration of the whole situation in all its aspects.


THE PAS
Hudson Bay Railway
Southern Boundary of Mineral Belt
Compiled from maps issued by Geological Survey of Canada. (Mineral Areas, Manitoba, Alberta) and Dept. of Railways and Canals

Route of Projected Railway to Flinflon Mining District, Manitoba.

The Manitoba Railway Commissioner in his report for 1919-20, submitted recently, in referring to the proposal, gives details of the survey work. The route being laid out starts at mile 7 from Pas, on the Hudson Bay Ry., and runs westerly to Lake Athapapuskow, 53 miles, and from that point along the north side of the lake to the Flinflon mining area, 32 miles, a total of 85 miles. A 4 mile spur has been built by the Dominion Government from the Hudson Bay Ry. along the projected route, in order to obtain ballast from a gravel ridge. The route surveyed recently varies from that surveyed in 1919, which, starting from mile 7 on the Hudson Bay Ry., ran to the southwest end of Goose Lake, and then northerly, comparatively close to the Manitoba-Saskatchewan boundary to the Mandy mine, and the Flinflon property.

The question of the construction of the line had not been brought before the Manitoba Legislature up to the time of writing. A press report states that the introduction of legislation to provide for the building of the railway is dependent upon the Flinflon syndicate of New York depositing $1,000,000 with the Government as evidence of good faith to develop the mine and provide tonnage for the railway. It is also stated that the syndicate's option on the mining proposition expires April 1, and that it will be taken up, but that development work will be held over for a year, by which time. it is expected that labor and materials will be cheaper.

CANADIAN NATIONAL RAILWAYS.
Eastern Lines, Ontario District.

Sealed tenders addressed to the undersigned and endorsed "Tender for Concrete Structures, Ontario District," will be received at this office until twelve o'clock noon, Saturday, April 16th, for the construction of eight structures on the Ontario District.

Drawings, specifications and form of contract may be seen and form of tender obtained at the office of the Engineer, Maintenance of Way, Room 409, Old Union Station, Toronto.

Tenders will not be considered unless made on the form supplied by the Railway Company and accompanied by an accepted cheque on a Chartered Bank for the sum of fourteen thousand dollars ($14,000.00), payable to the order of the Treasurer of the Canadian National Railways.

Note.—Blue print copies of the drawings may be obtained at the office of the Engineer, Maintenance of Way, by depositing an accepted bank cheque for the sum of ten dollars ($10.00), payable to the Treasurer, Canadian National Railways, the said cheque being returned if the intending tendered submits a regular tender.

The lowest or any tender not necessarily accepted.

W. A. KINGSLAND,
General Manager, Can. Nat. Rlys.,
Bank of Toronto Bldg., Montreal, Que.

The Railway Wages Situation.

The railway wages developments in Canada have followed closely those in the United States. For that reason an intelligent appreciation of events in that country is necessary for a full understanding of the situation here.

The first definite tendency for wages to increase by substantial amounts on the United States railways was in 1916, while the properties were still being privately operated. In 1916 and 1917 the total payrolls were increased by $360,000,000; the average yearly earnings per employe in 1917 were $1,004, against $830 in 1915. If figured on the basis of rates in effect in December, 1917, the average would have been $1,078.

At the beginning of 1918, the U.S. Government placed the operation of all the principal lines under the Railroad Administration, of which W. G. McAdoo was Director General. He found, on taking charge, dissatisfaction among railway employes in connection with wage scales. The result was the issuance of the now famous "McAdoo Award," by which wages were raised to a level calculated to offset generously the increase in the cost of living which had taken place to that date. The award was made by general order 27, May 25, 1918, and was retroactive to Jan. 1, 1918. The increases, based on rates of pay in effect on Dec. 31, 1915, were graded, so that the lower paid employes were given greater increases than those more highly paid. The principle of the 8-hour day in railway service, previously obtained by some classes of railway employes by the Adamson law, was recognized. Agreements concerning overtime rates were not changed. By supplements to the award, further increases were granted to various classes of employes, notably shopmen, clerks and station employes, and shop, locomotive house and track laborers.

During the remainder of 1918, and in 1919, the purchasing power of money, showing no tendency toward stability, railway employes united in demands for increased remuneration, and declared the rates set by the McAdoo award had become indaquate. Negotiations went on for some months, the impatience of some employes giving rise to the outlaw strikes in the spring of 1920. Shortly after the passage of the Transportation Act, the United States Railway Labor Board established under the act's authority, began to function, and after extended hearings, an award was made in July, 1920, providing for increases of pay of railway employes amounting to over $600,000,000 a year. Before the recent large reductions in staff which were made by U.S. railways, the number of employes was about 1,993,000, and the payroll was about $3,808,000,000 a year. The average compensation per employe for 1920 was $1,910, and 39 classes out of 66 earned $2,000.

In the hearings before the Labor Board, which led to the wage award of July, 1920, the question of rules and working conditions was left over for future consideration, and on the Board's request, the National agreements entered into by several classes of employes and the Railroad Administration, were left in force. The Board is holding hearings concerning these agreements, and as to the formation of boards of adjustment as provided for by the Transportation Act. The employes desire national boards of adjustment, and and agreements which are national in scope, while the railways desire local boards of adjustment and the immediate cancellation of the existing agreements. The railways state, and cite examples in substantiation of their claims, that these agreements result in large payments of wages which are not earned, and promote waste and inefficiency, which cause the loss of $300,000,000 yearly. They state that in a country as large as the United States, it is impossible to frame one set of conditions applicable to all parts of it. The employes state that they do not desire, nor ask for agreements which promote waste or inefficiency, and that the railways are attempting to destroy their power of collective bargaining.

On Jan. 31, 1921, on the ground that the railways could not afford to pay the present wages, and that changed conditions do not warrant the continuance of the present rates, the Association of Railway Executives petitioned the Board for authority to reduce the pay of unskilled labor. The Board refused, saying the petition was not legally before it, and pointing out the provisions of the Transportation Act, which require 30 days notice of an intended change in wages, conference between management and employes, and reference to the Board in case of disagreement. Pending the Board's reply, the Erie Rd. reduced the pay of its unskilled labor from 48½ to 35, 33 and 30c. an hour, but was ordered by the Board to restore the previous rate.

A wage cut by the Atlanta, Birmingham & Atlantic Ry. has attracted wide attention. Officials claimed the road was losing $100,000 a month, and a wage cut was put into effect. This action being in violation of the Transportation Act, the Board ordered the former rates restored. Shortly after, a U.S. District Court judge at Atlanta named the President of the road as receiver, and signed an order putting into effect the reduced rates of pay. The 1,500 employes employes went on strike, and the point as to whether a federal court can override a decision of the tribunal set up by the Transportation Act is at issue.

The Missouri & North Arkansas Rd. put a wage cut into effect on Feb. 1. This road, not being a party to the controversy leading to the Board's July, 1920, award, the Board advised the employes to accept the wages under protest, and set a date to hear the case. The employes, however, walked out.

Danial Willard, President of the Baltimore & Ohio Rd., in addressing the National Civic Federation of New York recently, said 60% of gross earnings are going to labor, whereas that percentage formerly ran from 40 to 45. Basing their action on this fact, and also on the fact that railway net operating income is entirely inadequate, the Pennsylvania, the New York Central (including the Michigan Central and other subsidiaries), the Delaware, Lackawanna & Western, N. Y., N.H. & H., Wabash, Northern Pacific, Great Northern, Denver & Rio Grande, and many other roads have, within the past month, in accordance with the requirements of the Transportation Act, notified their employes of an intention to reduce wages, and called them into conference concerning the matter. The employes, while preparing to oppose the proposed reductions, are also prepared to fight their case before the Labor Board, and have indicated their readiness to participate in a suggested congressional enquiry concerning the entire matter. Such is the extent of developments to date in the United States.

Much publicity has been given to Candian railway wages of late. In addressing the Ottawa Rotary Club recently, Hon. F. B. Carvell, Chairman, Board of Railway Commissioners, is reported as having stated that the McAdoo award was a most iniquitous piece of legislation, and, while in his judgment, the scale of railway wages was fair in itself, the agreements in connection with working conditions, overtime rates, etc., enable employes in many cases to draw more than they earn. In his recent presentation of information dealing with railway matters in the House of Commons, Hon. J. D. Reid, Minister of Railways, stated that the increases in railway wages is such as to justify an immediate discussion between the management and the employes. In reply to Mr. Carvell's statement, Tom Moore, President of the Dominion Trade sand Labor Congress, calls attention to the C.P.R. annual statement, and claims that railway employes are not overpaid. A. R. Mosher, President of the Canadian Brotherhood of Railway Employes, states that railway wages were notoriously low before the increases granted were applied, and cites statistics of the Labor Department to show that railway employes are not overpaid. L. L. Pelletier, legislative representative of the Order of Railway Conductors, asks for an enquiry into labor's responsibility for the financial showing of the Canadian National Rys.

The following table traces the growth of railway wages in Canada.

Year ended June 30	No. of employes	Total compensation	Average
1915	124,142	$90,215,727	$727
1915	144,170	104,300,647	723
1917	146,175	129,626,187	887
1918	143,493	158,274,952	1,061
1919	158,777	208,939,994	1,316

Unfortunately, figures for 1920 are not yet available, but the effect of the adoption of the U.S. Labor Board's award, and the application for a complete year of the terms of the McAdoo award, and its numerous later supplements, has been to indicate that railway wages are increased about 40% over those shown for the year ended June 30, 1919, so that the average yearly wage now runs in the neighborhood of $1,842. The Canadian National Rys. payroll for the year ended March 31, 1920, was $73,567,036, compared with $57,252,095 for the year ended March 31, 1919. Hon. J. D. Reid, Minister of Railways, in discussing the matter in the House of Commons recently, stated that out of every dollar earned, 75c. was used to pay operating wages, and 20c. for fuel, leaving 5c. for all other requirements, which totalled 29c.

Railway wage developments in Canada have practically coincided with those in the U.S. The McAdoo award and supplements were adopted here, as was the Labor Board's award in 1920. In Canada, there are national agreements with the shopmen and maintenance of way employes, while in the U.S. the roads have national agreements with the shopmen, maintenance of way employes, and clerks and station employes. The agreement between the shopmen and the rail-

ways, as it exists in the U.S., has been subject to some modifications in its application to Canadian lines, while agreements with the train service brotherhoods are along the same lines in both countries.

In view of the facts that the great preponderance of the railway employe organizations' membership is in the U.S.; that rates and wages must necessarily be on the same basis in both countries, and that Canadian roads have found it necessary to base their wage schedules on those in effect in the U.S., it appears probable that if any reductions are made in railway wages, they will be initiated in the U.S., to be followed by corresponding readjustments in Canada.

The Minister of Railways on Railway Wages, Deficits, Etc.

The Minister of Railways, Hon. J. D. Reid, in speaking in the House of Commons on March 8, during a debate on the St. Lawrence waterway, said, in part:—The cost of operation of railways not only in Canada, but in the United States, has increased so tremendously in the last two or three years that, in my judgment, it is hindering or preventing the future development of our country, and unless some means are taken to decrease the cost of operation of our railways, the development of our country will continue to be hindered. The development of this country and the U. S. has been hindered by the McAdoo award fixing the wages of railway employes. Some action must be taken, and I think the railway employes themselves should look into this matter and endeavor to adjust matters in such a way that the future of this country will not be hindered on account of the enormous cost of operation of railways as is the case at present.

The estimates that have been presented to the House, perhaps, may not and cannot be understood until we are able to explain them in detail, but the fact that $160,000,000 appears in them does not mean that there has been that loss in connection with the railways, or that it is estimated there will be that loss next year. What it really means is that it has been estimated by those who are in charge of the Canadian National Rys., which include the Canadian Northern, Intercolonial, National Transcontinental and Grand Trunk Pacific, that there will be a loss of some $50,000,000 during 1921. But in addition to that loss, large amounts are required for construction—betterments that are really charged to capital account—and in connection with the Grand Trunk Pacific a large amount will have to be charged in connection with capital account. As regards the Grand Trunk Ry., which the Government must take over, the Government has to assume responsibility in connection with liabilities that are falling due. It must not, however, be considered that the amount mentioned in the estimates means a deficit of that amount next year. There is no doubt that the Canadian National and the other Canadian railways are meeting with great losses; but the railways in the U.S. are meeting with proportionately much larger losses than our Canadian railways. I mention this simply for the reason that one or two speakers who have touched upon it do not, I believe, understand the situation. Otherwise, they would not have given out the impression that the railways are losing the amounts mentioned in the estimates.

Exchange on Freight Charges Between Canada and the United States.

The Board of Railway Commissioners general order 326, passed Jan. 14, ordered railway companies to file tariffs by Jan. 22 to put into effect Chief Commissioner Carvell's judgment of Jan. 13, which was published in full in Canadian Railway and Marine World for February, pg. 85. The judgment contained the following clause:—

"3. Telegraphic advice will be sent to railway agents in Canada on the last day of each month, specifying the surcharge to be collected from the 1st to the 14th (inclusive) of the following month; and on the 14th day of each month specifying the surcharge to be collected from the 15th to the last day (inclusive) of such month. Agents must file such telegraphic advice with this tariff. The surcharge must be shown as a separate item on all bills of lading and waybills for outbound shipments and on all freight expense bills."

The rates of surcharges made in accordance with the above, have been as follows, up to date:—Jan. 22 to 31, 8%; Feb. 1 to 14, 7%; Feb. 15 to 28, 8%; March 1 to 14, 9%; March 15 to 31, 9%.

The C.P.R. will, it is reported, start its tourist service to Alaska June 10, with the steamships Princess Alice and Princess Royal.

An Extraordinary Railway Accident in British Columbia.

This illustration is made from a remarkable photograph of a train wreck in the Fraser River canyon, B.C., on Feb. 6. The locomotive, when approaching a sharp curve, struck a rock slide, and with the tender and one car, left the track, and started down the almost perpendicular side of the canyon, towards the river, several hundred feet below, but were miraculously stopped as shown. The locomotive man was killed, but there were no other casualties. The photograph is copyrighted by Francis Dickie, Vancouver.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 331. March 5.—Granting surcharges on international passenger traffic.

30,684. Feb. 21.—Ordering Canadian National Rys. to erect third class station at Griffin, Sask., by Dec. 1, temporary shelter to be erected by Apr. 1.

30,685. Feb. 21.—Approving clearances at G. T.R. freight sheds no. 1 track, Kingston, Ont.

30,686. Feb. 21.—Approving Canadian Northern Pacific Ry. revised location through front northeast ¼ Sec. 11, Tp. 4, Range 28, west 6th meridian.

30,687. Feb. 21.—Authorizing Canadian National Rys. to build spur for Rosebud Coal Mine in n.e. ¼ Sec. 6, Tp. 28, Range 19, and n.e. ¼ Sec. 1, Tp. 28, Range 20, west 4th meridian, Alta.

30,688. Feb. 22.—Approving Quebec, Montreal & Southern Ry. Standard Freight Mileage Tariff C.R.C. 738, effective Mar. 6.

30,689. Feb. 22.—Authorizing C.P.R. to build two spurs and passing siding for Austin & Nicholson, at mile 24.1, White River Subdivision, Tp. 37, Sudbury District, Ont.

30,690. Feb. 24.—Approving agreement between Bell Telephone Co., and Tarbutt Additional Tp., Algoma District, Ont., and rescinding order 23,352, Feb. 23, 1915.

30,691. Feb. 23.—Authorizing St. Thomas Municipal Ry. to operate p.a.y.e. one-man cars for 3 months over London & Port Stanley Ry. on Wellington St., St. Thomas, Ont.

30,692. Feb. 21.—Authorizing C.P.R. to rebuild bridge 0.66, Canmore Mines spur, crossing Bow River, Alta.

30,693. Feb. 23.—Declaring that G.T.R. crossing at Edward St., Prescott, Ont., is protected to Board's satisfaction.

30,694. Feb. 23.—Approving location of C.P.R. station at Alstonvale, Que., mile 10.55 Montreal and Ottawa Subdivision.

30,695. Feb. 22.—Authorizing G.T.R. to build spur for Brantford Roofing Co., Brantford, Ont.

30,696. Feb. 14.—Approving location of portion of C.P.R. Moose Jaw Southwesterly Branch (Assiniboia to Consul) from mile 114.02 to 203.24, and to cross a number of highways at grade.

30,697. Feb. 26.—Approving location of Canadian National Rys. standard freight and passenger shelter at Rose Lynn, Alta.

30,698. Feb. 25.—Authorizing Vancouver, Victoria & Eastern Ry. & Nav. Co. (G.N.R.) to replace wooden bents of structure over Commercial Drive, Vancouver, B.C.

30,699. Feb. 23.—Authorizing St. Thomas Municipal Ry. to operate p.a.y.e one-man cars for 3 months over London & Port Stanley Ry. on Elm St., St. Thomas, Ont.

30,700. Feb. 24.—Dismissing complaint of Canadian Des Moines Steel Co., Chatham, Ont., against blocking of siding by G.T.R.

30,701. Feb. 25.—Authorizing Canadian National Rys. to build across Second St. South, Sunnybrooke townsite, Alta.

30,702. Feb. 26.—Authorizing St. Thomas Municipal Ry. to operate p.a.y.e one-man cars over London & Port Stanley Ry. on Talbot St., St. Thomas, Ont., for 3 months.

30,703. Feb. 4.—Authorizing G.T.R. to build spur for E. Long Mfg. Co., Orillia, Ont.

30,704. Feb. 21.—Authorizing Thessalon & Northern Ry. (C.P.R.) to rearrange old Algoma Custom Smelter Co.'s spur for Firstbrook Bros. at mile 1.18, Thessalon & Northern Ry., in Lot 5, Algoma Tp., Ont.

30,705. Feb. 23.—Approving agreement between Bell Telephone Co. and Uhtoff Telephone Co., Simcoe County, Ont.

30,706. Feb. 23.—Declaring that for present the Canadian National Rys. crossing near Arran, Sask., is protected to Board's satisfaction.

30,707. Feb. 23.—Authorizing Grand River Ry. to take certain lands in Preston, Ont., for efficient maintenance of its double track between Preston and Hageys, Ont.

30,708. Mar. 2.—Authorizing G.T.R. to rebuild bridge 12 across Beauharnois Canal, at mile 48.98 Ottawa Division.

30,709. Mar. 5.—Authorizing C.P.R. to build substructure of bridge 1.8 over St. John River, at St. John, N.B.

30,710. Mar. 5.—Approving location and details of G.T.R. station at Beauharnois, Que., work to be completed by Sept. 30.

30,711. Mar. 8.—Authorizing G.T.R. to build spur for city asphalt plant, Hamilton, Ont.

30,712. March 8.—Declaring that for the present, Canadian National Rys. Thibault Hill crossing, near North Bay, Ont., is protected to Board's satisfaction.

30,713. March 8.—Rescinding orders 4,865 and 4,962 (amending) directing C.P.R. forthwith to remove barbed wire, etc., placed across or near crossing at Crescent and Fenwick Aves., Montreal West, Que.

30,714. March 7.—Authorizing Canadian National Rys. to build spur for municipal power plant, Prince Albert, Sask.

30,715. March 10.—Ordering C.P.R. to install two double electric bells and wigwag signals at crossing of Dundas St., near Cooksville station, Ont.

30,716. March 8.—Dismissing Imperial Munitions Board's application for order directing that 18-pounder and 4.5 brass cartridge cases were entitled to 4th, instead of 3rd class rating.

30,717. March 9.—Extending to June 30, time within which the C.P.R. may test cylinders used for shipment of compressed gases, as provided in par. 1861 (1) of Regulations for Tronsportation of Explosives and Other Dangerous Articles by Freight.

30,718. March 10.—Amending order 27,766, re automatic bells at certain crossings, installed voluntarily by Grand Trunk Pacific Ry.

30,719. March 10.—Ordering C.P.R. to build culvert under its Molson Cutoff, on south side of Munroe Ave., East Kildonan, Man.

30,720. March 10.—Approving location of C.P. R. Moose Jaw Southwesterly Branch (Assiniboia to Consul), mile 64.59 to 114.02, and crossing of a number of highways.

30,721. March 10.—Authorizing Alberta Public Highways Department to cross Edmonton, Dunvegan & British Columbia Ry. in s.w. ¼ Sec. 13, Tp. 73, Range 6, west 6th meridian, Alta.

30,722. March 8.—Extending to July 1, time within which C.P.R. may build spur for Swift Canadian Co., Regina, Sask.

30,723. March 9.—Declaring that G.T.R. first crossing west of Colborne station, Ont., is protected to Board's satisfaction.

30,724. March 9.—Ordering Canadian National Rys. to restore train service from Middleboro to Port Wade, N.S.

30,725. March 8.—Authorizing C.P.R. to build spur for Imperial Oil Ltd., Brooks, Alta.

30,726. March 9.—Amending order 30,564. re Grand Trunk Pacific Ry. additional track across Pasqua St., Regina, Sask.

30,727. March 7.—Authorizing G.T.R. to use bridge between Lots 14 and 15, Broken Front Concession, East Whitby Tp., Ont.

30,728. March 8.—Authorizing C.P.R. to use bridge 83.23 North Bay Subdivision, over Amable DuFond Creek, Ont.

30,729. March 9.—Ordering Canadian National Rys. to appoint station agent by Apr. 1, at Colinton, Alta.

30,730 to 30,732. March 9.—Approving Bell Telephone Co. agreements with Tarentorus Telephone Co., Algoma District, Ont.; Maple Leaf Telephone Co., Grey County, Ont., and Glen Eden Telephone Co., Grey County, Ont.

30,733. March 11.—Ordering C.P.R. to divert road between Cons. 2 and 3, to connection with Manvers Road, mile 45.5, Peterborough Subdivision, Manvers Tp., Ont.

30,734. March 8.—Authorizing C.P.R. to build spur for Austin & Nicholson, mile 45.8, White River Subdivision, Ont.

30,735. March 9.—Dismissing Toronto Board of Trade's complaint against cartage tariffs of railway companies, made effective Sept. 1, 1919. This judgment is given in full on another page of this issue.

30,736. March 9.—Authorizing City of St. Thomas, Ont., to operate one-man p.a.y.e cars over Pere Marquette Ry. on Wilson Ave.

30,737. March 9.—Authorizing Canadian Northern Quebec Ry. to open for traffic its connection with National Transcontinental Ry. near St. Prosper, Que.

30,738. Approving agreement between Bell Telephone Co. and Haldimand Rural Telephone Co., Northumberland County, Ont.

30,739. March 8.—Authorizing G.T.R. to rebuild bridge 40, at mile 58.34, over Grand River at Breslau, Ont.

30,740. March 8.—Authorizing Algoma Central & Hudson Bay Ry. to build bridge over Mattawishquais River, at mile 293.11.

30,741. March 8.—Directing Canadian National Rys. to move station at Cushing, Que., to point opposite Chute a Blondeau.

30,742. March 7.—Ordering Pere Marqette Ry. to make repair tracks and renew ties and planking on Grand Ave., Chatham, Ont., by May 1, and dismissing Pere Marquette Rd. application to remove rails from the street.

30,743. March 8.—Authorizing Miami Corporation's Port Haney Logging Ry., to connect its track with C.P.R. near mile 102, west of North Bend, B.C.

30,744. Authorizing C.P.R. to remove, pending further order, its agent at Farron station, B.C.

30,745. March 12.—Authorizing G.T.R. to use bridge 88 across the Narrows, at mile 129.39, District 9, Northern Division, near Atherley Jct., Ont.

30,746. March 8.—Declaring that for the present, C.P.R. crossing at mile 71, Shogomac Subdivision, Stickney station, N.B., is protected to Board's satisfaction.

30,747. March 7.—Ordering G.T.R. to remove building and trees obstructing view at second public crossing west of Alvinston, Ont.

30,748. March 8.—Ordering Grand Trunk Pacific to fence its right of way from milepost 1,184½ to 1,190, B.C., by July 1.

30,749, 30,750. March 11, 10.—Declaring that for the present G.T.R. crossing at Lottridge St., Hamilton, Ont., and one mile east of Rockwood, Ont., are protected to Board's satisfaction.

30,751. March 10.—Authorizing Canadian Northern Saskatchewan Ry. to cross highway between s.s. ¼ Sec. 33 and s.w. ¼ Sec. 32, Tp. 51, Range 19, west 3rd meridian.

30,752. March 10.—Authorizing Canadian National Rys. to cross and divert road allowances on north boundary of Secs. 21 and 22 and east boundary of Secs. 21 and 28, Tp. 50, Range 26, west 2nd meridian, Sask.

30,753. March 8.—Approving revised location of Canadian Northern Pacific Ry. Lumby Branch, mile 0 to 0.9, Kalamalka Indian Reserve 5, Yale District, B.C.

30,754. March 11.—Authorizing C.P.R. to build spur for Winnipeg Fish Co., Winnipeg.

30,755. March 8.—Authorizing C.P.R. to build spur for D. D. Wood & Sons at mile 14.5, Lac du Bonnet Subdivision, Man.

30,756. March 11.—Authorizing G.T.R. to build spur for Oakville Wire Bound Box & Basket Co., Oakville, Ont.

30,757. March 11.—Authorizing Canadian National Rys. to cross and divert highway between Secs. 34 and 35, Tp. 51, Range 25, west 2nd meridian, Sask.

30,758. March 7.—Authorizing G.T.R. to reinforce west abutment of bridge 63, at mile 152.51, near Golmesville, Ont.

30,759. March 8.—Authorizing C.P.R. to build spur for Seaman Kent Co., Spragge Tp., Ont.

30,760. March 8.—Authorizing Canadian Northern Pacific Ry. to cross and divert highway at mile 13, Vernon-Kelowna-Okanagan Branch, B.C.

30,761. March 11.—Authorizing Canadian Northern Western Ry. to divert road in s.w. ¼ Sec. 5, Tp. 39, Range 24, west 4th meridian, Alta.

30,762. March 7.—Authorizing Canadian National Rys. to cross and divert highway in n.w. ¼ Sec. 30, Tp. 11, Range 26, west 2nd meridian, Sask.

30,763. March 8.—Authorizing Canadian National Rys. to cross highway between n.w. ¼ Sec. 9 and n.w. ¼ Sec. 10, Tp. 51, Range 5, west 3rd meridian, Sask.

30,764. March 8.—Authorizing C.P.R. to build spur for Crows Nest Pass Coal Co., at mile 11.06, Fernie Subdivision, Kootenay District, B.C.

30,765. March 8.—Authorizing C.P.R. to build spur for Grinnell Co. of Canada, Toronto.

30,766. March 11.—Authorizing C.P.R. to cross, divert and close road allowance on south boundary of s.w. ¼ Sec. 13, Tp. 21, Range 17, west 4th meridian, Alta.

30,767. March 7.—Authorizing C.P.R. to build spur across Princess and Prince St., Chatham, Ont., for Gray-Dort Motor Co.

30,768. March 12.—Declaring that for the present Lake Erie & Northern Ry. crossing on town line at Simcoe, Ont., is protected to Board's satisfaction.

30,769. Authorizing C.P.R. and G.T.R. to operate trains over interlocking plant at Hamilton Jct., Ont., mile 37.2, Hamilton Subdivision, C.P. R., without their first stopping.

30,770. March 12.—Ordering Canadian National Rys. to appoint caretaker at Foresters Falls, Ont., by Apr. 1.

30,771. March 14.—Approving plan of Canadian National Rys. standard timber cattle pass.

30,772. March 14.—Approving agreement between Bell Telephone Co., and Sunderland Telephone Co., York and Ontario Counties, Ont.

U.S. Consular reports state that over 500,000 U.S. tourists visited British Columbia in 1920. The New York Central Rd., according to a New York press dispatch, has announced a 10% reduction for round trip tickets, with time limit, effective May 15 and June 1, up to Sept. 30, to all points in its territory.

The Kettle Valley Ry., owing to slides on its Coquihalla section, has abandoned the regular daily service and substituted a tri-weekly service, the trains being routed by Spences Bridge, B.C., to Vancouver. It is not expected that the regular service via the Coquihalla section will be resumed until about May 1.

Supplying Information about the Canadian National Railways to Parliament.

G. Parent, M.P. for Quebec West, moved in the House of Commons March 14 for a copy of all letters and reports, exchanged between Canadian National Rys. engineers and officers concerning the demolition of the locomotive house at St. Foy, oppoite the Quebec bridge; the removal from that place of the mechanical staff to Charney on the other side of the St. Lawrence River, and the proposed demolition of the station on the National Transcontinental Ry. main line at Quebec Bridge. The Prime Minister stated that the motion indicated that the correspondence asked for passed between the Canadian National Rys. directorate and other persons, and would not be in the Government's possession.

F. S. Cahill, Pontiac, Quebec, referred to the matter at a subsequent sitting and asked if it was the Government policy that correspondence between Canadian National Rys. officers would not be produced when asked for. The Premier stated that the C.N.R. directors operate the system just as the directors of any other railway whose stock is not owned by the Government operate their system. The directors' correspondence is in their possession, and it has not been the practice that this Government should ask that all matters of operation be submitted to it, or to Parliament for review; they come before Parliament in the usual way in the directors' report. That is the policy which has been adopted and which now prevails. Correspondence in connection with the operation of the line between the directors and anybody concerned is not the same as correspondence between Government departments and others, which, of course, must be brought down upon resolution of the House. He did not see how it would be possible to have such a thing as independent non-political operation of the railway if all correspondence was to be produced. Concluding, he said: "If any matter connected with the operation of the road is, by means of the production of correspondence to be brought before Parliament for review, that means direct political control of the road, and that we are determined to avoid."

On March 22, Hon. W. L. Mackenzie King, moved: "That subject to the reservation that in exceptional cases there may be documents of a confidential character which, in the public interest, may properly be withheld from publication, the House declares that it is the undoubted right of Parliament to demand and receive copies of all reports, accounts, correspondence and papers in relation to the management of every department of the public service including the affairs of the Canadian National Rys., whether operating directly under the control of the department, or under corporate form." He said that the necessity for moving the amendment arose out of the Government's attitude which had been taken anew this session, in refusing to give information with respect to the C. N.R. in answer to questions asked by members. He declared that the position taken by the Government was one of government ownership of railways, and government control and operation without government responsibility. The Government's attitude was unfair in very many directions, as well as being very prejudicial to the interests of the taxpayers, and also to the labor employed on the railways. He contended that the giving of information asked for about the Canadian National Rys. would not, as the Premier contended, lead to its being brought into party politics, because the one and only safeguard against political interference and control was the frankest, freest and fullest publicity in regard to the affairs of these railways. The motion asserted Parliament's right to information, but left it to the Government as to how it was to be supplied.

The Premier, in a lengthy reply, pointed out the dangers and difficulties of the situation which would be created in the event of the amendment being adopted, and said:—"While there is corporate management, there remains the Government's answerability and responsibility for the success of the system. That we cannot dispute. But there is no immediate accountability for the day to day procedure of operation. If there is to be, then our officers, subject to our direction, must operate the road; but our officers subject to our direction are not so operating. The board of directors is independent of government control and direction; and that being so, the Government from day to day cannot be answerable for details of operation, or for what takes place in the ordinary routine of operation between the operating directorate and the patrons of the road."

After a lengthy discussion, the motion was defeated by 117 to 79.

Passage of the Winslow Bill in the United States.

In connection with the Federal control of railways in the United States, the U.S. Government owed the railways over $600,000,000 when the "guarantee period" ended in Sept. 1920. Owing to the length of time necessary to complete the accounting work involved, it will be months and perhaps years before the whole debt is agreed on. In the meantime, up to end of February, the Treasury Department had refused to pay the railways anything on account, saying it would pay the whole debt or nothing. The railways owe millions of dollars to manufacturing and supply companies, etc., which in turn, have borrowed heavily from the banks. The condition thus brought about had seriously hampered and almost bankrupted numerous manufacturing and supply companies, and impaired the ability of banks to extend credit to other customers.

On Feb. 26, President Wilson signed the Winslow bill, authorizing partial payment to the railways by the Treasury Department, on certificates from the Interstate Commerce Commission that at least the amounts stated in the certificates were due.

There is no doubt that the situation existing prior to the passage of the bill was a large contributing factor in the business depression which has existed in the U.S. for some time past. The bill, which has become law, will remove a highly undesirable condition, and have a great influence in helping the general business situation. It is said the Interstate Commerce Commission will issue certificates as rapidly as possible, for such sums as are determined from time to time to be due the railways, pending final settlement.

E. W. Beatty on the Necessity for Immigration.

E. W. Beatty, K.C., President, C.P.R., was interviewed recently on the subject of the last yearly deficit for the Canadian National Rys. and is reported to have said that without immigration the prospects of the C.N.R. lines were, in his opinion, hopeless, and any legislation which would stem the tide of desirable immigration must inevitably pile up further deficits. It was, he said, an aggressive immigration propaganda that built the C.P.R., and he claimed that Hon. T. A. Crerar, leader of the National Progressive Party, struck the right note when he declared before the Canadian Club in Montreal recently that a wise and vigorous policy of immigration would help solve the problem.

Mr. Beatty added: "I quite agree with those who object to immigration of city-bred continentals of poor physique and doubtful health, who would at once drift into slums, or of large communities of foreign born who frankly declare that they do not intend to assimilate with English-speaking Canadians. But the gates of Canada should be opened once more not only to the British, French and United States immigrant, but also to the Scandinavian and the more desirable type of continental."

Mr. Beatty pleaded also the cause of the skilled mechanic, in addition to that of farm hands and domestics, on the ground that Canadian industry would be handicapped in its progress without them, and he concluded: "Policies which are perfectly appropriate in the case of the United States would not necessarily be applicable to this country. By all means let us exclude the undesirable immigrant, but admit those who in time will contribute to this country's commercial prosperity and economic strength."

J. F. Johnston, Last Mountain, Sask., brought the question up in the House of Commons a few days later and said:—"I wish to ask a question based upon an interview given by the President of the C.P.R., in which he is reported to have said something in regard to immigration into this country, giving it as his opinion that the present regulations should be modified. I desire to ask the Government if it is its intention to bring down legislation at this session making the immigration laws less restrictive with regard to the nationality of immigrants coming into Canada."

Prime Minister Meighen replied: "The Government has no legislation under consideration on the subject at present. If any is to be brought down, announcement will be made in due course."

Detroit River Bridge. — A Congressional committee at Washington, U.S., is reported to have given its approval to a bill providing for the construction of a bridge across the Detroit River, to connect Detroit, Mich., and Windsor, Ont., the work to be started within three years and to be completed in seven years. The Canadian Transit Co. is the title under which the promoters of the bridge are applying to the Dominion Parliament for authority to build the bridge. A Detroit report states that the promoters expect to have the foundation work completed by the end of next winter, and to be able to begin the erection of the steel work early in 1922.

An Argentine railway is reported to have ordered 10,000 car wheels from the Krupp interests in Germany.

Railway Rolling Stock Orders and Deliveries.

The C.P.R. has received 7 mikado type (2-8-2) locomotives, with cylinders 25 in. diar. by 32 in. stroke, from Montreal Locomotive Works.

The Nova Scotia Steel & Coal Co.'s annual report, issued recently ,contains the following paragraph: "Canadian railways are still in need of rolling stock, and track material, and it is anticipated that in the near future substantial orders will be given, of which doubtless this company will secure a reasonable proportion."

The Nova Scotia Steel & Coal Co.'s annual report for 1920, in dealing with the Eastern Car Co., states that 1,462 standard gauge freight cars, 10 standard gauge snow ploughs and 157 narrow gauge mine cars were built and delivered during 1920, and that at Dec. 31 there were on order 200 standard box cars, 40 tons capacity, and 500 box cars, 50 tons capacity, specially equipped for grain traffic, as well as some repair work for Sydney & Louisburg Ry.

Canadian National Rys., between Feb. 5 and March 5, received the following additions to rolling stock: 3 mikado (2-8-2) locomotives from Canadian Locomotive Co. out of an order for 15, and 1 received since March 5, completing the order; 36 box cars from National Steel Car Corporation, completing an order for 1,500; 210 stock cars from Canadian Car & Foundry Co., out of an order for 350, and 1 sleeping car from Canadian Car & Foundry Co., out of an order for 18.

The Governor General's car Canada had its interior seriously damaged by fire recently at Ottawa central station. The damage is estimated at between $5,000 and $6,000, the cause of the fire being unknown, but it is under investigation. The car is not a modern one, having been used for several years, and as it is not considered advisable to rebuild it, the Railways Department has handed it over to Canadian National Rys. to convert into a baggage car, or make some other use of it. We are officially advised that it is not the present intention to replace this car, as when an extra car is required for the Governor General, one can be obtained from the Canadian National Rys.

The Railways and Canals Department has ordered 4 four-wheel (0-4-0T) switching locomotives from the Montreal Locomotive Works. Following are the chief details:—

Weight, total	79,000 lb.
Wheel base	7 ft.
Cylinders, diar. and stroke	14 x 22 in.
Driving wheel, diar.	40 in.
Journals	7 x 8 in.
Boiler, type	Straight top
Boiler, pressure	190 lb.
Boiler, diar. first ring	46 in.
Firebox, length and width	46⅛ x 50½ in.
Tubes, no. and diar.	112—2 in.
Heating surface, tubes	680 sq. ft.
Heating surface, firebox	60 sq. ft.
Heating surface, total	1740 sq. ft.
Grate area	16.2 sq. ft.
Tractive power	17,400 lb.
Factor of adhesion	4.5
Reverse gear	Hand lever
Cab	Wood
Water capacity	1,700 gal.
Fuel capacity	1,600 lb.

Canadian Car & Foundry Co.'s directors' report, presented at the annual meeting recently has the following paragraph: "The value of the orders unfilled at termination of the year (Sept. 30, 1920) was approximately $26,000,000, compared with approximately $8,500,000 at the close of the preceding year. This large amount of unfilled business practically makes certain a steady output for some time ahead, and, taking into consideration improved labor conditions, and the fact that the bulk of the materials necessary is now on hand, the directors are hopeful that the results for the current year will prove satisfactory. The outlook for future business is encouraging. Although financial conditions may delay the placing of orders, there is admittedly a serious shortage of equipment on Canadian railways, and your directors are not neglecting export possibilities."

The Laurentide Co. has ordered one Prairie type (2-6-2) locomotive from Montreal Locomotive Works. Following are the chief details:—

Weight on drivers	138,000 lb.
Weight on engine truck	16,000 lb.
Weight on trailing truck	16,000 lb.
Weight, total	170,000 lb.
Wheel base, driving	10 ft.
Wheel base, total, engine	28 ft. 3 in.
Cylinders, diar. and stroke	47 in.
Journals	8½ x 11 in.
Truck wheels, diar.	26 in.
Truck journals	4½ x 8 in.
Boiler, type	Straight top
Boiler pressure	180 lb.
Boiler, diar. first ring	74 in.
Firebox, length and width	102⅛ x 33 in.
Tubes, no. and diar.	314—2 in.
Heating surface, tubes	1,795 sq. ft.
Heating surface, firebox	159 sq. ft.
Heating surface, total	1,954 sq. ft.
Grate area	23.4 sq. ft.
Tractive power	28,200 lb.
Factor of adhesion	4.9
Reverse gear	Hand lever
Cab	Steel plate
Water capacity	1,500 gal.
Fuel capacity	100 cu. ft. coke

Additions to Canadian National Railways Rolling Stock.

J. F. Reid, M.P. for Mackenzie, Sask., asked in the House of Commons, March 4, how many new box cars, stock cars, cabooses, new locomotives, new passenger, day, standard, tourist and colonist cars, were put in operation during 1918, 1919 and 1920? The Minister of Railways gave the following information in reply:—

	1918	1919	1920
Locomotives—			
Mikado	60	....	—
Consolidation	60	....	—
Pacific	45	25	—
Switching	20	25	20
Medium Pacific	....	....	20
Heavy Pacific	....	....	10
Santa Fe	....	....	25
	185	50	75
Freight—			
Box cars	9,728	2,892	2,285
Stock cars	1,131	800	—
Cabooses	5	25	130
	10,864	3,717	2,415
Passenger—			
Tourist cars	....	20	—
Colonist cars	....	130	—
Day cars	....	....	20
Baggage cars	....	30	—
Mail cars	....	....	20
Dining cars	7	....	9
Sleeping cars	14	....	18
Observation cars	....	....	13
	21	180	80
	11,070	3,947	2,570

Locomotive Orders for Canadian National Railways.

W. Duff, M.P., Lunenburg, N.S., asked the following questions in the House of Common recently:—"How many locomotive have been built for the Government Railways by the Montreal Locomotive Co. since 1917, and how many are under contract, or in course of construction by the company, but not yet completed? What has been or will be the total cost of all the locomotives? Were public tenders called for the building of the locomotives? If not, why not? Is the Minister of Marine and Fisheries a member of any board or committee connected with the Montreal Locomotive Co.? If so, what are the duties or functions of such board or committee in relation to business done with the Government? If not, when did the Minister of Marine and Fisheries cease to be a member of such board or committee?"

The Minister of Railways replied:—The Canadian National Rys. management advise 227 locomotives have been ordered since 1917 at a cost of $1,329,-300. None under contract at present. Public tenders were called and contract awarded to lowest tenderer. Neither the management nor Government have any information as to who are directors or shareholders or parties interested in Montreal Locomotive Co. Their interest is to see that the lowest tender receives the contract for supplies for Canadian National Rys. Information from the Minister of Marine and Fisheries is that he is a director of said company, but not on any committee."

On the following day the Minister corrected his statement and said:—"The departmental clerk made it appear that the total amount paid for the locomotives was $1,329,300, but one cypher was left out at the end. The amount should have been $13,293,000."

An Efficiency Fiend.

The general manager of a railway in the Eastern States had a reputation for laying off men whenever he found an excuse. As he appeared in the yards one day, two switchmen began to discuss him.

"He don't look like the man we hear he is," said one.

"What do you hear?" the other asked.

"Why they say when he was at the funeral of Flannery's wife, and the six pallbearers came out carrying the coffin, he raised his head and said: 'Hold on, boys! You can get along without two of 'em!'"—McCalls.

Quebec Legislators Want More Passes. The Quebec Legislative Assembly passed the following resolution recently, which was moved by Dr. Choquette: "In view of the importance of developing a more general and more just knowledge of the affairs of our country, this house expresses the wish that the Federal law, relative to railways, be amended so as to oblige, or at least authorize, the National Railways to grant in future to members of provincial legislatures free transportation permits extending over all Canada, instead of being limited to the provinces in which these representatives reside, as stipulated by the present law."

Railway Lands Patented.—Letters patent were issued in February for Dominion railway lands in Manitoba, Saskatchewan, Alberta and Britih Columbia as follows:—

	Acres.
Canadian Northern Ry.	319.42
Kettle Valley Ry.	232.606
	552.026

Mainly About Railway People Throughout Canada.

Dollard Arber, car inspector, C.P.R., Farnham, Que., has been awarded a Royal Humane Society's parchment, for saving the life of a woman who attempted to cross the tracks in front of an express train there in Aug. 1920.

W. H. Biggar, K.C., Vice President and General Counsel, G.T.R., who has been attending sittings of the Grand Trunk arbitrators in Montreal, was attacked with pleurisy and was unable to be present on March 21 and subsequent days.

W. W. Butler, President, Canadian Car & Foundry Co., and Mrs. Butler, left Montreal, March 19, for New York, and sailed by the s.s. Aquitania, for England.

Lt. Col. G. S. Cantlie, D.S.O., formerly General Car Service Agent, C.P.R., Montreal, has been appointed honorary Lieutenant-Colonel of the 1st Battalion, Royal Highlanders of Canada.

J. L. Englehart, ex-Chairman, Temiskaming & Northern Ontario Ry. Commission, was a patient in Wellesley Hospital, Toronto, for a short time in March.

Mrs. Foster, wife of W. E. Foster, K. C., solicirtor for Ontario, G.T.R., Montreal, died at St. Petersburg, Florida, recently.

George C. Gahan, who has been appointed General Auditor, C.P.R., Montreal, was born there Dec. 28, 1874, and entered C.P.R. service Apr. 1890, since when he has been, to Oct. 1891, clerk to Auditor of Freight and Telegraph Service; Oct. 1891 to Aug. 1896, clerk to Auditor of Disbursements; Aug. 1896 to Dec. 1, 1916, clerk, bookkeeper, and chief clerk, Comptroller's and General Auditor's offices; Dec. 1, 1916 to Mar. 1, 1921, Assistant General Auditor, all at Montreal.

Wm. Addison Griffiths, who has been appointed Traffic Superintendent, Kailan Mining Administration, Tientsin, North China, was born in Wales, in 1885, served apprecenticeship with London & North Western Ry., came to Canada in 1906, and was in service with the G.T. R. and subsequently with the C.P.R., and later in the British Government service on West African Government Railways. During the Great War he served with the Royal Engineers and Canadian Railway troops.

Jno. Murray Gibbon, General Publicity Agent, C.P.R., has been elected President of the Canadian Authors' Association, which was organized in Montreal recently.

Grant Hall, Vice President, C.P.R., stated recently that he had not been offered a position on the Canadian National Rys. management, and that he would not entertain such an offer.

C. R. Hosmer, director, C.P.R., and Mrs. Hosmer, entertained at dinner, in Montreal, recently, in honor of W. H. Taft, ex-President of the United States, who is one of the arbitrators on G.T.R. stock values.

Major Robert Bernard Jennings, who has been appointed Division Engineer, Canadian National Rys., Ottawa, Ont., was born at Paris, Ont., June 29, 1888, and entered transportation service in Apr. 1906, since when he has been, to Oct. 1906, chainman, Toronto-Sudbury Line, C.P.R.; Oct. 1906 to Oct. 1907, rodman, Saskatoon-Edmonton Line, Grand Trunk Pacific Ry.; Oct. 1907 to Dec. 1908, instrument man and Resident Engineer, Saskatoon-Edmonton Line, same road; Dec. 1908 to Oct. 1909, leveller, Toronto-Ottawa Line, Canadian Northern Ontario Ry.; Oct. 1909 to Jan. 1916, Resident Engineer, Toronto-Ottawa, Sudbury-Port Arthur and Hawkesbury-Montreal Lines, Canadian Northern Ry.; Apr. 1916 to Jan. 1917, Manager, Jennings & Ross Co., Milwaukee, Wis.; Jan. 1917 to May 1919, Major, 10th Battalion, Canadian Railway Troops, C.E.F., in service in France; July 1919 to Mar. 1921, Division Engineer, Canadian National Rys., Toronto.

C. C. Kirby, District Engineer, New Brunswick District, C.P.R., St. John, N. B., has been elected President, Association of Professional Engineers of New Brunswick.

H. A. Leslie, station agent, C.P.R., Wakefield, Que., died there Mar. 1, aged 42. He had been in C.P.R. service for about 20 years, and prior to that, was with the Ottawa Northern & Western Ry., now part of the C.P.R.

D. H. McDougall, President, Nova Scotia Steel & Coal Co., New Glasgow, N.S., has been appointed Vice President of the British Empire Steel Corporation, of which Roy M. Wolvin is President.

"Sir Geo. McLaren Brown and Lady Brown are spending some weeks in England," according to the Toronto Mail and Empire. No doubt they are, Sir Geo. McLaren Brown being the C.P.R. General European Traffic Manager. Some of these days the Mail and Empire will be giving the startling information that the Dutch have taken Holland.

Samuel Morrison, whose appointment as Assistant Engineer, Maintenance of Way, Canadian National Rys., Vancouver, B.C., was announced in a recent issue, was born at Mount Forest, Ont., Aug. 17, 1882, and entered Canadian Northern Ry. service in May 1906, since when he has been, to Aug. 1906, levelman, Port Arthur, Ont.; Aug. 1906 to Sept. 1909, transitman in Saskatchewan; Sept. 1909 to Dec. 1912, in charge of location party in Saskatchewan and Alberta; Dec. 1912 to Nov. 1915, Resident Engineer, Resplendent, B.C.; Nov. 1915 to Apr. 1919, Resident Engineer on Pacific District; Apr. 1919 to Jan. 1921, acting District Engineer, Pacific District.

L. Mulkern, who has been appointed Division Freight Agent, C.P.R., North Bay, Ont., was born at London, Ont., June 18, 1871, and entered C.P.R. service in Mar. 1890, since when he has been, to 1897, operator, Freight Department, Toronto; 1897 to 1901, inward freight clerk, London, Ont.; June 1, 1901, to June 1903, clerk in General Freight Agent's office, Toronto; June 1903 to Apr. 1908, canvassing freight agent, chief clerk to General Freight Agent, and Travelling Freight Agent, Toronto, consecutively; Apr. 1908 to June 1910, chief clerk to General Freight Agent, Through Traffic, Toronto; June 1910 to Jan. 1914, District Freight Agent, London, Ont.; Jan. 1914 to May 15, 1916, District Freight Agent, Toronto; May 1916 to March 1921, Division Freight Agent, St. John, N.B.

Sir Augustus Nanton, director, C.P.R., and President, Winnipeg Electric Ry., Lady Nanton, and daughters, left early in March on a trip to Bermuda.

H. H. Norman, Secretary, G.T.R. Co., London, Eng., who died there recently, aged 71, left an estate with a gross value of £42,576, and a net personalty of £41,848.

James Norman, chief clerk, to General Auditor, G.T.R., Montreal, was presented with a purse of money, Mar. 15, on retiring from railway service to take up farming.

Chas. A. Phelan, Vice President, Canada Railway News Co., died in Montreal General Hospital, Feb. 26, after a long illness. He was born at Lewiston, N.Y., in 1860, and had been Vice President, Canada Railways News Co., since its incorporation in 1883.

T. P. Phelan, President, Canada Railway News Company, Toronto, and Mrs. Phelan, left Toronto early in March for Hot Springs, Arkansas.

Capt. Kenneth G. Polybank, whose appointment as Division Engineer, Canadian National Rys., Hornepayne, Ont., was mentioned in our last issue, was born at Bristol, Eng., Aug. 17, 1884, and entered railway service in Apr. 1904, since when he has been, to Oct. 1905, in Timiskaming & Northern Ontario Ry. office, North Bay, Ont.; Oct. 1905 to Mar. 1907, in C.P.R. office, Fort William, Ont.; Mar. to Aug. 1907, rodman, Grand Trunk Pacific Ry., Fort William, Ont.; Aug. 1907 to Aug. 1911, rodman, draftsman, instrument man and Resident Engineer, consecutively, National Transcontinental Ry., Kenora, Ont., and Winnipeg; Aug. 1911 to May 1912, Resident Engineer, Canadian Northern Ry., Port Arthur, Ont.; May 1912 to Oct. 1914, Division Engineer, Canadian Northern Ry., Port Arthur, Ont.; 1915 to 1919 in military service overseas as Captain in Canadian Engineers Light Railways Co.; July 1919 to Jan. 1920, Resident Engineer, Canadian National Rys., Winnipeg; June to Nov. 1920, Resident Engineer, C.N.R., Hornepayne, Ont.

Mrs. Geo. M. Pullman, widow of the inventor of the Pullman car, died at Pasadena, Califarnia, March 28.

F. E. Shrimpton, General Auditor, C. P.R., Montreal, died there March 1. He was born in England, June 3, 1868, and entered C.P.R. service Sept. 15, 1887, as clerk in the Auditor of Disbursement's office, Montreal, and left the service Sept. 1, 1888. He was for some time in Oregon Short Line Rd., service at Salt Lake City, Uutah, and re-entered C.P.R. service May 1, 1903, since when he was to Dec. 1, 1906, chief clerk to Auditor of Disbursements, Montreal; Dec. 1, 1906 to Dec. 1, 1908, Assistant Auditor of Disbursements; Dec. 1, 1908 to Oct. 1, 1914, Auditor of Disbursements; Oct. 1, 1914, until his death, General Auditor.

Miss Marie Vautelet, daughter of H. E. Vautelet, formerly Bridge Engineer, C.P. R., and subsequently Chairman, Board of Engineers, Quebec bridge, is to be married at Montreal, on April 5, to Jules Bauset.

A. E. Warren, General Manager, Western Lines, Canadian National Rys., has returned to Winnipeg, with Mrs. Warren, after a holiday trip to California.

H. Williams, formerly paymaster, G. T.R., Montreal, died at Gananoque, Ont., recently. He entered G.T.R. service about 40 years ago as chief clerk to the then Second Vice President (W. Wainwright), was appointed paymaster in 1897, and retired on superannuation in 1913.

E. R. Wood, one of the Canadian National Rys. directors, returned to Toronto at the end of March, after spending some weeks at his winter house in California.

The Toronto Railway Viaduct Situation.

The Toronto Terminal Ry. Co. through its solicitor, W. H. Curle, K.C., who is also Chief Solicitor, C.P.R., sent the following application to the Board of Railways Commissioners Feb. 17:—"The Toronto Terminal Ry. Co. on behalf of itself, the Grand Trunk Ry. Co. of Canada, and the Canadian Pacific Ry. Co. hereby applies to the Board, under the Railway Act 1919, sec. 41, for an order extending the time for completion of the works authorized and ordered by order 19,926, July 31, 1913, and other orders therein referred to, or for an order amending the provisions of said orders. The application is founded on financial conditions. The cost of the works originally estimated at $15,000,000 is now, in consequence of the universal advance in the cost of labor and materials, estimated at $27,000,000. The financing of such a sum is at present a practical impossibility, or is possible only on the most exorbitant terms. The companies ask that the execution of the works be deferred until these conditions improve, or for such alternative relief as may be proper in the circumstances."

Toronto City Council, Feb. 21, passed a resolution instructing its legal department to take immediate legal proceedings asking for specific performance of the viaduct agreement, but on Feb. 28 a further resolution was passed directing that no action be taken until further orders.

The Alexander Brown Milling & Elevator Co. initiated proceedings in the Ontario High Court, March 15, against the C.P.R. and the G.T.R. companies, for an order to compel the expropriation of its interest in the lands held by it under lease from the City of Toronto, and mentioned in the order of July 31, 1913, directing the building of the viaduct. In the alternative the company asks for a release of the lands from the plan of April 25, 1913, showing the lands to be expropriated for the viaduct; and also asks for $451,411.87 for damages, business losses, etc., occasioned by the filing of the plans.

E. L. Cousins, General Manager and Chief Engineer, Toronto Harbor Commission, addressed the Toronto Board of Trade recently on the relationship between the projected railway viaduct along the waterfront and the harbor development. He outlined the viaduct works which the Board of Railway Commissioners ordered, and as set out in the agreement of July 29, 1913, and showed the nature of the plans for the development of the Toronto Harbor. He then referred in detail to plans for a temporary solution of the difficulty put forward by the railway companies, which include a bridge at Spadina Ave.; the raising of the York St. bridge; the provision of a temporary overhead bridge at Yonge St. for all traffic, and bridges at Princess St. and Parliament St. for pedestrian and vehicular traffic. The viaduct would then be postponed for 10 years, Bay St. closed, and Trinity and Cherry Sts. closed across the G.T.R. tracks. Commencing at Parliament St., the G.T.R. main lines would be elevated across Trinity and Cherry Sts., through to the Don and carry the main line track elevated beyond the Don to Logan Ave., thus providing subways at Eastern Ave. and Queen Sts. A portion of the Don yard tracks would also be elevated. The tracks at the union station would probably be about 3 ft. above the present level. Mr. Cousins pointed out the situation which would then be brought about, and claimed that what was suggested by the railways as a solution of the difficulty would menace the development of the inner harbor scheme, upon which so much money has already been expended. In the event of there being 10 years delay in the construction of the viaduct, he would recommend the suspension of the inner harbor work. He claimed that the estimated cost of the viaduct was $16,000,000, and of this Toronto would, in accordance with the order, have to provide $3,000,000 to $4,000,000, so that altogether the railways would not have to provide anything like the sum suggested by them.

The Toronto Board of Trade subsequently passed a resolution calling for the construction of the viaduct in accordance with the order.

It is announced that the application will be heard by the Board of Railway Commissioners at Ottawa, April 4.

Proposed Electrification of G.T.R. Branch Lines.

A movement has been launched in London, Ont., for the electrification of the G.T.R. London, Huron and Bruce and Stratford branches. P. Pocock, Vice Chairman of the London Railway Commission, is reported to have invited municipal authorities, chambers of commerce and other public bodies in the areas served by these two branch lines to take up the question, and it is stated that considerable interest is being aroused. The London City Council's committee in charge of railway matters is reported to have recommended the appointment of a special committee to co-operate with other public bodies on the matter. Wingham Town Council has passed a resolution asking that the Hydro Electric Power Commission of Ontario be requested to approach the Dominion Government with a view to acquiring the London, Huron & Bruce Ry. and electrifying it. A press report states that the Minister of Railways has announced that the Government cannot give any consideration to the question until after the Grand Trunk Ry. is finally vested in the Government.

The Alberta & Great Waterways Ry. has, according to a press report of March 18, carried 1,500 cars of freight since the Alberta Government took over the line, of which 300 have gone north since Nov. 1920. There are, it is stated, about 900 tons of freight lying on the river bank at the end of track, awaiting transportation to the Fort Norman oil fields.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Sstatistics, Internal Trade Division.

Week ended March 11, 1921.	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William						
C.P.R.	1,116,086	747,664	231,879	.....	70,171	2,165,799
Consolidated Elevator Co.	1,097,721	170,786	65,255	59,013	.....	1,392,775
Ogilvie Flour Mills Co.	999,819	231,342	79,729	.....	.....	1,310,890
Western Terminal Elevator Co.	1,060,843	220,383	27,965	172,285	10,151	1,491,627
G. T. Pacific	2,682,219	2,388,569	224,768	369,379	55,674	5,720,609
Grain Growers' Grain Co.	1,686,831	489,342	77,478	.....	14,145	2,267,796
Fort William Elevator Co.	322,988	477,929	125,833	256,330	35,051	1,218,131
Northwestern Elevator Co.	721,611	26,941	13,740	44	*29	762,307
Port Arthur—						
Port Arthur Elevator Co.	3,201,156	2,933,437	833,763	42,816	84,093	7,095,265
Sask. Co-op. Elevator Co.	3,345,255	563,685	75,226	86,199	12,969	4,083,334
Canadian Government Elevator	588,471	1,341,921	229,480	540,783	48,327	2,748,982
Davidson and Smith	123,736	57,044	15,650	.....	1,439	198,869
Private Terminal Elevators	9,089,514	1,819,540	403,613	249,992	10,478	5,573,137
*Total Pub. & Pte. Terminal Elevators,	20,037,249	11,468,583	2,404,379	1,776,841	342,469	36,029,521
Total Pte. Term. Elevators, Winnipeg	260,109	52,446	6,638	792	1,760	321,745
Saskatoon: Can. Gov't Elevator	921,834	1,515,711	4,749	972	1,613	2,444,879
Moose Jaw: Can. Gov't Elevator	686,212	334,180	.....	6,030	2,332	1,028,754
Calgary: Can. Gov't Elevator	374,034	1,451,196	53,793	651	704	1,880,378
Vancouver, B.C., Can. Gov't Elevator.,	79,156	99,272	10,883	.....	.....	189,311
*Total Interior Terminal Elevators	2,061,236	3,400,359	69,425	7,653	4,649	5,543,322
Midland—						
Aberdeen Elevator Co.	200,884	91,052	.....	.....	.....	291,936
Midland Elevator Co.	110,000	326,575	.....	.....	.....	436,575
Tiffin, G.T.P.	116,581	461,542	10,000	37,831	.....	625,954
Port McNicoll	2,990	347,371	.....	.....	.....	350,351
Goderich, afloat—	.....	179,731	.....	.....	.....	179,731
Elevator & Transit Co.	145,894	335,330	10,000	.....	.....	491,224
West Can. Flour Mills Co. Ltd.	231,183	.....	.....	.....	.....	231,183
Kingston—						
Commercial Elevator Co.	.....	20,488	2,814	.....	.....	23,302
Port Colborne—						
Dom. Gov't Elevator	7,600	.....	.....	.....	.....	7,600
Maple Leaf Milling Co. Ltd.	285,511	.....	.....	.....	.....	285,511
Montreal—						
Harbor Commissioners No. 1 and 2..	240,490	611,136	61,578	.....	1,459	914,663
Ogilvie Flour Mills Co.	183	.....	.....	.....	.....	183
Quebec Harbor Commissioners	.....	195,636	.....	.....	.....	196,636
West St. John, N.B., C.P.R.	913,918	169,247	383,417	.....	.....	1,466,582
St. John, N.B., Can. Nat. Rys.	333,696	.....	.....	.....	.....	333,696
Total Public Elevators	2,588,930	2,738,108	467,809	37,831	1,459	5,834,137
Total Country Elevators	11,909,339	132,289,854	1,924,525	1,343,998	.....	28,467,716
U.S. Atlantic Seaboard Ports—						
Baltimore, Md.	200,399	.....	.....	.....	19,690	220,089
Total U.S. Atlantic Seaboard Ports	200,399	.....	.....	.....	19,690	220,089
Total Quantity in Store	37,057,262	30,949,350	4,872,776	3,167,115	370,027	76,416,530

*Empire Elevator Co., Eastern Terminal Elevator Co., Thunder Bay Elevator Co. and Eastern Richardson Elevator Co., now operating under Private Terminal Elevator License.

**Week ending March 4th, 1921.

Traffic Orders by Board of Railway Commissioners.

Surcharges on International Passenger Traffic.

General order 331, March 5.—Re exchange on passenger charges payable in respect of international traffic between Canada and the United States, and the application of the Railway Association of Canada, for the granting of surcharges on international passenger traffic. Upon hearing the application at Ottawa, March 2, in the presence of counsel for the applicants, the Toronto, Hamilton & Buffalo Railway, and the Montreal and Toronto Boards of Trade, the arguments addressed to the Board, the data furnished, and what was alleged, and after conference with representatives of the applicants and reading the memoranda filed on behalf of the applicants, setting out in detail the surcharges it is proposed to apply at different points and the principles upon which such surcharges were based, the Board orders as follows:—

1. A surcharge based on the full rate of exchange arrived at in accordance with the provisions of this order may be added to the total through fares and charges as set out in sec. 6 hereof, and collected in Canada on all passenger and baggage car traffic to United States destinations from the following points in Canada, via the routes set out in this section (subject to exemptions provided for in sec. 5 hereof):—

From Rock Island, Stanstead, and Beebe Jct., Que., via Newport, Vt.
From St. Armand, Que., via. Highgate Springs, Vt.
From Lacolle and Lacolle Jct.. Que., via Rouses Point, N.Y.
From St. Agnes, Que., via Fort Covington, N.Y.
From Athelstan, Que., via Constable, N.Y.
From Cornwall, Ont., via Nyando, N.Y.
From Prescott, Ont., via Ogdensburg, N.Y.
From Niagara Falls, Niagara-on-the-Lake, Victoria Park, and Falls View, Ont., via Suspension Bridge and Buffalo, N.Y.
From Bridgeburg, Ont., via Buffalo, N.Y.
From Windsor and Walkerville, Ont., via Detroit, Mich.
From Sarnia, Ont., via Port Huron, Mich.
From Sault Ste. Marie, Ont., via Sault Ste. Marie, Mich.
From Fort Francis and Rainy River, Ont., via Ranier, Minn.
From Emerson, Man., via Pembina, N.D., St. Vincent, and Noyes, Minn.
From Gretna and West Gretna, Man., via Neche, N.D.
From North Portal, Sask., via Portal, N.D.
From Coutts, Alta., via Sweet Grass, Montana.
From Kingsgate, B.C., via Eastport, Idaho.
From White Rock, B.C., via Blaine, Wash.

2. A surcharge based on 75% of the rate of exchange so arrived at may be applied in the case of all such traffic to U.S. destinations from the following points in Canada, via the routes set out in this section, subject to the exemptions provided for in sec. 5 hereof:—

(a) From Montreal and St. Hyacinthe, Que., and intermediate points, via Rouses Point, Fort Covington, and Maline, N.Y., Highgate Springs, Newport, and Island Pond, Vt.
(b) From Sherbrooke and Lennoxville, Que., and intermediate points, via Newport, Vt.
(c) From Valleyfield and Huntingdon, Que., and intermediate points, via Fort Covington, N. Y., Highgate Springs, Vt., and Rouses Point, N.Y.
(d) From Russell, Ont., and intermediate points, via Nyando, N.Y.
(e) From Kemptville and Morrisburg, Ont., and intermediate points, via Ogdensburg, N.Y.
(f) From Hamilton, Caledonia, Hagersville and Jarvis, Ont., and intermediate points, via Suspension Bridge and Buffalo, N.Y.
(g) From Smiths Falls, Perth and Westport, Ont., and intermediate points, via Morristown, N.Y.
(h) From Chatham, Fargo, Blenheim, Amherstburg and Leamington, Ont., and intermediate points via Detroit, Mich.
(i) From Petrolia, Strathroy, Forest and Ailsa Craig, Ont., and intermediate points, via Port Huron, Mich.
(j) From Morris, Man., and intermediate points, via Pembina and St. Vincent, N.D.
(k) Estevan, Sask., and intermediate points, via Portal, N.D.
(l) From Vancouver, New Westminster and Victoria, B.C., and intermediate points, via Everett, or Seattle, Wash, to points west of the direct line of M. St. P. & S.S.M. Ry. via Minor, N.D., also to points west of Minneapolis, Min., St. Paul, Minn., Sioux City, Iowa, Omaha. Neb., Atchinson, Kan., Kansas City, Mo., St. Louis, Mo., Cairo, Ill., Memphis, Tenn., Vicksburg, Miss., New Orleans, La.. and via California to all points.

3. A surcharge based on 50% of the rate of exchange so arrived at may be applied in the case of all such traffic to United States destinations from the following points in Canada, via the routes set out in this section, subject to the exemptions provided for in sec. 5 hereof:—

From St. John, Fredericton and Woodstock, N.B., and intermediate points, via Vanceboro, Me.
From Thetford Mines and St. Ephrem, Que., and intermediate stations to but not including Sherbrooke and Megantic, via Newport, Beecher
From Victoriaville, Que., and stations to Danville, Que., inclusive, via Island Pond, or Newport, Vt.
From Ottawa, Ont., and intermediate stations to, but not including, Russell, Kemptville and Smiths Falls, Ont., Valleyfield and Montreal, Que., via Nyando, Ogdensburg, Morristown and Rouses Point, N.Y., Highgate Springs, Newport and Island Pond, Vt.
From Toronto, Georgetown, Guelph, Galt, Paris and Tillsonburg, Ont., and intermediate stations to, but not including Hamilton, Caledonia, Hagersville and Jarvis, Ont., via Suspension Bridge and Buffalo, N.Y.
From London, St. Thomas, Stratford and Courtwright, Ont., and intermediate stations to. but not including, Strathroy, Ailsa Craig, Fargo, or Blenheim, Ont., via Detroit and Port Huron, Mich.
From Winnipeg, Man., and intermediate stations, via. Neche, N.D., Pembina, N.D., St. Vincent, Minn., Noyes. Minn., to points west of Sault Ste. Marie, Mich., Port Huron, Mich., Detroit, Mich., Toledo, Ohio, and points south thereof, also to points east of Idaho and California.
From Weyburn, Sask., and intermediate stations to, but not including, Estevan, Sask., via Portal, N.D.

4. A surcharge based on 25% of the rate of exchange so arrived at my be applied in the case of all such traffic to U.S. destinations from all other points in Canada, subject to the exemptions provided for in sec. 5 hereof:—

5. No exchange surcharge will be collected on such traffic from points in Canada to the following U.S. destinations via the routes set out in this section:—

To Vanceboro, Houlton, Presque Isle. Fort Fairfield, and Caribou, Me., and intermediate stations in Maine, via C.P.R. from New Brunswick, Nova Scotia and Prince Edward Island.
To Lowelltown, Me., via C.P.R. from and through Megantic, Que.
To Norton Mills, Lake, Summit. and Island Pond, Vt., via G.T.R. from all points.
To Beecher Falls, Vt., via Maine Cent. Rd., from all points.
To North Troy, Centre, and Newport, Vt., via C.P.R., from all points.
To Derby Line and Newport, Vt. via B. M. Rd. from all points.
To Highgate Springs, Vt., via C.V.R. from all points.
To Rouses Point, N.Y., via all routes from all points.
To Constable, N.Y., via N.Y.C. Rd. from all points.
To Fort Covington, N.Y., via G.T.R. from all points.
To Nyando, N.Y., via N.Y.C. Rd. from all points.
To Ogdensburg, N.Y., via all routes via Prescott, Ont., from all points.
To Niagara Falls, Suspension Bridge and Tonawanda, via all routes from all points.
To Buffalo and Black Rock, N.Y., via all routes from all points.
To Detroit, Mich., via all routes via Windsor or Sarnia, Ont., from all points.
To Port Huron, Mich., via G.T.R. via Sarnia, Ont., from all points.
To Sault Ste. Marie, Mich., via all routes via Sault Ste. Marie, Ont., from all points.
To stations on C.N. Rys., in Minnesota, via C.N.R. via Rainy River, Ont., or Middlebro, Man., from all points.
To Ranier, Minn., via C.N. Rys. via Fort Frances, Ont., from all points.
To Noyes, St. Vincent and Pembina, N.D., via all routes, via Emerson, Man., from all points.
To Neche, N.D., via C.P.R., via Gretna, Man., and G.N.R. via West Gretna, Man., from all points.
To Walhalla and St. John's, N.D., via G.N.R. from Manitoba points.
To Portal, N.D., via C.P.R. via North Portal, Sask., from all points.
To Sweet Grass, Mon., via C.P.R. via Coutts, Alta., from Alberta points.
To Gateway, Mon., via G.N.R. via Baynes, B. C., from British Columbia points.
To Eastport, Idaho, via C.P.R. via Kingsgate, B.C., from all points.
To Northport, Laurier, Danville, Ferry, Molson and Oroville, Wash., via G.N.R. from British Columbia points north of stations named.
To Blaine, Wash., to Seattle, Wash, included, via G.N.R. via White Rock, B.C., from Vancouver, B.C., and Canadian stations intermediate between Vancouver, B.C., and Seattle, Wash.
To Seattle, Wash., via C.P.R. B.C. Coast Steamships and G.T.P.R. Coast Steamships from Vancouver and Victoria, B.C.
To Alaska points via C.P.R. B.C. Coast Steamships from all points.

6. The surcharge herein provided for will be calculated at the rate governing at the date of issue of ticket, check, or receipt upon the amount of the through fare or charge from starting point to destination, for (a) passage tickets; (b) sleeping car tickets; (c) parlor car tickets; (d) excess or other revenue baggage car traffic and special baggage cars; (e) collections for transfer or special delivery of baggage in United States cities.

7. In arriving at the surcharge, the rate of exchange quoted for New York funds by the Bank of Montreal in Montreal at noon on the last day of each month will govern from the 1st to the 14th inclusive of the following omnth; similarly such quotation at noon on the 14th will govern from the 15th to the last day inclusive of such month. Should the governing date fall on a Sunday or Canadian or United States legal holiday the noon quotation of the preceding day will govern. In determining the rate of exchange and surcharge to be applied, fractions less than one-half will be disregarded, and fractions of one-half or over will be counted as one per cent.

8. Telegraphic advice will be sent to railway agents in Canada on the last day of each month, specifying the rate of exchange on which surcharge will be based from the 1st to the 14th inclusive of the following month; and on the 14th day of each month specifying the rate effective from the 15th to the last day, inclusive, of such month. Agents must file such telegraphic advice with the tariff governing such surcharge.

9. Each railway company shall file with the Board, effective March 15, 1921, a special tariff setting forth the charges to be made in accordance with the provisions of this order and corresponding to the varying rates of exchange, and in such tariffs they will be permitted to arrange the amounts on which the surcharges are to be assessed in groups of not exceeding 50c., provided that the amount to be collected on account of exchange does not exceed the authorized rate on the average of each group.

And the Board further orders that the telegraphic advice as provided in sec. 8 of this order be posted in a conspicuous place in each passenger station in Canada of the railway companies over which the Board has jurisdiction; that the companies instruct their agents to inform the public when purchasing tickets to the U.S. that they have the right to purchase a ticket to the border in Canadian funds, if they so desire; and that a pos-

ter to this effect, in large letters, be posted in a conspicuous place in each passenger station as aforesaid. And the Board further orders that the said railway companies furnish the Board with monthly statements, showing the total receipts for international passenger traffic from each zone, with the surcharge received thereon, the portion accruing to the Canadian lines, and that accruing to the U.S. lines, as well as the receipts from U.S. roads for traffic from the U.S. to Canada, divided in the same manner.

Restricted Valuations on Live Stock.

General order 332. March 14.—Re complaint of Calgary Live Stock Exchange as to the restricted valuations on live stock, shipped as part of settlers' effects, and claim that such valuations should equal those scheduled in the new live stock contract, made effective by order 298, June 2, 1920. Upon hearing the complaint at Calgary, Oct. 20, 1920, the compailant, the Canadian Pacific, and the Canadian National Railways being represented; and upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the live stock valuations in the classification of household goods and settlers' effects, as set out on page 100 of Canadian Freight Classification 16, be amended so as to agree with the provisions of sec. 1 of the Live Stock Bill of Lading, schedule A, approved by general order 298, June 2, 1920.

Freight Rates on Intoxicating Liquors Increased.

The Chief Commissioner gave the following judgment Feb. 16, which was concurred in by Commissioners Boyce and Rutherford:—Re application of Canadian Freight Association for approval of proposed Supplement 14 (now 15) to Canadian Freight Classification 16, revising and increasing the rate on liquors. In May 1920, the Canadian Freight Association filed supplement 14 (now 15) to Canadian Freight Classification 16, the substance being that the rate on liquors in l.c.l. quantities should be increased to double first class, and in carload lots to third class. Conferences were held with interested parties in different portions of Canada. Some objections were raised, particularly by certain persons interested in the Ontario native wines industry, and the proposal that shipments should be carried at owner's risk of breakage was also objected to. With these exceptions, no objections were made, except by the Ontario Board of License Commissioners, who protested, not only on their own behalf but on behalf of the Province of Alberta. The case was heard at Ottawa on Dec. 21, 1920, and at the hearing statements were made by the Canadian Freight Association, and representatives of the Grand Trunk, Canadian Pacific and Canadian National Railways, all alleging that the loss by pilfering and the cost of protecting the goods in transit amounted in the case of the C.N.R. to more than the total freight received.

Mr. Birmingham, who appeared for the Ontario License Commissioners, admitted that at one time during negotiations, upon certain conditions, he had agreed to the increased classification, but claimed that was before the increase granted by the Board's order 308, and he contended that the increase of 40% up to Dec. 31, 1920, and 35% thereafter, should be sufficient to compensate the companies for any loss. With this contention I am unable to agree. The increases granted by order 308 were intended to give to the railway companies just and reasonable rates for carrying on the general business of the country, and, if an abnormal condition has arisen, entailing special loss and damage in the carrying of any special commodity, then the general increase granted was not intended to take care of such an abnormal condition. It, therefore, becomes very largely a question of fact. Mr. Jackson, for the C.P.R., stated that, for the year 1919, the loss for all three roads, Canadian National, Grand Trunk, and Canadian Pacific, was $112,500; that in 1920 the loss for the C.P.R. alone was $127,000, and the additional expense in policing the traffic was $123,000, making a total loss for that railway of $250,000, which he stated to be 16% of their total loss and damage. He stated he had no figures to show how much liquor had been handled during 1920, and, therefore, did not know what the revenue from this particular commodity had been. The G.T.R. alleged that its damage was equally great. Mr. Bowker stated that, since the middle of 1920, the cost of increasing their police staff for protecting liquor would amount to $144,000 a year, and the evidence was general from all the railways as to losses and increase in pilfering, even with the increased protection already referred to. From figures filed with the Board, since the hearing, by the C.P.R. showing the claims filed against that company in Winnipeg, Calgary, and Vancouver alone during Dec. 1920, it is clear the condition is getting much worse instead of better. In fact, in some cases, the claims amount to more than the total freight earnings, and, for the three places above mentioned, the total claims filed would average more than 50% of the total earnings. It is impossible to account for such a condition of affairs, and yet, without a doubt, it exists, notwithstanding the efforts being put forward by the railway companies to counteract it.

As the liquor business will in the future be handled very largely by the provinces, some of which are already making very handsome profits out of the business, and the remainder of which probably expect to do so, I am of the opinion that some further protection can be given the transportation companies, without increasing the cost to the consumer, and yet leave a very handsome profit to the public bodies which are handling the traffic. For these reasons, I think the application should be granted, with the reservation, however, that there shall be no increase on native Ontario wines, and owner's risk of breakage shall be eliminated.

Order 30,670 was made Feb. 18, accordingly as follows:—Re consideration of protests filed with the Board against the proposed Supplement 14 (now 15) to Canadian Freight Classification 16, showing revised and increased ratings on liquors. Upon hearing the matter at Ottawa, Dec. 21, 1920, the Ontario Government dispensaries, the Toronto and Montreal Boards of Trade, the Canadian Pacific and Grand Trunk Railways, and the Canadian Freight Association being represented at the hearing, and what was alleged, the Board orders that the complaints be dismissed; and that the said supplement be approved; provided that there shall be no increase on native Ontario wines, and that the clause respecting owner's risk of breakage be eliminated.

Rating of Cartridge Cases.

30,716. March 8.—Re application of Imperial Munitions Board for an order that 18-pounder and 4.5 brass cartridge cases, empty, not primed, shipped in carloads during the war, by or on account of Imperial Munitions Board, from Nobel, Renfrew, Mount Dennis, and Vaudreuil, to the various filling plants, were entitled to the 4th class rating for manufactured articles of brass n.o.s., under item 66, page 69, Canadian Freight Classification 16, instead of the 3rd class rating as for empty, artillery tubes, item 2, page 114, as charged by the carrier. Upon hearing the application at Ottawa, Sept. 27, 1920, the applicant, Canadian Freight Association, Canadian National, Canadian Pacific and Grand Trunk Railways being represented, the Board orders that the application be refused.

Railway Cartage Tariffs.

30,735. Re complaint of Toronto Board of Trade against the cartage tariffs of railway companies, made effective Sept. 1, 1919. Upon hearing the complaint at Toronto, Oct. 31, 1919, and in Ottawa, Feb. 17, 1920, the Toronto Board of Trade, Montreal Board of Trade, Canadian Pacific and Grand Trunk Railways, minion Cartage Co., Shedden Co., North-Canadian Manufacturers Association, Doern Transfer Co., Dominion Transport Co., and Hendrie Cartage Co. being represented, the Board orders that the complaint be dismissed.

Supplement to Canadian Freight Classification.

30,811. March 22.—Re application for approval of proposed Supplement 16 to Canadian Freight Classification 16, and complaint of Massey-Harris Co., Toronto, with regard to Supplement 16 re the classification of agricultural implement parts. Upon hearing the complaint at Ottawa, March 15, the Massey-Harris Co., Canadian Freight Association, Canadian Pacific, Grand Trunk and Canadian National Railways, and Toronto Board of Trade being represented; and upon the report and recommendation of the Board's Traffic Officer, the Board orders that the proposed Supplement 16 to Canadian Freight Classification 16, including ratings on liquor approved by order 30,670, Feb. 18, 1921, as finally revised and submitted for approval by the Canadian Freight Association's Chairman, by letter dated March 11, be approved; the same to be published as Supplement 15 to Canadian Freight Classification 16.

Highway and Railway Construction Compared.

W. A. McLean, Deputy Minister of Highways for Ontario, says in a recent article:—"Highway construction is a more difficult problem than railway building. After the location of a railway has been selected, the actual construction is a comparatively mechanical process, with little latitude for individual initiative on the part of the engineer in charge. The highway engineer, on the other hand, has daily to meet problems of the greatest diversity, in which not only experience is needed, but quality of resourcefulness which railway building does not demand. In meeting the needs of adjacent property owners, in adjusting grades to special conditions, in arriving at a proper balance of labor and cost in selecting and handling materials, there are details to be adjusted of which the road user has no conception."

Stewart & Macdonnell's Harbor and Railway Contract in the Gold Coast Colony.

The firm of Stewart & MacDonnell, with headquarters at Vancouver, B.C., and which is composed of Major General J. W. Stewart, C.B., C.M.G., and the Hon. Angus MacDonnell, has undertaken to build a deep water harbor, with piers, sheds, etc., at Takoradi, Gold Coast Colony, Africa, and a 12-mile railway from Takoradi to Sekondi, where it will connect with the Government railway running from there through Tarkwa, the center of the gold mining district, to Kumasi, 168 miles. The arrangement has been made with the Government of the Gold Coast, a Crown colony, which has appointed Stewart & MacDonnell as consulting and construction engineers, and they will be paid a fee, or percentage, on the work, which will include dredging for a deep water harbor, the erection of piers, sheds, etc., and the building of the 12-mile railway mentioned above, at a total estimated cost of about $17,000,000.

Major General Stewart's career as a Canadian railway contractor, and his record in the Great War, in building and maintaining railways in Belgium and France, are too well known to Canadian Railway and Marine World readers to need repeating here. Since the war, he and his associates have built over 500 miles of railways through Saskatchewan, Alberta and British Columbia, for the Canadian National Rys., and the Canadian Pacific Ry. Mr. Angus MacDonnell, also well known contractor in Western Canada, is a son of the Earl of Antrim.

Major General Stewart, who returned to Canada, from England, on Feb. 1, will go overseas again about September, and will spend considerable time in London, and also at the Gold Coast. Mr. MacDonnell has already left Canada, accompanied by some of the firm's staff, which will be composed principally of men well known in the Canadian railway and harbor construction field, and will include Lt. Col. J. D. L. Macdonald, of Vancouver, who commanded the third Battalion of Railway Troops at the Front, as Manager of Construction; Jas. McGregor, formerly Superintending Engineer, Halifax Ocean Terminals, Canadian National Rys., as Chief Engineer; Capt. Richard Williams, who was in the Canadian Light Railway Corps, as Chief Mechanical Engineer; T. H. Thomas, as Chief Accountant; L. Conkey, as Chief Storekeeper, and some 25 others, selected from Stewart & MacDonnell's Canadian organization. Native labor will be employed almost exclusively.

Concrete and steel will be the principal materials to be used in the harbor construction. The dimension timber for the work will be taken from British Columbia, and a considerable portion of the plant will be taken from Canada.

The selection of Major General Stewart for this work is a result of the splendid service he rendered in the Great War, which was noticed by Brig. General F. H. Guggisberg, C.M.G., D.S.O., who is the Governor of the Gold Coast Colony, and who, it is of special interest to note, was born at Oakville, Ontario, July 20, 1869. He was educated privately in England and at the Royal Military Academy, Woolwich. He entered the Royal Engineers in 1889, was appointed Captain in 1900, temporary Major in 1905, and Major in 1908. He served in Singapore, 1893 to 1896; was Instructor in Fortifications at Woolwich, 1897 to 1902, in special employment, under the Colonial Office, on survey of Gold Coast and Ashanti, as Assistant Director, in 1902, and Director of Surveys, 1905 to 1908. From 1910 to 1914 he was Surveyor General of Nigeria. He has written several stories of West African life, mostly in collaboration with his wife, and some of them have been dramatized. He also wrote a book "Ubique," on modern warfare. His headquarters are at the capital, Accra.

The Gold Coast Colony, which is on the West Coast of Africa, comprises the coast of the Gulf of Guinea, from about 3°7′ W to 1°14′ E of Greenwich, with a protectorate extending inland to an average distance of 440 miles, or the 11° of north latitude, being bounded on the west and north by the French colonies of the Ivory Coast and the French Soudan, and on the east by the former German colony of Togoland, now divided between the British and French. Takoradi is about 150 miles west of Accra, which is some 1,900 miles from Liverpool, the voyage by the Elder Dempster line taking about 14 days.

The Gold Coast Colony proper consists of about 24,200 sq. miles. Ashanti and what are known as the Northern territories, or Protectorate, about 20,000 sq. miles, and 35,800 sq. miles respectively, are governed by commissioners, under the Gold Coast Colony's Governor. The latest available figures of estimated population are about 1,650,000, of which only a little over 1,000 are Europeans. The colony's trade is principally with the United Kingdom, gold is found in considerable quantities, and among the other chief products are cocoa, rubber, palm oil, and palm kernels. The climate is damp, hot, malarious and unhealthy. In addition to the railway already mentioned, there is one from Accra to Mangoase, or Tapo, about 39 miles.

Canadian National Railways Directors' Fees, Etc.

W. C. Kennedy, North Essex, Ont., asked the following questions in the House of Commons recently, the answers being given by the Minister of Railways:

Q. "What are names of the gentlemen who compose the Board of Management of the Canadian National Rys.?" A. "D. B. Hanna, A. J. Mitchell, R. T. Riley, R. Hobson, Major G. A. Bell, Sir Hormidas Laporte, Thos. Cantley, A. P. Barnhill, E. R. Wood."

Q. "What is the salary of each, and what amount did each receive as expenses during the past year?" A. "Directors fees, $2,000 each, and travelling expenses to and from their homes."

Q. "Are any of these gentlemen directors of joint stock companies doing business in Canada? If so, of what company or companies are they respectively directors?" A. "The Government has no information."

Summer Passenger Rates.

A Toronto paper stated recently that the C.P.R. had announced summer passenger rates, making a reduction from 20 to 25% in the current rates. We are officially advised that there was no foundation for the report.

The Board of Railways Commissioners' authorization of increases in passenger fares effective in September, 1920, provided that those increases would be reduced Jan. 1, 1921, which reduction was made, and that the balance should disappear July 1, 1921, which means that on July 1 the companies will revert to the fare basis in effect prior to the granting of the increases in Sept. 1920. This is the only reduction that is to be made. The railways will this year, as in previous years, have on sale from June 1 to Oct. 31, round trip, summer tourist tickets, on the agreed summer tourist fare basis.

CANADIAN PACIFIC RAILWAY COMPANY.

NOTICE TO SHAREHOLDERS.

The Fortieth Annual General Meeting of the Shareholders of this Company for the election of Directors to take the places of the retiring Directors and for the transaction of business generally, will be held on Wednesday, the fourth day of May next, at the principal office of the Company, at Montreal, at Twelve o'clock noon.

SPECIAL MEETING.

The meeting will be made special for the purpose of considering and, if deemed advisable, of authorizing the issue, statutory authority therefor being first obtained, of bonds, debentures or other securities collateral to or in lieu of any consolidated debenture stock which the Company is or may be hereafter authorized to issue, and to the same amount.

The Common Stock Transfer Books will be closed in Montreal, New York and London at 3 p.m. on Tuesday, the fifth day of April. The Preference Stock Books will be closed in London at the same time.

All books will be re-opened on Thursday, the fifth day of May.

By order of the Board,

ERNEST ALEXANDER,
Secretary.

Montreal, March 14th, 1921.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys.—L. W. BULLER, heretofore Assistant Superintendent, Toronto Division, Toronto, has been appointed Assistant Superintendent, Ottawa Division. Office, Toronto.

G. CANFIELD has been appointed Locomotive Foreman, Hornepayne, Ont.

GUY C. DUNN, formerly Engineer of Construction, Grand Trunk Pacific Ry., Winnipeg, who was appointed Office Engineer, Chief Engineer's Office, Eastern Lines, Canadian Northern Ry., Toronto, in Dec. 1920, has been appointed Assistant to Chief Engineer, Eastern Lines, Canadian National Rys. Office, Toronto.

G. R. EDGLEY, heretofore Superintendent, Ottawa Division, Ottawa, Ont., has been appointed Superintendent, Montreal Division, vice W. R. Kelly, transferred to Ottawa Division. Office, Montreal.

W. H. FLETCHER, heretofore Locomotive Foreman, Grand Trunk Pacific Ry., Sioux Lookout, Ont., has been appointed Locomotive Foreman, C.N.R., Brandon, Man.. vice H. Williams, transferred.

H. S. GRANGER, heretofore Soliciting Freight Agent, C.N.R., Calgary, Alta., has been appointed Travelling Freight Agent, Canadian National-Grand Trunk Pacific Rys., Moose Jaw, Sask.

T. E. A. HALL, heretofore Division Engineer, Ottawa Division, Ottawa, has been appointed Division Engineer, Montreal Division, vice H. K. Morrison, resigned to go into private business. Office, Montreal.

R. B. JENNINGS, heretofore Division Engineer, Toronto Division, Toronto, has been appointed Division Enginere, Ottawa Division, vice T. E. A. Hall, transferred to Montreal. Office, Ottawa.

W. R. KELLY, heretofore Superintendent, Montreal Division, has been appointed Superintendent, Ottawa Division, vice G. R. Edgley, transferred to Montreal Division. Office, Ottawa, Ont.

O. KERR, heretofore Bridge and Building Master, Toronto Division, Toronto, has been appointed Bridge and Building Master, Ottawa Division, vice T. J. McGinty, transferred. Office, Ottawa, Ont.

F. T. KNIGHT ,heretofore Locomotive Foreman, C.N.R., Port Arthur, Ont., has been appointed Locomotive Foreman, Grand Trunk Pacific Ry., Sioux Lookout, Ont., vice W. H. Fletcher, transferred.

J. M. McCRAE, Assistant General Freight Agent, Western Lines, Winnipeg, has taken over the duties of General Freight Agent there, while J. M. HORN is acting as General Freight Agent at Vancouver, during the absence of A. BROSTEDT in the Orient.

T. J. McGINTY, heretofore Bridge and Building Master, Ottawa Division, Ottawa, Ont., has been appointed Bridge and Building Master, Superior Division, vice W. J. Coughlin, assigned to other duties. Office, Hornepayne, Ont.

W. T. McLAUGHLIN has been appointed Chief Inspector, Refrigerator Service. Office, Toronto.

W. C. MOORE, heretofore Assistant Master Mechanic, Toronto, has been appointed Assistant Master Mechanic, Ottawa, Ont., vice J. Hawkins, assigned to other duties.

HECTOR K. MORRISON, heretofore Division Engineer, Montreal Division, Montreal, has resigned, to go into private business.

J. J. NAPIER, heretofore Assistant Master Mechanic, Capreol, Ont., has been appointed Superintendent, Superior Division, Ontario District. Office, Hornepayne, Ont.

J. REID has been appointed Roadmaster, Grand Trunk Pacific Ry., with territory from Jasper to McBride, B.C., vice —. Willis, deceased.

J. F. SPEIGLE has been appointed Assistant Master Mechanic, Hornepayne, Ont., vice W. G. Strachan, transferred.

W. G. STRACHAN, heretofore Assistant Master Mechanic, Hornepayne, Ont., has been appointed Assistant Master Mechanic, Capreol, Ont., vice J. J. Napier, transferred.

H. WILLIAMS, heretofore Locomotive Foreman, Brandon, Man., has been appointed Locomotive Foreman, Port Arthur, Ont., vice F. T. Knight, transferred.

The Toronto division has been abolished, the territory being divided between the Nipissing and Ottawa Divisions as follows:—Nipissing Division: Muskoka subdivision 137.9 miles, Orillia subdivision, 10.2 miles; Ottawa Division: Bessemer branch 4.8 miles, Coehill branch 7.2 miles, Irondale subdivision 51 miles, Marmora branch 9.6 miles, Maynooth subdivision 107.6 miles, Orono subdivision 105 miles, Oshawa branch 2.4 miles, Toronto terminals 20.4 miles.

Canadian Pacific Ocean Services Ltd. See under "C.P.O.S. Traffic Agency," in Marine Department, farther on in this issue.

Canadian Pacific Ry.—W. G. ANNABLE, heretofore General Passenger Agent, Canadian Pacific Ocean Services, Montreal, has been appointed General Passenger Agent, Ocean Traffic, C.P.R. Office, Montreal.

W. BALLANTYNE, heretofore Assistant General Passenger Agent, Canadian Pacific Ocean Services, Montreal, has been appointed Assistant General Passenger Agent, Ocean Traffic, C.P.R. Office, Montreal.

H. B. BEAUMONT, heretofore General Agent, Passenger Department, Canadian Pacific Ocean Services, Montreal, has been appointed General Agent, Ocean Traffic, C.P.R. Office, Montreal.

W. C. CASEY, heretofore General Agent, Passenger Department, Canadian Pacific Ocean Services, Winnipeg, has been appointed General Agent, Passenger Department, Ocean Traffic. C.P.R., with jurisdiction covering Winnipeg, Manitoba, Saskatchewan and Alberta Districts, and Spokane, Wash, and on the Spokane International Ry. from Spokane to the International Boundary. Office, Winnipeg.

J. R. CLANCY, heretofore General Agent for Ontario, Freight Department, Canadian Pacific Ocean Services, Toronto, has been appointed Assistant Foreign Freight Agent, C.P.R., in charge of solicitation of export and import traffic, Ontario District. Office, Toronto.

H. J. DALTON, heretofore Assistant Auditor of Agencies, Montreal, has been appointed Auditor of Disbursements, vice E. E. Lloyd, appointed Assistant Comptroller.

C. J. DEW, heretofore Asiatic Freight Agent, Canadian Pacific Ocean Services, Montreal, has been appointed Asiatic Freight Agent, C.P.R., with supervision of Oriental and Australasian traffic, via Pacific ports. Office, Montreal.

W. DIXON, whose appointment as Assistant Superintendent, Woodstock Division, New Brunswick District, was announced in our last issue, has his office at Aroostook, N.B., and not at Woodstock, N.B., as then stated.

W. S. ELLIOTT, heretofore Division Freight Agent, North Bay, Ont., has been appointed Division Freight Agent, St. John, N.B., vice L. Mulkern, transferred to North Bay.

R. S. ELWORTHY, heretofore General Agent, Passenger Department, Canadian Pacific Ocean Services, Chicago, has been appointed General Agent, Passenger Department, Ocean Traffic, C.P.R. Office, Chicago, Ill.

J. J. FORSTER, heretofore General Agent, Passenger Department, Canadian Pacific Ocean Services, Vancouver, has been appointed General Agent, Passenger Department, Ocean Traffic, C.P.R. Office, Vancouver, B.C.

F. G. FRIESER, heretofore General Agent, Freight Department, Canadian Pacific Ocean Services, New York, has been appointed Foreign Freight Agent, C.P.R., New York, N.Y.

G. C. GAHAN, heretofore Assistant General Auditor, has been appointed General Auditor, vice F. E. Shrimpton, deceased. Office, Montreal.

C. F. HAWKER has been appointed Yardmaster, Windsor, Ont., vice L. E. Marcus, resigned to enter another company's service.

G. A. HOWARD, heretofore night dispatcher, has been appointed Chief Dispatcher, Brownville Division, New Brunswick District, vice J. H. Todd, transferred. Office, Brownville Jct., Me.

F. J. JONES, heretofore Night Locomotive Foreman, London, Ont., has been appointed Locomotive Foreman, MacTier, Ont., vice J. J. Dey, assigned to other duties.

H. M. MacCALLUM, heretofore General Agent, Passenger Department, Canadian Pacific Ocean Services, Toronto, has been appointed General Agent, Passenger Department, Ocean Traffic, C.P.R. Office, Toronto.

G. G. McKAY, heretofore General Agent, Passenger Department, Detroit, has been appointed General Agent, Passenger Department, Ocean Traffic, C.P.R. Office, Detroit, Mich.

J. J. MORTON has been appointed Import Freight Agent, Ocean Traffic, Chicago, Ill.

L. MULKERN, heretofore Division Freight Agent, St. John, N.B., has been appointed Division Freight Agent, North Bay, Ont., vice W. S. Elliott, transferred to St. John.

W. G. ROCHE, General Agent, Freight Department, Canadian Pacific Ocean Services, Chicago, Ill., has resigned.

A. W. SNELL, heretofore European Freight Agent, Canadian Pacific Ocean Services, Montreal, has been appointed Assistant Foreign Freight Agent, C.P.R., C.P.R., in charge of solicitation of export and import ocean traffic, via Atlantic ports. Office, Montreal.

G. A. STAPLES has been appointed City Freight Agent, Vancouver, B.C., vice J. H. Fox, appointed District Freight Agent at Edmonton, Alta.

E. T. STEBBING, heretofore General Agent, Passenger Department, Canadian Pacific Ocean Services, New York, has been appointed General Agent, Passenger Department, Ocean Traffic, C.P.R. Office, New York, N.Y.

E. STONE, heretofore General Advertising Agent, Canadian Pacific Ocean Services, Montreal, has been transferred to special work in General Passenger Agent's office, Ocean Traffic, C.P.R., Montreal.

J. H. TODD, heretofore Chief Dispatcher, Brownville Jct., Me., has been appointed Chief Dispatcher, London, Ont., vice W. Killingsworth, transferred.

W. WEBBER, heretofore General Agent, Passenger Department, in charge of passenger traffic at Atlantic ports, Canadian Pacific Ocean Services, Montreal, has been appointed General Agent, Passenger Department, Ocean Traffic, in charge of embarkation and disembarkation at Atlantic ports. Office, Montreal.

J. G. WEIHOFEN has been appointed Export Freight Agent, Ocean Traffic, Chicago, Ill.

Michigan Central Rd.—F. McELROY, heretofore at Detroit, Mich., is reported to have been appointed Tranmaster, St. Thomas, Ont., vice J. Purvis, assigned to other duties.

E. P. MAHONEY, Trainmaster, Montrose, Ont., will, it is reported, also be appointed yardmaster there.

J. PIERCE, formerly yardmaster, St. Thomas, Ont., and latterly at Detroit, Mich., is reported to have been appointed Yardmaster, St. Thomas, Ont.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Burrard Inlet Tunnel & Bridge Co.—The British Columbia Government has been asked to provide $400,000 towards the cost of a projected railway and general traffic bridge over the Second Narrows of Burrard Inlet. The proposal has been made by the municipalities which own the Burrard Inlet Tunnel & Bridge Co.'s charter. (Mar., pg. 142.)

Calgary & Southwestern Ry. Co.—The Alberta Legislature is being asked to grant an extension of time for two years for the commencement, and five years for the completion of the company's projected railway from Calgary to the Steep Creek coal fields. P. Burns, Calgary, is interested. (Oct., 1919, pg. 536.)

Edmonton, Dunvegan & British Columbia Ry.—The improvement of the line from Edmonton to Peace River crossing, and of the Grande Prairie Branch is being gone on with under the direction of the C.P.R. staff in charge. The line is being improved in regard to grading and ballasting in order to bring it into condition to take care of all the traffic offering. C. E. McPherson, Assistant Passenger Traffic Manager, who was in Edmonton recently, is reported to have stated that an extension of the line from the Peace River crossing along the river would open up a large territory, and that such construction of a line is a matter for consideration by the Alberta Government. A press report states that the Alberta Legislature has given favorable consideration to a proposal to extend the line from Peace River Crossing to the Waterhole district. (Feb., pg. 82.)

Fort Smith Ry. Co.—The Dominion Parliament is being asked to incorporate a company with this title, to build a railway from near Smiths Landing on the Slave River, Alta., to near Fort Smith, on the same river, in the Northwest Territories; telegraph and telephone lines; to develop and dispose of electric power; to build and operate ships; to build wharves, docks and warehouses; to build a pipe line or lines for the transportation of oil and natural gas, and to provide for the storage, transportation and marketing of oil. Pringle, Thompson, Burgess & Cote, Ottawa, are solicitors for the applicants. This is another proposition from that referred to in Canadian Railway and Marine World for March, pg. 142.

The Great Northern Paper Co., a press report states, proposes to build a railway from Seboomock to St. John Pond, Me., 18 miles, with branch lines, and from St. John Pond to the International Boundary, to get out the forest products of the valleys along the headwaters of the St. John River in Maine.

Lake Huron & Northern Ontario Ry. The Ontario Legislature has under consideration a bill to grant an extension of time for one year for the completion of this line from the present terminus at Rock Lake, mile 17 from Bruce Mines, northerly to a junction with the National Transcontinental Ry. (Feb., 1919, pg. 79.)

Maritime Coal, Ry. & Power Co. Ltd. The Dominion Parliament is being asked to declare the company's undertaking, works and railway, as well as those of any railway or railways owned, controlled or operated by it, to be for the general advantage of Canada, and for such other powers as may be necessary or incidental thereto. The company operates 12 miles of railway, from Maccan to Joggins Mines, N.S., and also owns a 3 mile line connecting the Chignecto coal mines with the Canadian National Rys. at Maccan. It has charter powers to extend its line to a port on Northumberland Strait, and it was stated in 1917, when the properties were taken over, that the port which would probably be used would be Tidnish.

Mayo Valley Ry. Ltd.—The applicants to the Dominion Parliament for the incorporation of a company with this title are:—A. J. Gills, Dawson, Yukon; W. A. H. MacBrien, N. J. Robinson, R. B. Young, Toronto, and J. McDonald, Ottawa. The company asks power to build a railway from near the junction of the Mayo and Stewart Rivers, Yukon, northerly, following the Mayo River valley to its junction with Duncan Creek, along Duncan Creek valley to its junction with Lightning Creek, and along Lightning Creek and Crystal valleys to the McQuesten River, and thence to connect with and include the McQuisten, Laduc and Bear Rivers; or in the alternative, from near Gordon's Landing on the Stewart River via Janet Lake to the junction of the Mayo River and Duncan Creek. The applicants also desire power to carry on a general navigation business on rivers and waterways opened up, and other connected businesses. When the bill was before the House of Commons March 22 considerable opposition developed, it being claimed that the promoters had not sufficient visible capital to finance construction. The Minister of Railways said: "Promoters of this railway need not think because the bill passes through this committee that they may come to me and expect a subsidy. The Georgian Bay Canal has been asking for a subsidy ever since it was proposed. I will not recommend any subsidy during this session, and, furthermore, I think it will be several sessions before any will be granted." (March, pg. 142.)

Michigan Central Rd.—A press report states that additional passing tracks and enlargement of sidings on the Canada Southern Ry. are contemplated at an estimated cost of $600,000. (Nov., 1920, pg. 607.)

Montreal to National Transcontinental Ry.—J. E. Prevost, M.P. for Terrebonne, Que., asked in the House of Commons recently: "Is it the Government's intention to build a railway connecting Montreal with the National Transcontinental Ry? If, so, has a location been made, and where?" The Minister of Railways replied: "The Government's policy in this respect will be made known by the Finance Minister, when bringing down his estimates."

Slave River Ry. Co.—The following are the provisional directors named in the bill now before the Dominion Parliament for the incorporation of this proposed company:—E. Taylor, J. B. B. Hill, F. M. Stanford, G. Binnie, C. S. M. Pugh, Calgary, Alta. The applicants ask power to build a railway from the westerly bank of Slave River, near Fort Smith southeasterly to Smith's Landing or Fort Fitzgerald, and generally as may be necessary for the purpose of overcoming shoals, rapids, or other obstructions or impediments to navigation on the Slave River. It is also desired to carry on a navigation business, and in connection therewith to build wharves, docks, warehouses, etc.

Sparwood to Kananaskis Pass. — The British Columbia Legislature is being asked to incorporate a company to build a railway, to be operated by any motive power, from Sparwood, on the C.P.R. Crowsnest Branch, northerly along the Elk River valley for 55 miles to the British Columbia-Alberta Boundary at Kananaskis Pass. Davis & Co., Vancouver, are solicitors for applicants.

Timiskaming & Northern Ontario Ry. The following are among expenditures provided for year ending Oct. 31, 1921:

To grade, widen cuts and fills, etc.	$10,000
To replace timber bridges and culverts	48,178
For additional weight of rail and improved fastenings	22,000
Additional track materials	89,304
Right of way fencing	5,199
Snow fences	5,000
Road crossings and signs	3,000
Water stations	17,362
Fuel stations	60,000
Shops and locomotive houses	78,800
Stations and office buildings and miscellaneous structures	128,725
Yard tracks and industrial sidings	81,048
Sidings and spur tracks	50,670
Roadway machines and tools	11,094
Shop machinery	57,525
Work equipment	14,338
Telephone line, Cobalt to Porquis Jct.	24,273
Replacing iron wire, Cobalt to Englehart yards, with copper wire	1,000
Phantom telephone circuit, Cobalt to Porquis Jct., and new switchboard at Porquis Jct.	3,311

Cochrane press dispatch, March 24.—G. W. Lee, Chairman, T. & N.O.R. Commission, has stated here that the surveys in connection with plans to extend the railway north from Cochrane toward James Bay will be gone ahead with immediately. It is planned to complete all surveying so as to proceed with the first 70 miles of the extension about next autumn. Among other things, the line will touch Kettle Falls on the Abitibi River, where a large hydro electric plant may be installed for operating pulp and paper mills, as well as providing power for the T. & N.O.R. electrification.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, APRIL, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 197
Birthdays of Transportation Men 183
Board of Railway Commissioners,—
Orders by, Summaries of 189
Traffic Orders 194
Boiler Inspection, Regulations for 179
Canadian National Rys.—
Minister of Railways annual statement.... 205
Standard Cab and Headlight Wiring 200
Cars, Steel Freight, Repairs or Maintenance of 180
Electric Railway Department .....209 to 216
Accident Prevention in Everybody's Business 209
Freight and Passenger Rate Increases 212
Levis County Ry. Fire and Future 215
London St. Ry. Operating Results and Position 214
Nipissing Central Ry. Operating Results.. 211
Projects, Construction, Etc. 213
Statistics 212
Wages, Working Conditions, Etc. 211
Winnipeg Electric Ry. Snow Fighting Equipment 216
Express Companies, Among the 208
Freight and Passenger Traffic Notes .....
Flinflon Mining District Railway 186
Mainly About Railway People 192
Marine Department ..... 217 to 232
Canadian Government Merchant Marine Shipbuilding, Operation, Etc. 219
Drydock Estimates 232
Mail Subsidies and Steamship Subventions 232
Mainly About Marine People 225
Ocean, Coast, Lake and River Steamship Officers 217
Renaissance of the Windjammer 231
Shipbuilding, General, in Canada 223
Ships Registered in Canada 226
Welland Ship Canal Contracts 230
Rail Handling Machine, Air Operated 200
Railway Cartage Charges, Toronto Board of Trade's Complaint 202
Railway Department Estimates 204
Railway Development 198
Railway Earnings 185
Railway Mechanical Methods and Devices..... 200
Railway Operation, Some Phases in Canada.. 177
Railway Rolling Stock Orders and Deliveries 191
Railway Statistics 182
Railway Wages Situation 187
Telegraph, Telephone and Cable Matters 207

Index to Canadian Railway and Marine World for 1920.

Our March issue contained at the back a very complete index to the contents of the volume for 1920, which as in former years, will doubtless be fully appreciated by the large number of subscribers who bind Canadian Railway and Marine World for reference purposes. We would prefer to issue our annual index in book form and not bind it in with the issue with which it appears, but a Post Office Department ruling for which, in our opinion, there is no justification, prevents us from doing so. However, the index can be detached easily from the rest of the March issue, for binding with the issues for 1920.

Even a casual glance over the pages of closely printed matter in the index will show the tremendous range of subjects covered in the 692 pages of reading matter given in 1920, the thorough manner in which Canadian Railway and Marine World represents the entire transportation interests of the whole Dominion—steam, railway, electric railway and marine—as well as the subsidiary express and telegraph interests, and railway and canal contracting work.

Increased Rates for Railway Transportation of Mails.

The following order in council was passed at Ottawa Feb. 16:—"The committee of the Privy Council have had before them a report, dated Feb. 9, 1921, from the Minister of Railways and Canals, stating that the Canadian Pacific, the Grand Trunk and the Canadian National Railways have from time to time represented that they are losing so much money in respect to the carriage of mails that it is impossible to continue on the basis of present rates. That they have for some years been asking for a re-adjustment of said rates. That on March 7, 1917, by order in council 617 the matter was referred to the Board of Railway Commissioners for investigation and report. That said investigation has been carried out and completed, and an official report made by said Board; said report being attached hereto. That owing to the very great increase in cost of operation, in so far as wages, coal and other supplies are concerned, it is necessary that some action be taken at the earliest possible moment. The Minister, therefore, submits the matter for consideration, and recommends that the report aforesaid be accepted, and its provisions be applied and put into effect, for one year from and including March 1, 1921, unless extended beyond that date by order in council. The committee concur in the foregoing recommendation and submit the same for approval."

The Board of Railway Commissioners report, referred to above, was published in full in Canadian Railway and Marine World for June 1920. The concluding paragraph of the report was as follows: "Giving due consideration to the averages involved, and the element of judgment concerned, in dealing with the question as to the proper participation of the mail service in general costs, it would appear not unreasonable that the rate accepted by the Board for the kindred express service in the general express judgment should be adopted, that is a rate of 34.7c. for a full mail car mile. It would appear also not unreasonable that the charges for the other services set out in the order in council, as contained in the reference to the Board, should be increased in each case by the same percentage as the 34.7c. rate represents over the 16c. rate." Subsequently the Board recommended that the 34.7c. rate should be the maximum rate and subject to all bonus or statutory deductions.

The Post Office Department put the new rates in effect March 1. Following is a comparison of the old and new rates per mile:—

	Old rate	New rate
Full length postal car or storage car	16c.	34.7c.
Half car, 30 ft.	9c.	19.52c.
Baggage car rate, 15 ft.	4c.	8.67c.
Special trains	$1.25	$2.71

Another order in council was passed Feb. 19, 1921, requesting the Board of Railway Commissioners to further consider the rates to be paid for the carriage of mails and to make a report and recommendation thereon prior to March 1, 1922, to which date the new rates apply, in order that an extension of time may receive consideration.

Daylight Saving Dates.

In the interests of the travelling public the Railway Association of Canada has appealed to the various municipalities to adopt this year uniform dates on which to begin and terminate the daylight saving plan. Much unnecessary confusion has been caused to travellers during the past few summers by municipalities adopting daylight saving time and reverting to standard time upon conflicting dates. In 1920 Toronto adopted daylight saving time May 2 and reverted to standard time Sept. 12. Montreal adopted it May 2 and reverted Oct. 3. Ottawa dates were May 2 and Sept. 5; Cornwall, May 30 and Sept. 19; Brockville, June 1 and Aug. 31.

The general change of time on the railways this spring will probably take effect on Sunday, May 1, and the autumn general change on Sunday, Oct. 2. The Railway Association of Canada, acting for all Canadian railways, suggests that if municipalities decide to use daylight saving time this year they should make it effective on those dates. This would not only be of material help to travellers, by avoiding some of the past confusion resulting from the conflicting dates, but business people generally would have a better understanding as to when the business day commences and closes in other communities with which they are in constant communication.

Daylight saving time has not been adopted and will not be adopted by Canadian railways this year, so far as is known at present. A special Dominion enactment would be necessary before railways could make the change in time, and such an enactment has not been asked for.

The London, Ont., Railway Commission is reported to have entered into a new arrangement with the Michigan Central Rd. for haulage of M.C.R. cars on the London & Port Stanley Ry. It is stated that the new charges are on a per car basis, and that they will be retroactive to Jan. 1.

The St. Paul, Alta., Municipal District, has asked the Edmonton Board of Trade to co-operate with it in asking the Canadian National Rys. to restore the express train service on the Oliver-St. Poul de Metis branch, which was cut off recently.

Railway Mechanical Methods and Devices.

Air Pump Cylinder Boring Machine.

The accompanying illustration shows a type of pump cylinder boring machine which is in use in the air brake department, Canadian National Rys. Leaside shops, Toronto. This machine is used to bore out both the steam and air ends of air compressors, and is equally well suited for the 9½ and 11 in. simple compressors and the 8½ in. cross compound. For work with the simple pumps, the pump is mounted on a support. In boring out the cylinders of the 8½ in. cross compound pump, the pump is stood on the floor of the shop, as shown. The machine is operated by compressed air, the motor being shown in the illustration. The machine is held rigidly to the work, by four set screws which secure it to the top of the cylinder to be bored, and the feed is automatic.

Air Pump Cylinder Boring Machine.

A special nut at the lower end of the vertical shaft on which the tool holder is secured (the shaft revolving, driven by worm gear) fits into the gland of the pump, and two set screws which hold the upper end of the shaft solid in the horizontal frame, provide for the centering of the device. When the machine is set up and centered, the tool adjusted to the work and the machine started, no more attention from the operator is required until the cut is completed. The cylinders are bored out in stages of one sixteenth of an inch.

Such a machine would be of special value in a shop where there is no back shop equipped with the standard types of machinery suitable for this kind of work. All that is needed is a supply of compressed air and the boring bar is ready for operation. We are indebted to E. Brooks, Foreman, Air Brake Department, for this information.

Freight Car Wheel Work.

Freight car wheels are called upon to withstand many severe hammer blows, occasioned by their passage over rail joints, frogs, switches, and crossings, under varying conditions of speed and load. The safety of the train being dependent on the good condition of wheels and axles, they must meet rigid standardized conditions, to escape condemnation, and the necessity for changing wheels often arises. No freight car repair shop is complete without a well laid out section for taking care of the work on wheels and axles, and the facilities for getting the wheels and axles to and from the machines, if well laid out, can save a lot of time and labor. The car repair department, West Toronto shops, C.P.R., is well equipped to handle freight car wheel repair work, and the following is a description of a portion of the facilities there.

A yard track extends to the door of the wheel shop, on which the flat cars containing wheels are spotted. At right angles to the track is another, leading in through the shop door, the rails being depressed so that the top of the rail is even with the surface of the shop floor. The yard outside the shop is provided with storage tracks, with turntables at the intersections. For unloading, or loading, wheels or axles, a hoist, operated by compressed air, is used, greatly facilitating the work. It works through a large range, and has great flexibility in operation.

Fig. 1. Placing car wheel in boring mill.

One of the boring mills is shown in the accompanying fig. 1. This illustration shows a wheel, picked up by the air-operated lift arm used to place the wheel in position for boring. The arm A swings horizontally on a strong vertical round iron column; the chain is connected to a piston operating in a compressed air cylinder. By opening the controlling valve, the wheel is lifted, when the arm is swung round and the wheel is placed in the machine. The device by which the wheel is picked up is simple, but cleverly arranged, and is shown in fig. 2. The greater the weight, the greater the tendency to pull down frame A, and spread the hooks B. The two boring mills are belt driven, from a line shaft, an electric motor being the source of power. Davis expansion car wheel boring tools are used.

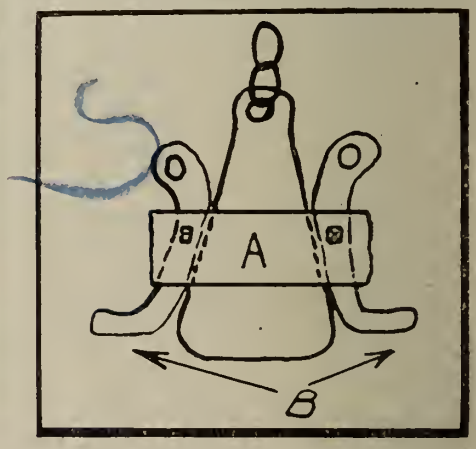


Fig. 2. Detail of grab hook for lifting car wheel

The axle lathe, shown in fig. 3, is located near the boring mills, and is also served by an air operated hoist of wide range, greatly facilitating the work of placing the axle in the lathe and taking it out after machining. The way in which the hoisting apparatus takes hold of the axle, to lift it, is clearly shown in the illustration. The hoist gives great flexibility of movement, both horizontally and vertically.

The wheel press is located close to the boring mills and axle lathe. The hydraulic pumps are operated from a line shaft, with motor drive. Fig. 4 shows the operation of "pressing off," i.e., removing the wheels from an axle. The back of the wheel is supported against the upright casting, which may be moved along the upper horizontal member B, and a lower one to correspond, but which is blocked by steel blocks C. The ram of the hydraulic press, in this operation, presses against the end of the axle. The wheel remains stationary and the axle is forced away from it.

Fig. 5 shows the operation of "pressing on," i.e., securing wheels to an axle. In this operation, the position of the upright casting has been changed, and the ram, equipped with a large sleeve, presses against the wheel center, the far end of the axle being blocked. The wheel press is also fitted up with improved methods of handling the work to and from it. The long hook shown in fig. 4, operated from a vertical air pressure cylinder above, is used to reverse the wheels end for end. In assembling the wheels and axles for pressing on, the wheel shown at the left in fig. 5 is stood in an inverted driver brake shoe, sunk in the shop floor; a hoist picks up the axle, the end of it being guided by hand into the wheel center; the right wheel is then rolled into place and the right end of the axle guided into its center. The truck is run under the axle, axle and wheels are elevated from the floor by the compressed air connection seen, and taken by the truck into the wheel press.

In pressing off, the gauge is not used, any pressure sufficient to force the axle out of the wheel being satisfactory. In pressing on, however, the gauge on the press is used. With 4¼ x 8 wheels the pressure required is 35-50 tons; 5 x 9 wheels, 40-58 tons, and 5½ x 10 wheels, 45-62 tons. Gauging of wheels must also be carefully done in the pressing on operation, and it is thus seen that diameters must be exact, to conform to specifications of wheel gauge and pressures.

Other machines include the steel tire lathe, journal lathe, etc., and all are served by narrow gauge trucks and hoists, as shown, so that wheels and axles are placed in the machines with the minimum of labor and delay. The feature of speed and facility in handling work is of as much importance in a car wheel shop as in any other, and in this regard the West Toronto shop is admirably equipped. We are indebted to J. Eannon, General Car Foreman, and Frank Taylor, Mill Foreman, West Toronto shops, C.P.R., for this information.

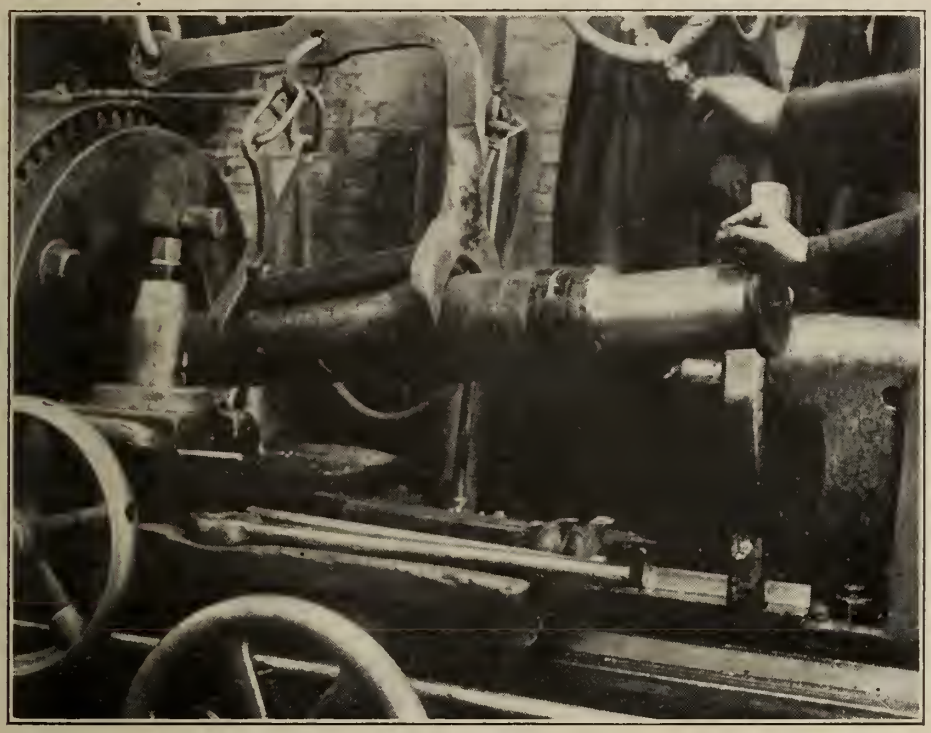
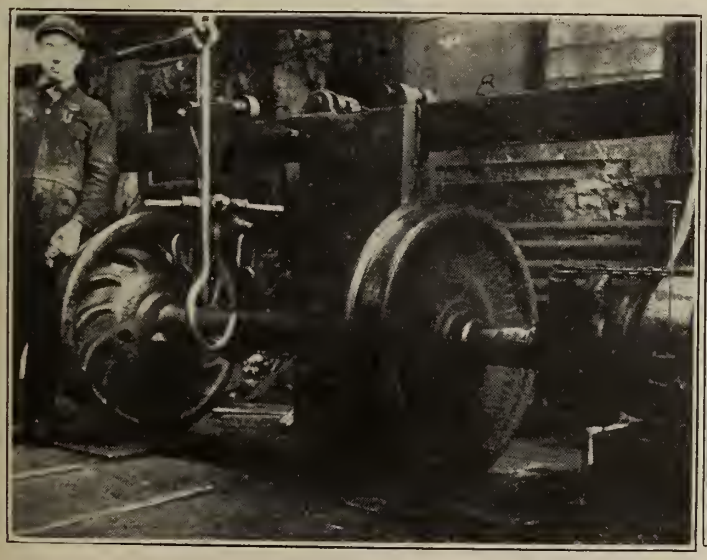
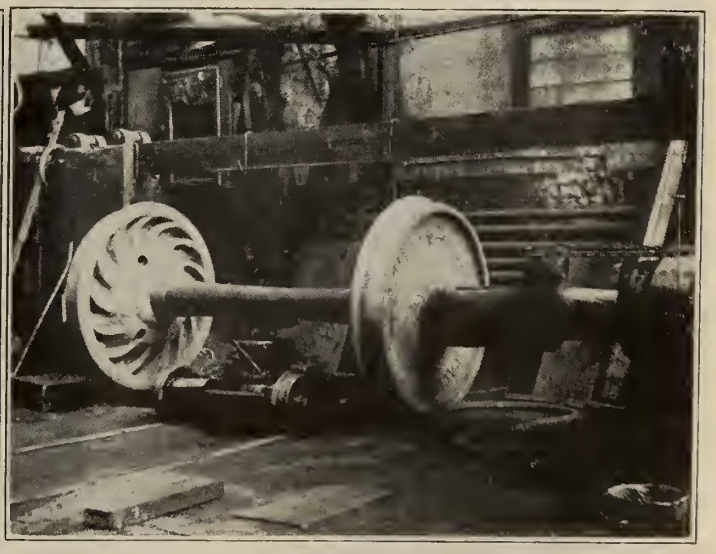


Fig. 3. Placing car wheel axle in lathe.





Freight Car Wheel Work. Fig. 4. Pressing wheels on axle. Fig. 5. Pressing wheels off axle.

Alberta Coal Resources and Production.—The Provincial Treasurer is reported to have informed the Alberta Legislature March 11 that the coal resources of the province are 86% of the whole coal resources of Canada, and that the work of extending the markets for Alberta's coal is proceeding successfully. The coal production and value for 1920 were as follows:—

	Tons.	Value.
Domestic . .	3,359,308	$15,116,886
Bituminous . .	3,419,021	17,095,109
Anthracite . .	130,594	1,044,752
Total . .	6,908,923	$33,256,747
Briquettes . .	101,922	662,493
Grand Total .	7,010,845	$33,919,240

Motor Freight Traffic has so developed in Switzerland of late that it is reported that 50 of the private railways have requested the cantonal authorities in six French-Swiss cantons to take measures to protect railways and to put difficulties in the way of the extension of motor van traffic.

The U. S. Interstate Commerce Commission has ruled that class and commodity rates may be increased 35% between eastern and southern territory and the southwest. This affects generally all shipments between Atlantic coast states, and New England, and Texas, and neighboring territory.

Toronto Board of Trade's Complaint Against Railway Companies' Cartage Tariffs Dismissed by Board of Railway Commissioners.

S. J. McLean, Assistant Chief Commission, Board of Railway Commissioners, gave the following judgment recently, which was concurred in by the Chief Commissioner, Hon. F. B. Carvell:— Complaint of Toronto Board of Trade against cartage tariffs of railway companies made effective Sept. 1, 1919. Sec. 284 of the Railway Act, as it existed prior to the revision in 1919, dealt with the question of facilities to be afforded by a railway company. The corresponding section in the 1919 Act is 312. In so far as the subject matter of the present application is concerned, the section has been amended by adding a sub-clause (e), sub-sec. (1) of sec. 312, reading as follows:

"(e) Furnish such other service incidental to transportation as is customary or usual in connection with the business of a railway company, as may be ordered by the Board."

The construction of this amendment is before the Board in the present application in connection with the question of the Board's powers as to cartage. Under the law, as it stood prior to 1919, it was held by the Board that the charge for cartage was one falling within the definition of "toll" as set out in the interpretation section of the Railway Act. Stewart v. C.P.R. Co., 11 Can. Ry. Cas. 197. The Board also held in re Cartage Tolls, 19 Can. Ry. Cas. 389, p. 391, that while the cartage service fell within the toll definition it was not a "railway service or facility" within the meaning of the Act. See also Port Arthur and Fort William Boards of Trade v. Canadian Freight Ass'n, 24 Can. Ry. Cas. 80. There was thus a clear finding that the cartage service was not a railway facility over which the Board had jurisdiction.

Following the Board's findings that it had no jurisdiction to order cartage as a facility, the cartage service has continued; the full burden of cost being on the users thereof. The tariffs which have been filed, giving the charges to be made for cartage service, have been filed simply for the information of the public, and as indicating the charges at which, under contracts entered into, the cartage companies are prepared to carry on the service. In connection with these cartage tariffs there is a practice of excepting various articles which are light and bulky, or which have other characteristics which it is contended by the cartage companies preclude the possibility of their being covered by a general scale of rates. Where there are such excepted articles, the determination of the charge of the service depends upon individual contracts.

On the Toronto Board of Trade's complaint against cartage tariffs of the railways which became effective Sept. 1, 1919, the matter was spoken to in regard to the rates on excepted articles. The position of Mr. Marshall, Traffic Officer, Toronto Board of Trade, who represented that Board, was that the rates of excepted articles, instead of being left to be quoted on application, should be carried on the tariff sheets; and during this hearing there was raised the question as to the effect of the amendment to sec. 312 of the Railway Act as above set out. It was contended that the amendment to sec. 312 was intended to give the Board jurisdiction over cartage service, or any other service if it was incidental to the railway transportation. In response to the C.P.R.'s contention that it was not performing the service, as it was not a cartage company, Mr. Marshall rejoined that the agent of the railway, that is, the cartage company, was performing the service. The general contention of the railways was that the wording of the amended sub-clause of sec. 312 did not change the Board's finding as to the legislation prior to 1919 as to cartage service; and it was set out by C.P.R. counsel that "once we publish the rates the Board can exercise jurisdiction, and see that we do not discriminate between commodities or localities."

As the result of the position above taken, the matter was set down for hearing in Ottawa, so that the jurisdictional phase of the question might be spoken to. Counsel for the Board of Trade set out that if a railway company could withdraw a tariff as to half a dozen items, it could withdraw any or all of them; and it was set out that the question involved in the present application was whether, under the amendment, the Board had power to instruct the railway companies to continue to give cartage where they used to give it as being part and parcel of, or incidental to, the business of the railway at any particular point. In evidence, the Board of Trade's counsel said in substance that his client's contention was not as to the Board having jurisdiction over cartage companies, but in respect of the Board having jurisdiction over railway companies, and he contended "If this is a service they ought to render . . . you can order them to do it, and it is for them to find a way to do it."

The railways took the position that they and the cartage companies were dealing at arms length, and that the cartage company was a separate entity, over which the railway had no control. The position taken by the applicants was in substance that the cartage company was the agent of the railway. In the course of the argument an analysis was made of the existing cartage contracts, and a written analysis of the salient points relied upon was subsequently filed by the Board of Trade's counsel.

Mr. Watson, for the G.T.R., in his examination by applicant's counsel, testified that as far back as 1882 there had been cartage companies connected with the railways. The G.T.R. employed the Shedden Co. and the Great Western Ry. the Hendrie Co. Both of these companies operated in Toronto. When the amalgamation took place between the Grand Trunk and the Great Western, the City of Toronto was divided for cartage service between the Shedden Co. and the Hendrie Co., the dividing line being Yonge St. At that time the G.T.R. paid the cartage companies, collected the freight rates, and absorbed the cost of the cartage entirely. Mr. Watson pointed out, however, that the rates at that time included the cost of collection and delivery on a limited list of freight. As far as the G.T.R. is concerned, the cartage companies, in the majority of cases, collect the freight charge from the railway, they receipt for goods and sign bills of lading. In examination by Mr. Chisholm, Mr. Watson stated that there were some 15 places where the G.T.R. had cartage service. He said that the idea of allowing the cartage companies to sign receipts or bills of lading in the name of the company was to facilitate the handling of business and to allow the shipper to get his receipt at once. This was stated to be for the benefit of the shipper and for the benefit of the public generally; otherwise the shipper would have to go to the freight shed and have the receipt signed by the company's agent. The system of advanced charges was referred to as being absolutely in the consignor's interest. The witness was not aware of any case where the railway company had itself done the cartage in Canada.

The C.P.R.'s position as to its relation with the cartage companies was developed in Mr. Lanigan's evidence. Cartage service is performed at some 18 points in Eastern Canada. The company has not cartage contracts with cartage companies west of Fort William. It is stated they have not, nor have not had, any contracts east or west since 1912. In response to a question as to the signing of bills of lading by the cartage companies in the name of the railway, it is stated that this is done but under no authority from the railway. Similar evidence was given here as in the case of Mr. Watson, as to this being a matter of convenience for the shipper. It was stated that if the cartage company having signed the bill of lading lost the goods, the cartage company would be liable.

The matter of advanced charges, which has already been discussed in the Board's decision, was referred to, and it was stated by the witness that the railway company took the position it would not advance the charges of more than one cartage company, and that where the cartage company was chosen by the merchants or the Board of Trade, and this company ensured an efficient and proper cartage service, then the charges would be advanced, but not for any other company. In other words, only one cartage company would be able to have the advantage of the advanced cartage system.

As to the relation with cartage companies, it was testified that the railway company has no contracts with nor proprietory interest in any cartage company anywhere. It was stated by Mr. Lanigan, that the Dominion Transport Co., which does cartage service to and from the C.P.R. sheds, also does a general cartage business. The following discussion took place:—

"Mr. McMaster: I suppose I am right in saying that the Dominion Transport Co. does not cart and will not cart for anybody but the C.P.R.? A. You would be wrong if you said that.

"Q. Would it cart for the G.T.R.? A. No, but it does a general cartage business.

"Q. I notice that it carries the name of your company on its trucks and vans. A. I have no doubt it does. Suppose it does?

"Q. Is that with your consent? A. I don't know. We don't own one of its carts or any of its harness, or a bit out of its harness. Moreover, the Dominion Transport Co. could quit the service tomorrow, it could raise its rates or reduce them; it could say that it would carry John Jones' goods or that it would not carry John Smith's goods.

"Q. I am not sure that the Board would be as helpless as that. A. I am speaking of the railway's helplessness.

"Mr. Flintoff: As far as the C.P.R. is concerned, it would have no power to control the movements of the Dominion Transport Co.? A. Absolutely none whatever.

"Q. If it wanted to cart for the Grand Trunk or the Canadian National, we could not prevent them? A. No."

The Canadian Northern Transfer Co. was operated by a subsidiary company of the Canadian Northern Ry. From the evidence, however, it was a subsidiary company of Mackenzie & Mann, who were the sole shareholders. As explained by counsel for the railway company, when the Government took over the Canadian Northern System, the Canadian Northern Transfer Co. was taken over as part of the Mackenzie & Mann assets. The transfer company did business in Montreal, Toronto and Winnipeg, and as explained by witness J. C. Egan, when the Government secured the Canadian Northern Ry. Co. it also secured the Canadian Northern Transfer Co., and that both the railway and the transfer company are now under one control. No contract existed between the transfer company and the railway company, but it was testified by witness that the relations as to the carrying on of business and the service performed meant the business was carried on practically the same as by other cartage companies. The transfer company does not do business for any outside railway. The practice has been that the transfer company accounts to the railway company, and if there is a deficit the railway meets this; if there is any surplus, it goes to the railway company. Under the Statutes of 1919, chap. 13, an Act taking over the Canadian Northern Ry., the Canadian Northern Transfer Co. was expressly taken over as one of the subsidiary companies of the railway. It was contended by counsel for the railway that the Canadian Northern Transfer Co. is not in any different position from other companies.

While as a matter of record the information above set out, in regard to the relations between the railway companies and the cartage companies, has been given, it does not appear to me that it is a conclusive factor. The relations above set out are not shown by the record to vary from those existing at the time when the Board gave its decision prior to the amendment of 1919. If the analysis of the contracts points to the railway being the principal in the matter, it was equally the principal at the time the Board held that cartage was not a railway facility which it could order. The amendment already referred to obligates the railway, in respect to furnishing "such other service incidental to transportation as is customary or usual in connection with the business" of the railway. What is involved is the construction of the legislation as bearing on the intention of the words above quoted, considering, in this connection whether they are concerned with the furnishing of facilities, thereby making the Board's former decision of no avail, or whether they are concerned with a different category. I recognize that the normal rule of construction excludes reference to the discussion which may have taken place in Parliament in connection with the wording of a given section or sections; and I recognize further that the burden is thus normally on the body construing the statute not to look to an extraneous source in so construing the intent and meaning of the statute.

There is, however, high authority to the effect that the report of a special committee, on whose report legislation was introduced, may be looked to in construing the statute, this being set out in a decision of the House of Lords. In the Eastman Photographic Materials Company, Ltd., appellants, and the Comptroller-General of Patents, Designs and Trademarks, A.C. 1898, 571, the Earl of Halsbury, L.C.:

"Before dealing with the decision itself I think it desirable, from what occurred in the course of the argument, to say something as to what sources of construction we are entitled to appeal to in order to construe a statute. Among the things which have passed into canons of construction recorded in Heydon's case (2), we are to see what was the law before the Act was passed, and what was the mischief or defect for which the law had not provided, what remedy Parliament appointed, and the reason of the remedy . . . . My Lords, I think no more accurate source of information as to what was the evil or defect which the act of Parliament now under construction was intended to remedy could be imagined than the report of that commission."

It is true that there was not a specific report of a special committee with its findings setting out the reasons for the enactment to sec. 312. The citation above given is, however, I think pertinent. The amendment was introduced by the Toronto Board of Trade. Counsel for that Board was assisted by its traffic expert. The amendment was introduced with a technical traffic knowledge as to the incidents of transportation. I am, therefore, of the opinion that it is justifiable to make reference to the statements made during the committee sessions by Mr. McMaster, counsel for the Board of Trade, in so far as such statements have a bearing upon the scope of the proposed legislation. In the sub-clause as above quoted it may be noted that the words "as may be ordered by the Board," being the 5th to the 11th words inclusive in the sub-clause, were not in the amendment as proposed in the first instance by the Board of Trade, but were added in the Senate. This, however, is not material to the discussion of the content of the bill. At the sittings of the House of Commons special committee on bill 13, an Act to consolidate and Amend the Railway Act, A. C. McMaster, K.C., appearing for the Board of Trade, and referring to the section concerned, then numbered 313, said on May 10, 1917: "The Board of Trade feels that there are now certain services that it gets and certain privileges and conditions that it has that are not covered by any of these things that perhaps strictly are not traffic. But things such as milling-in-transit, the right to mill-in-transit, the right to stop off to pick up loads, the right to certain things of that sort; and it would like to have a clause added to sec. 313 as sub-clause (e) to read something like this:—

"Furnish such other service incidental to transportation, or to the business of a carrier, as the Board may from time to time order, and shall maintain and continue all such services as are now established, unless discontinued by order of the Board."

The words of the proposed amendment are wide. At the same time I think it is fair, with a view to testing the intention, to follow the rule in Heydon's Case and attempt to see what was the law before the Act was passed, what was the mischief or defect which the law had not provided, also what remedy Parliament appointed. Presentation by counsel of the amendment in question was done with the support and advice of a technical expert, and it must, therefore, be assumed that the scope of what was sought had been fully thought out. When the amendment was introduced it was known that the Board had held that it had no power to order cartage service as a facility. Is there any evidence that this was intended as the mischief or defect which the law had not provided for, and which it was desired should be covered by the amendment? The introduction by counsel, already quoted, would seem to point out the desire to have legislation so framed as to ensure the continuance of milling-in-transit and similar arrangements which were not covered by the words of the existing law.

At the committee's meeting on May 10, 1917, Mr. McMaster stated in answer to a question: "This clause is aimed entirely at things we enjoy now, such as the right to mill-in-transit, and cattlemen's right to put a car off to complete load, and a whole lot of things like that with which the Board of Trade representative of course is more familiar than I am, but he tells me that this is an instance of what we want to secure." Again he said: "Just at present we have a lot of incidental privileges which may or may not be under any other definition of the act. Any incidental privilege which we have which has been customary and usual for us to have, and which we now enjoy, should not be taken from us, in our opinion, unless the Board so decrees . . . If it is something we now have it should not be taken from us unless the Board says so, whether it is traffic or accommodation, or falls under any of these expressions. I will illustrate it by a number of things we now enjoy, for instance, the right to mill-in-transit if it becomes necessary, and the right to stop the peak load (to complete load?), and a number of things over which discussion might arise, rightly or wrongly, as to whether they were included in any of these other clauses." The words, "whether it is traffic or accommodation," might seem as to the word "accommodation" to open up the way to the consideration of "facilities." But it seems to me that considering the context and the subsequent reference to milling-in-transit, the scope is not so widened.

Again referring to a question which was raised by one of the members of the committee, as to it being customary to carry lumber and allow it to be taken off the train for the purpose of dressing, Mr. McMaster said: "That is one of the matters we have in view."

In the sitting of the special committee appointed to consider a bill 19, lettered "A" of the Senate, an Act to Consolidate and Amend the Railway Act, sec. 312, which in bill 19 dealt with the subject matter discussed, the matter was before the House of Commons commitee on May 8, 1919. In the discussion, Mr. McMaster, in querying the necessity of adding to the end of the sub-clause the words "as may be ordered by the Board," went on to say: "If it is something which is already usual and customary, we should not have to go to the Board about it at this stage; for instance, milling grain in transit is a usual and customary privillage. . . . " Further, in the same hearing, he used the following language: "We want to make it clear that the railway companies have to seek a decision of the Board to discontinue. We do not want to wake up over night, after milling-in-transit, and find that we have to go before the Board to re-establish it; or, having stocked up a complete carload at different points, find that we have to go to the Board for such little business privileges. There is something interesting to a lumberman in connection with taking lumber off to a mill and planing it, reloading it, and various things of that kind . . . We ought not to be expected to go before the Board and ask to have these privileges given to them. We have them now. We have enjoyed them for years."

I am of the opinion that Mr. McMaster's language shows that, as the matter presented itself, the ejusdem generis rule

of construction must be applied, and that the examples given by him indicate the scope of what the sub-clause was intended to cover. The intention of the Toronto Board of Trade, possessed of an expert fully in touch with the existing traffic conditions was, it seems to me, that the amendment should safeguard to the public, milling-in-transit, stop-over for completion of loads, stop-over to dress lumber, and other arrangements of the same kind, which in rate terminology are spoken of as "privileges." The Board has held that in a case of a "privilege," e.g., milling-in-transit, it has no power to direct in the first instance the installation of such a privilege, but that its power arose only where a case of discrimination existed. "Application of the Montreal Board of Trade . . . for an order directing the C. P.R. Co. to publish tariffs covering milling-in-transit arrangements on corn received at Montreal by rail . . . the product of which is reshipped to points east . . . for domestic consumption and also for furtherance by water . . ." Board's file 12,384, oral judgment Evid. vol. 98, p. 15,244. The Board held that there being no discrimination it was without power to direct that there should be a stop-over for completion of carloads of fruit in transit. Simcoe Fruits Ltd. and Ontario Fruit Growers' Ass'n v. Grand Trunk and Canadian Pacific Ry. Cos. 14 Can. Ry. Cas. 370.

As I read the statute, the intention of the sub-clause in question is to make clear the status of "privileges," and the rights of shippers in regard thereto, and that the question of cartage service does not fall within the scope of the sub-clause in question.

The Board issued order 30,735, March 9, dismissing the complaint.

Railway Department Estimates for 1921-1922.

The estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items:—

Chargeable to Capital, $6,156,127.

Canadian Government Rys.—Construction and betterments (to be expended under the direction of and upon such terms and conditions as the Governor in council may from time to time provide), $4,117,994, against $6,611,624 for 1920-1921.

To pay claims for right of way (revote), $35,000.

Miscellaneous railway equipment.—Amount required during current fiscal year for railway equipment ordered in 1920 under vote 115, and for improvements to existing equipment, and for the purchase of new work equipment for the purposes and upon the same terms (save as herein varied) mentioned in the Statutes of 1918, chap 38. The assistance herein provided may be by way of advances to the Canadian National Rolling Stock Co. or to any company comprised in the Canadian Northern Ry. System, or the Grand Trunk Pacific Ry. System, or by way of equipment or materials acquired by the Minister, $1,903,133, against $16,925,501 in 1920-1921.

Hudson Bay Railway.—Port Nelson terminals, $100,000, of which $50,000 is a revote.

Chargeable to Income, $167,117,790.72.

Arbitrations and awards and costs of litigation, $2,000.

Board of Railway Commissioners for Canada, maintenance and operation of, $206,060.

Board of Railway Commissioners for Canada, to pay expenses in connection with cases before the Board, $5,000.

Contribution to International Association of Railways Congress, $97.33.

Commissioner of Highways, to provide for organization and payment of staff of Commissioner of Highways, including A. W. Campbell, C.E., as Commissioner, at $5,000 a year, $53,000.

Governor General's cars, attendance, repairs and alterations, $10,000.

Loan, not exceeding $50,000,000, repayable on demand with interest at 6% per annum, payable half-yearly, to be used (where amounts available from net operating earnings may be insufficient) to meet expenditures made or indebtedness incurred at any time by or on behalf of the Canadian Northern Ry. Co., the Canadian National Ry. Co., or any company comprised in the Canadian Northern Ry. System, or any of them, or any of the following accounts: (a) operating deficits, (b) acquisition of property, materials and supplies, (c) interest on notes, securities or obligations, (d) principal and interest of maturing or matured loans, secured or unsecured, and (e) construction and betterments; such loan to be secured by mortgage or mortgages upon the undertaking of the Canadian Northern Ry. Co. or the Canadian National Ry. Co., on such terms and conditions as the Governor in council may approve. The loan or assistance herein authorized may be made in cash, or by way of guarantee, or partly in cash and partly by guarantee, in the discretion of the Governor in council. Any guarantee from time to time given under the authority herein may be of the principal and interest of the notes, obligations or securities of the Canadian Northern Ry. Co., or the Canadian National Ry. Co., and may be signed by the Minister of Finance, on behalf of His Majesty, in such form and on such terms and conditions as the Governor in council may approve, $50,000,000.

Loan not exceeding $89,687,633.39, repayable on demand with interest at 6% per annum, payable half-yearly, to be used (where amounts available from net operating earnings may be insufficient) to meet expenditures made or indebtedness incurred at any time by or on behalf of the Grand Trunk Ry. Co. of Canada or any company comprised in the Grand Trunk Ry. System (excluding herefrom, however, expenditures or indebtedness incurred by or on behalf of the Grand Trunk Pacific Ry. Co., except as specifically provided in item (f) hereof, on any of the following accounts:—(a) operating deficits, (b) acquisition of property, materials and supplies, (c) interest on notes, securities or obligations, (d) principal and interest of maturing or matured loans, secured or unsecured, (e) construction and betterments, (f) guarantees by the said G.T.R. Co. of securities of the G.T. Pacific Ry. Co., such loan to be secured by mortgage or mortgages upon the undertaking of the G.T.R. Co. of Canada on such terms and conditions as the Governor in council may approve. The loan or assistance herein authorized may be made in cash, or by way of guarantee, or partly in cash and partly by guarantee, in the discretion of the Governor in council. Any guarantee from time to time given under the authority herein may be of the principal and interest of the notes, obligations or securities of the G.T.R. Co. of Canada, and may be signed by the Minister of Finance, on behalf of His Majesty, in such form and on such terms and conditions as the Governor in council may approve, $89,687,633.39.

Loan, not exceeding $26,000,000, repayable on demand with interest at 6% per annum, payable half-yearly, to be used (where amounts available from net operating earnings may be insufficient) to meet expenditures made or indebtedness incurred at any time by or on behalf of the Grand Trunk Pacific Ry. Co., or any company comprised in the G.T.P.R. System (excluding herefrom, however, guarantees by the G.T.R. Co. which are provided for in item (f) of the next preceding vote), on any of the following accounts:—(a) operating deficits, (b) acquisition of property, materials and supplies, (c) interest on notes, securities or obligations, (d) principal and interest of maturing or matured loans, secured or unsecured, (e) construction and betterments; such loan to be secured by mortgage or mortgages upon the undertaking of the G.T.P.R. Co. on such terms and conditions as the Governor in council may approve. The loan or assistance herein authorized may be made in cash, or by way of guarantee, or partly in cash and partly by guarantee, in the discretion of the Governor in council. Any guarantee from time to time given under the authority herein may be of the principal and interest of the notes, obligations or securities of the G.T.P.R. Co., and may be signed by the Minister of Finance, on behalf of His Majesty, in such form and on such terms and conditions as the Governor in council may approve, $26,000,000.

Miscellaneous works not provided for, $2,000.

Printing and stationery, outside service, $7,000.

Surveys and Inspections, canals, including salaries and expenses of experts employed temporarily, $70,000.

Surveys and inspections and general expenditure, railways, including salaries and expenses of experts employed temporarily, $75,000.

To provide for payment of expenses in connection with acquisition of Grand Trunk and associated railway systems and arbitration proceedings in connection therewith, $1,000,000.

Authorized by statutes.—Salaries of Board of Railway Commissioners, $58,500.

Chargeable to Collection of Revenue.

Canadian Government Railways, Toward any deficiency in receipts and revenues necessary to meet working expenditures for 12 months ending Dec. 31, 1921, the management of the railway is hereby authorized to apply receipts and revenues towards payment of said working expenditures, $7,000,000.

Under the head of "Civil Government" the Department is to be given $202,025 for salaries, against $208,804.91 for the previous year, and $28,000 for contingencies, the same as the previous year.

The Finance Minister supplied the following to the press on the day the estimates were submitted:—"The railway estimates are large. The Grand Trunk's are greater than those of any of the other systems. The requirements are, however, not as great as would appear on their face, as a certain portion of the vote is required for the purpose of providing funds owing to the Government, and is, therefore, in the nature of a bookkeeping transaction. In so far as the estimates themselves are concerned, although constituting a real liability of the Grand Trunk, the analysis of the Grand Trunk situation indicates that some $57,000,000 will be required. This is not, however, merely attributable to operating deficits, as the Grand Trunk is faced with current and overdue liabilities amounting to $20,000,000, as well as substantial payments which will have to be made for sinking fund and for refunding purposes. In addition to this, the Grand Trunk operating officers estimate that a new capital expenditure of $12,000,000 should be made.

"The estimates provide $26,000,000 for the Grand Trunk Pacific, of which $11,250,000 is for operating deficit, and some $8,000,000 for interest requirements and fixed charges. Some $6,000,000 is provided for betterment.

"The Canadian National requirements are made up of operating deficit of $7,000,000 on the Intercolonial and National Transcontinental Railways, and $23,000,000 for operating deficit and fixed charges on the Canadian Northern. The operating deficit in this case, amounting to between $4,000,000 and $5,000,000, and interest and fixed charges, constituting the balance. The vote is swollen by betterments, new construction on western lines and stock requirements.

"The net result is that the total railway obligations requiring cash are some $140,000,000, as against the $178,000,000 for which an appropriation is asked."

Freight cars available on Canadian National Rys.—The Minister of Railways stated in the House of Commons March 4, in answer to T. Vien, M.P. for Lotbiniere, Que., that the following empty freight cars were available on Jan. 15, estimates, for the year ending March 31, at the places named, viz., Quebec bridge, 236; Hervey Jct., 39; La Tuque, 66; Parent, 85; Doucet, 141; Amos, 9.

Rowdyism on Trains.—For creating a disturbance on a Canadian National Rys. train between La Tuque and Quebec recently, one man was fined $10 and costs, and two others were sentenced to 15 days imprisonment by a Quebec Court of Sessions recently. It is said that during the last few months C.N.R. authorities have apprehended over 100 offenders on the line between Quebec and the Abitibi district.

The Minister of Railway's Annual Statement Respecting the Canadian National Railways.

Following is the official report of the speech in the House of Commons on March 17, by the Minister of Railways, Hon. J. D. Reid:—Mr. Speaker, before you leave the chair and the House is in committee of supply, I wish to submit my annual statement in connection with the Canadian National Rys. I wish to follow the usual custom and make a statement in connection with the operation of our Canadian government-owned and controlled railway systems for the year 1920. The statement I intend to submit is compiled from statistical information which I will submit to the House before I close, and which was supplied me by the board of management which has charge of the operation of the national railway system. Before going into the matter it would be well perhaps to explain how the operation of our national railway system is being carried on. When the Government took over the Canadian Northern System and connected it up with the Intercolonial and National Transcontinental Railways, a policy had to be decided on as to how the roads would be managed, and the then Prime Minister, Sir Robert Borden, announced to the house and to the public what that policy would be. In speaking in the House of Commons on May 15, 1918, he said:—

"As to the immediate future, I have already said that we do not intend to operate the Canadian Northern Ry. System directly under a department of the Government; it is our intention to operate it for the present through the corporate machinery by which it has been operated in the past. There will be a reconstituted board of directors. We shall endeavor to get the best men we can and we shall not interfere with them. We shall leave the administration and operation of that road to be carried on absolutely under that board of directors and we shall use every means available to the Government (and if necessary, we shall come to Parliament for that purpose) in order that anything like political influence, political patronage, or political interference—I am using the word political in its narrower sense—shall be absolutely eliminated from the administration of that road."

That was the policy laid down by the Prime Minister, and in accordance with it a board was constituted and has been in charge of the management of Canadian National Rys. from its organization up to the present time, and the operation has been carried on quite independent of the Railways and Canals Department.

I regret they were not able to submit a statement as satisfactory as I would like. A year ago I announced the deficit for 1919 as $47,993,312. When final figures were available the actual loss in operation and fixed charges was found to have been $48,242,436. When I made my annual statement of the operation of these roads a year ago I believed from discussions I had with the management I would be able to advise the house this year that the deficit of 1919 had been reduced in 1920. Instead of a reduction, the loss in operation alone for the year ended Dec. 31, 1920, is much larger, and is as follows:—

Canadian Northern	$16,258,579.80
Canadian Government	10,449,876.43
Total operating deficit of the Canadian National Rys.	$26,708,456.23
Operating deficit of the Grand Trunk Pacific, which since Aug. 23, 1920, last has been under management of Canadian National directors	10,134,513.94
Total operating deficit	$36,843,970.17

To this must be added interest on bonds, etc., or what are called fixed charges and which have been paid or assumed by the Government, as follows:

Canadian Northern	$24,155,988.48
Grand Trunk Pacific	9,332,776.23
Total deficit for operation, and fixed charges	$70,331,734.88

And this does not take into consideration any interest or fixed charges on National Transcontinental or Intercolonial Railways. A Canadian National income credit, which will be shown in the statement of detail, reduces this sum to $69,593,441, which is the loss on operation and fixed charges for 1920, as against $48,000,000 in 1919. The management explains this increased loss of $20,000,000 chiefly by increased expenditure in payrolls and fuel. The management explains that the cost of many materials and supplies increased very much over 1919. It also states that prices of locomotives and cars advanced very greatly, all of which have added, and will continue to add, to the cost of operation. In a word, **out of every dollar earned we had to pay 75c. for operating wages, and 20c. for fuel, leaving 5c. for all other requirements which totalled 29c.**

The mileage operated by the Canadian National management in 1920 was as follows:—

Canadian Northern	9,859.78
Intercolonial and branches	2,221.86
National Transcontinental	2,006.58
Quebec & Saguenay and St. John & Quebec	234.07
Grand Trunk Pacific	2,732.40
Total at end of 1920	17,054.69

There were added during 1920, 140 miles by purchase of 236 miles on completion of new construction.

To put in simplest form possible the earnings and operating expenses I submit the following statement, referring to the Canadian Northern System, Canadian Government Rys., and Grand Trunk Pacific Ry.:—

	1920	1919
Gross Earnings.		
C.N.R.	$66,695,398.80	$53,562,177.57
C.G.R.	44,537,803.85	40,179,380.93
G.T.P.	14,408,549.66	11,294,617.87
	$125,141,752.31	$105,036,176.37
Operating Expenses.		
C.N.R.	$82,953,978.60	$60,034,023.92
C.G.R.	54,987,680.28	47,728,205.73
G.T.P.	24,543,063.60	17,587,567.37
	$162,484,722.48	$125,349,797.02
Operating Deficit.		
C.N.R.	$16,258,579.80	$ 6,471,846.35
C.G.R.	10,449,876.43	7,548,824.80
G.T.P.	10,134,513.94	6,292,949.50
	$36,842,970.17	$20,313,620.65
Fixed Charges.		
C.N.R.—		
Due public	$13,837,118.51	$12,693,584.00
Interest due Govt.	10,318,869.97	7,276,126.00
G.T.P.R.—		
Due public	6,048,950.60	6,048,950.00
Interest due Govt.	2,475,474.00	1,910,265.00
Interest on receiver's certificates for 1920	808,351.63	.....
	$33,488,764.71	$27,928,925.00
Total Deficit, Operating and Fixed Charges.		
C.N.R.	$40,414,568.28	$26,441,556.35
C.G.R.	10,449,876.43	7,548,824.80
G.T.P.R.	19,467,290.17	15,252,155.50
	$70,331,734.88	$48,242,536.65

The figures for 1920, while subject to minor changes, are practically complete. The management emphasizes the fact that maintenance deferred during the war made it absolutely necessary to as far as possible overtake this work at increased cost during 1920, to protect the property. It was also found necessary to improve to a large extent terminal facilities and main lines to take care of the traffic satisfactorily to the public and be in a position to compete with other lines operating throughout the country.

Coming now to the year 1921, or the estimates before you, the management figures on considerable reduction in the deficit in operation owing to curtailment of train services, reduction of maintenance forces and other economies. It also expects a re-adjustment in the price of materials, also in the wage schedules and working conditions, which should have a substantial effect in reduction of operating costs. The estimates as submitted to the house were those submitted by the Canadian National Rys. officials, and in detail show the following for 1921:—

Loss on Canadian Northern, including fixed charges	$23,074,847
Canadian Government Rys. operating deficit	7,000,000
Grand Trunk Pacific, deficit on operating and fixed charges	19,817,873
	$49,822,720
To this should be added $11,000,000 interest payable to the Finance Department for advances made to the Canadian Northern System by the Government, or a total of	$60,822,720

The votes passed by Parliament last session, to acquire additional rolling stock and motive power, to enable the system to properly handle its proportion of the traffic of the country was expended in the purchase of the following equipment:—

Locomotives.

20 medium Pacific, 10 heavy Pacific and 25 Sante Fe, from Montreal Locomotive Works.
20 switchers, from Canadian Locomotive Co.

Freight.

650 general service cars, from Eastern Car Co.
500 box cars, from Eastern Car Co.
1,500 box cars, from National Steel Car Co.
1,000 box cars, from Canadian Car & Foundry Co.
500 refrigerator cars, from Canadian Car & Foundry Co.
350 ballast cars, from Hart-Otis Car Co.
150 stock cars, from Canadian Car & Foundry Co.
80 cabooses, from Canadian Car & Foundry Co.
20 cabooses, from Preston Car & Coach Co.
6 snow ploughs, from Eastern Car Co.

Passenger.

18 sleeping, 12 dining, and 20 baggage cars, from Canadian Car & Foundry Co.
20 express refrigerator, from National Steel Car Co.

4,901 Total.

All of this has been delivered with the exception of the passenger train equipment. The sleeping cars are now arriving, and will be completed by the end of March. Baggage car deliveries commenced March 9, and completion is promised commencing April 8, and completion of the express refrigerators has definitely been promised during May. Prices of locomotives, cars and rolling stock in general, have been increased very much. I submit the following statement for the information of the house, showing some of the increases, caused by increased cost and heavier power and steel construction:—

	1914-15		1920
Locomotives	$24,000	$61,250 to	$72,500
Standard sleeping cars	28,250		49,500
Dining cars	25,050		46,000
Baggage cars (wooden)	6,166	(Steel)	24,000
Freight refrigerators	1,640		5,025
Express refrigerators	4,642		12,240
General service freight cars	1,346		3,250
Box cars	1,150		2,960
Stock cars	846		2,640

These figures show what the railways are up against.

Freight tonnage increased 16% over 1919 and passenger traffic by about a million, but while the quantity of freight and number of passengers increased, the haul in each case was shorter and re-

turns not as great as expected.

Rate increases have been given from time to time in an effort to meet increased cost of operation under the McAdoo and United States Labor Board awards, under which the average wage per employe of the Canadian National System is now $1,850 as compared with $700 before the war. The result is the operating pay roll in 1920 was $83,505,072, against $40,606,170 in 1917. In addition, wages on capital work required $12,222,045, making a total pay roll of $95,727,117. These figures justify immediate discussion between employes and management.

Of course, the railway situation in Canada, as elsewhere, is a product of the war. Every country in the world had to stand behind its railways during the war. We had no alternative but to follow suit and I am satisfied that, without the powerful support of the Government in the crisis which the war developed, the railway situation would have been such that we would not have been able to carry on necessary war transportation facilities, and a collapse of our whole transportation system would have followed.

Let me refer briefly to the general railway situation throughout the United States. The total operating revenues for 1920, as reported by the Interstate Commerce Commission, were $6,225,000,000, the largest in the history of U.S. railways, and $1,014,000,000 greater than for 1919. Operating expenses, however, consumed $5,826,197,000 of this, or $1,406,000,000 more than in 1919. The net operating income was only $62,264,421, compared with an average of over $900,000,000 for the three years preceding the war. It is less than the roads should earn in one month to receive the 6% which the U.S. Transportation Act prescribes as the measure of fair return on the invesement; it is less than one-fourth of the various taxes payable by the roads, and represents a profit of almost exactly 1% on the gross business done during the year, when the railways handled more freight and passengers than ever before in their history. The $62,000,000 of net operating income was earned by about half of the class 1 roads, the other half having deficits for the year. The U.S. Government has had to come to the rescue, by a guarantee of about $600,000,000 for the six months period following de-control. Of this, about $200,000,000 has, it is stated, already been paid out for back wages under the Railroad Labor Board award. Only a special act of Congress authorizing partial payments pending final settlement of the guarantee made it possible for many of these roads to avoid bankruptcy.

In England, passenger fares are 75% above pre-war figures, and freight rates, from Sept. 1, 1920, 112%. Costs of materials have increased 200%, and wages have increased 250%. Further rate increases are contemplated, though short-distance freight has already commenced to move over the highways. In 20 months the Government has had to provide about $350,000,000 under its guarantee, and claims are being made by the railways, totalling $750,000,000, for arrears of maintenance, abnormal wear and tear, and replacement of stores. The British Government, therefore, faces a threatened loss of a billion dollars. I hope I have made it clear that the result of the operation of Canadian National Rys. was not worse than obtained generally on the other side of the line and overseas. But that does not mean we should not take action to try and prevent these losses. At present the country is faced with permanent fixed charges as follows:—

Interest public debt (including sinking fund) . .	$142,800,000
Pensions . .	31,816,000
Permanent expenditure for carrying on the affairs of the Government, about . .	127,000,000
Total, about	$301,616,000

This without one dollar for carrying on public works, expenditures in connection with soldier settlement and re-establishment, and many other expenditures that must be provided for. This means very heavy taxation for many years, and it would be a very serious matter to have increased taxation for railways to the extent of fifty, sixty or seventy million of dollars a year to meet the cost of operation of railways. As regards these heavy losses I must frankly admit I cannot see much hope of any management materially reducing the loss on Grand Trunk Pacific and National Transcontinental Railways for some years, but I do feel the losses on the other portions of the road can be reduced, and must be, very materially, every year.

Grand Trunk Railway. — Members should have a full statement with reference to the operations of the Grand Trunk Ry., and when I say Grand Trunk Ry. I refer to the G.T.R. System now being taken over by the Government, the valuation of which is being decided by the board of arbitration. I have not been able to get the annual closing statement from the G.T.R. management up to the present. Its staff is busy in connection with the arbitration proceedings. I had to send one of our expert auditors to secure from its books, and submit, a statement as to results of operations for 1919 and 1920, and he gives me the following report as approximately correct. After providing for operating expenses, tax accruals, income deductions, etc., the amount available for interest and dividends was, for 1919, $11,164,035.53; for 1920, $5,692,300.74. These amounts were available to meet fixed charges on the following: 4% and 5% G.T.R. debenture stocks, interest on all G.T.R. mortgage bonds, interest on all mortgage bonds of Grand Trunk Western, interest on all mortgage bonds of Central Vermont, interest on G.T.R. secured notes, interest on equipment notes of the three companies, interest on guaranteed stock, first preference stock, second preference stock, third preference stock. Out of the above amounts, the railway was able to meet in 1919 the interest on its fixed charges, but not on the share capital, which includes the 4% guaranteed stock, first, second and third preference stock, and ordinary stock. In 1920 the company fell short $6,563,091.33 of meeting interest on fixed charges. In justice, however, to the G.T.R. management I should add that it had to pay $3,635,000 to employes for back pay between May 1 and Sept. 1, when no increases for freight rates had been allowed.

It must be remembered that I am not taking into account the loss of $19,817,873 on the Grand Trunk Pacific Ry., a subsidiary of the G.T.R., which the G. T.R. Co. is responsible for, an amount sufficient to wipe out at any time all of the excess earnings as shown in the above statement. Later on in the session I hope to have from the management, further information in order to give more details.

Conclusion.—What is the best way to improve the situation? I am ready to take, in fact I seek, advice from any or every member of this house, or whoever may be able to make any suggestion of value. Our present system of administration by a board entirely free from interference by any minister, by any department, or by the Government, is one which public opinion has demanded, and which, if we can carry it on and make the railways a success, is no doubt better for all concerned. The press and public opinion are very critical over our railway problem, and rightly so. Notwithstanding the dark side I have shown, I am still a firm believer in the ultimate success of our national railways. But, as in all other large institutions, success depends on how they are managed. This question is too big to be a political football. Might I ask the house to discuss it in its larger aspect rather than in some minor detail? Let us have instead a frank discussion of the whole railway policy.

The solution of the problem is one which will require joint action by the management and employes. Not only as employes, as operators of the road, but as citizens of Canada, their interests are identical, and I feel sure that if they, the management and employes, meet and take up the whole railway problem, they can deal with it in such a way as to preserve the good relations which have so far existed between them. Unless some action is taken, not only to reduce the annual loss occurring each year, but also to place the railways in a position to reduce freight rates, I am satisfied the future advancement of the country will be seriously interfered with. Our railways were built to develop our natural resources, to build up our country, and to connect the east with the west in interprovincial trade. Good work has been done and it must not stop. Let me give you one or two illustrations of what high freight rates are doing. We in Ontario have for many years required, in fact used, timber grown and manufactured in the province of British Columbia. Today this trade is absolutely cut off, owing to high freight rates, thus injuring British Columbia, and Ontario and our country as a whole. British Columbia requires the markets of the western provinces and eve nthe eastern provinces for its products. It is impossible for British Columbia to grow and ship fruit and lumber at the present high rates of freight. The prairie provinces must live from the products of the soil. They cannot produce wheat and other products of their farms and ship it to foreign markets, if these high freight rates are to continue indefinitely, and, vice versa, things that are manufactured in the east that the people of the prairie and British Columbia require, cannot be produced and shipped to the western provinces if these high rates of freight are to continue. And if we are hindered in the production and manufacture of our natural products which improve our financial condition and add to the wealth of our country, does it not mean that the development of the country will be delayed until we are in a position to produce and manufacture on a basis equal to that of other countries? Surely this is a fair statement of the situation.

I cannot conclude without repeating my honest opinion that our railways are a great asset for the future of Canada. If well and properly managed, and the press and public will only boost and not knock, it will be possible in a few years to show

to the world just what a magnificent country we have in Canada. With the permission of the house I would like to place on Hansard certain statistical and detailed information concerning last year's operations which has been supplied me by the management and which will be found of great value by members. These statements include comparative summaries of operating results and traffic statistics; a statement with regard to betterments and new construction during 1920, a comparative statement of equipment and some useful detailed information as to increased costs of rolling stock, material and supplies.

Equipment, Leaside Shops, Canadian National Railways.

The illustrated article on the Leaside Shops, which appeared in Canadian Railway and Marine World for March, contained the following paragraph:—

"Transfer Table.—As shown by the accompanying plan, the transfer table is located to serve both the locomotive shop and the passenger car shop. It is of 80 ft. span, and operates on 5 rails laid on concrete supports. The pit is of concrete construction and 372 ft. long. The table is electrically operated, current being taken from an overhead trolley wire, supported on arms extending from poles embedded in concrete at the west side of the pit, and used with a 50 h.p. Fairbanks-Morse motor. One track at the north end, and two at the south, provide for movement on and off the table."

It was omitted to mention that the transfer table was manufactured by Geo. P. Nichols & Brother, Chicago, who, in calling our attention to this, speak of the illustration as one of the best ever given of one of their transfer tables, and also refer to the article as one of the best shop descriptions they have seen.

Electric Locomotive Screw Jack Hoist. The portion of the same article describing the locomotive shop contained the following sentence: "There are 12 tracks in the erection shop portion of it, all equipped with pits, one of which is fitted with an electric pit jack of 200 tons capacity, operated by a 25 h.p. Canadian General Electric a.c. motor, and having a maximum lift of 90 in." This appliance should have been referred to as an electric locomotive screw jack hoist for wheeling locomotives, which was manufactured by Whiting Foundry Equipment Co., now Whiting Corporation, Harvey, Ill.

Halifax-Dartmouth Bridge. — A committee formed for the purpose of promoting the construction of a bridge across the narrows of Halifax harbor to connect Halifax and Dartmouth, N.S., is arranging to bring the matter before the Nova Scotia Government. The projected bridge would be designed for railway and general traffic purposes, and would be of steel on concrete piers and abutments. The estimated cost is from $2,000,000 to $2,500,000.

The Canadian National Railways Athletic Association, Winnipeg, has organized a provincial board of directors for Manitoba. D. O. Owens, of Winnipeg Terminals, is Chairman; T. Smith, Transcona, Vice Chairman; and J. K. McLeod, Secretary.

The Canadian National Rys. ticket office at Halifax Station, N.S., was broken into March 14, and about $900 stolen.

Grain Inspected at Western Points.

The following figures compiled by the Dominion Bureau of Statistics, Internal Trade Division, show the number of cars of grain inspected at Winnipeg and other points on the Western Division during February and for six months ended Feb. 28, 1921, and Feb. 29, 1920, respectively:

	Feb. 1921	6 mos. to Feb. 29, 1920	6 mos. to Feb. 28, 1921
Canadian National Rys...	7,074	48,199	34,674
Canadian Pacific Ry.....	3,815	84,957	54,350
Grand Trunk Pacific Ry.	1,930	17,437	18,810
Great Northern Ry. (Duluth)	.....	161	478
Totals	12,823	150,754	105,312

Post Office Department's Mail Estimates.

The Post Office Department's estimates, for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items:—

Mail service by railway	$3,519,932.00
Mail service by steamship	666,152.50
Mail service by ordinary land conveyances, including rural mail delivery	5,700,000.00
These items are precisely the same as for the year ended March 31, 1921.	
Railway Mail service.	
Salaries	$2,087,356.75
Mileage allowance	600,000.00
For temporary assistance	200,000.00
Provisional allowance	308,200.00
	$3,195,556.75

Valve Handles of Water Gauge Mountings on Locomotives.—The Railway Association of Canada has issued the following circular:—Attention has been called to the desirability of having valve handles of water gauge mountings on locomotives so located as to permit of manipulation, without danger of operator being scalded in event of water glass breaking. This matter has been given consideration by the Association, and it is recommended to member lines that where top mounting of water gauge is located on top of boiler, instead of in face plate, the valve handle should be extended beyond the face plate, so as to be easy of access in case of water gauge breaking.

The Interstate Commerce Commission announces it has approved the loan of $26,775,000 chiefly to Michigan Central Rd., Cleveland, Cincinnati, Chicago & St. Louis Ry., Cincinnati Northern Rd., Toledo & Ohio Central Ry., Zanesville & Western Ry., Kanawha & Michigan Ry. and Lake Erie & Western Rd. Co., which are subsidiaries of New York Central Rd. Co., and New York Central Rd. Co. to aid the carriers named in providing new equipment and additions and betterments to existing equipment, and to permanent way and structures at a total estimated cost of $56,625,000. The carriers are required to finance about $30,000,000 to meet the Government loan.

C.P.R. First Aid Work.—The Shaughnessy shield, offered for competition to C.P.R. employes in first aid work, in connection with the St. John Ambulance Association, and won by the police team of the C.P.R. Angus shops, Montreal, was presented by Lord Shaughnessy, recently. A. D. MacTier, Vice President, Eastern Lines, C.P.R., accepted the shield on behalf of the winning team.

Terminal Elevators Maintenance, Etc. The Trade and Commerce Department's 1922, contain an item of $10,000 for maintenance of terminal elevators and necessary equipment.

Telegraph and Telephone Lines Estimates.

The Public Works Department's estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items:—

Chargeable to Income.

NOVA SCOTIA.

Cape Breton telegraph system, reconstruction of telephone line between Harvard lake and N.E. Margaree.....	$1,000
Pictou Island, telephone cable	14,300

QUEBEC.

Grosse Isle quarantine, telephone line, renewal of poles, etc.	400

SASKATCHEWAN AND ALBERTA.

Peace River line, office and dwelling at Grande Prairie	5,000
	$20,700

Working expenses, etc., chargeable to collection of revenue.

Prince Edward Island and mainland..	$7,000
Land and cable telegraph lines, Lower St. Lawrence and Maritime Provinces, including working expenses of ships required for cable service	223,000
Saskatchewan	78,400
Alberta	121,500
British Columbia, mainland	85,500
British Columbia, Vancouver Island district	126,000
Yukon System (Ashcroft-Dawson)	279,000
Telegraph and telephone service, generally	10,000
	$930,400

Telegraph, Telephone and Cable Matters.

The estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain an item of $40,000 for the Pacific cable, the same as for the previous year.

The Trade and Commerce Department's estimates for the year ending March 31, 1922, submitted to the House of Commons recently contain an item of $38,933.33 for the West India cable.

W. Murdock, operator, Dominion Government Telegraphs, at the sixth cabin north of Hazelton, B.C., was found dead in his bed by one of the linemen March 11. It is believed that death occurred from natural causes.

The Post Office Department's estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items:—Telegraphic news service for Magdalen Islands, during winter, $700. Salary of Canadian Government representative on Pacific Cable Board, $1,000.

Edith S. Stickle, telegraph operator, of slight build, with soft voice, fair, and about 25 years of age, is reported to have come to Canada about a year ago to secure employment. Her father, Homer Miller, of Ancram Lead Mines, N.Y., died recently, and left her a bequest. C. J. Drake, counsel at law, 45 Market St., Poughkeepsie, N.Y., desires to learn her whereabouts.

Reports from Miami, Florida, state that the Western Union Telegraph Co.'s cable ship Robert C. Clowry, attempted to connect its Barbadoes cable with its land lines at Miami, Mar. 4, but was prevented from doing so by a U.S. ship. The U.S. Government has refused its consent to the connection, on the ground that should it be made, there would be a possibility of a cable monopoly of certain cable traffic, under British control.

The Canadian Pacific Telegraphs will, it is reported, on completion of a new copper wire being erected between Mont-

real and Winnipeg, have a total of 6,752 miles of new copper wire, in addition to 1,073 miles of iron wire, which have been replaced by copper. It is stated that 4,099 miles of copper wire and 346 miles of iron wire were strung during 1920, between Halifax and Montreal, Montreal and Toronto, and Toronto and Winnipeg.

The British Assistant Postmaster General announced in the House of Commons, March 14, that the Government had bought a direct cable to the United States, with cable stations at Ballinaskelligs, Ireland; Harbor Grace, Nfld., and Rye Beach, N.Y., for £570,000. This cable is intended as a reserve for the existing Imperial cable, and has been leased for a short time to the Western Union Telegraph Co., for £57,000 a year.

The Montreal Underground Conduits Commission, consisting of R. S. Kelsch, L. A. Herdt and DeG. Beaubien, has submitted plans to the Quebec Public Services Commission, and to the telegraph, power and light companies operating in the Montreal district, for the placing of all overhead wires under ground. It is estimated that the work will extend over three years, and will cost approximately $200,000. The conduits, which will be owned by the city, will be rented to companies using them.

The Canadian Marconi Co. is reported to have decided to build a series of wireless telegraph stations at Montreal, Toronto and Winnipeg, connecting with the company's trans-Atlantic station at Glace Bay, N.S. Seator F. Nicholls, President, Canadian General Electric Co., which controls the Marconi business in Canada, is reported to have stated that while the present plans are confined to the three cities named, the system will be extended later to the Pacific coast, and take in all centers in the Dominion, with a station in the oil district at Fort Norman, where ordinary telegraph service is at present impracticable.

Experimental work which is being carried out by the Marconi Co. in the employment of wireless telegraphy between Euston station, London, Eng., and Crewe is of more than merely technical interest. It is a subject which has been receiving attention for some years past. Even before the last railway strike it had been decided by the managements of several of the principal railways that to assist the maintenance of emegrency services during times of strike, use should be made of wireless telephony for signalling and other purposes. Sections of the Midland Ry. were the first to be equipped and installations of the necessary plant were made at St. Pancras, Wellingborough, Leicester, Birmingham, Derby, Rotherham and Leeds. What is now being done on the London & North Western Ry. in connection with wireless telegraphy is a continuance of the same policy, and it is said that as soon as a license for operation has been granted by the Post Office, extended trials under commercial conditions will be carried out.

Esquimalt & Nanaimo Ry. Land Grants.—A press report states that the Consolidated Mining & Smelting Co., a C.P.R. subsidiary, is about to make a thorough survey of the mineral lands contained in the area on Vancouver Island granted to the Esquimalt & Nanaimo Ry. Co., which is also a C.P.R. subsidiary. The lands are stated to comprise about 2,000,000 acres, and the object of the survey is to obtain information as to their mineral resources with a view to development.

Among the Express Companies.

The Canadian National Ex. Co. has opened offices at Tilney and Ardill, Sask., and has closed its offices at St. Sophie, Que., and Bears Pass, Ont.

C. Grasley, agent, Canadian National Ex. Co., Toronto, was presented with a clock, March 10, by the local staff, on completing 14 years service with the company.

The Canadian National Ex. Co. has discontinued its service to Guelph, Ont., and Spruce Grove and Stony Plains, Alta. The first named station is now Canadian and Dominion Ex. Cos. only, the others being exclusive Canadian Ex. Co. stations.

P. J. Blachard, a boy employed by the Dominion Ex. Co. at Belleville, Ont., was sentenced March 10 to an indeterminate period of not less than three months, and not more than two years, less one day, in the Ontario Reformatory for the theft of $219.98 belonging to the company. He appears to have received a receipt for a package from the company's messenger, and it is presumed that the messenger, being busy, signed without checking what he received.

Charles Leonard Bowles, whose appointment as Assistant Superintendent, Canadian National Ex. Co., Winnipeg, was announced in a recent issue, was born at Brooklin, Ont., Oct. 13, 1874, and entered transportation service in Sept. 1897, since when he has been, to Feb. 1898, operator and relieving agent, C.P.R., at various points on Thunder Bay Division, Ont.; Feb. 1898 to May 1909, operator and agent, Canada Atlantic Ry., at various points; May 1900 to Sept. 1908, operator and agent, G.T.R., at various points on Northern Division; Sept. 1908 to Nov. 1912, Travelling Auditor, Canadian Northern Ry., Saskatoon, Sask.; Nov. 1912 to Dec. 1920, Inspector of Agencies, Canadian National Ex. Co., Winnipeg.

The American Ex. Co. was sued in the Superior Court at Montreal, recently, by H. M. Meyer, for $112.61, for damage to a shipment of woollen yarn from Philadelphia to Montreal, in Feb. 1918. It was shown that the goods were in good condition when delivered to the company for shipment, but upon arrival at Malone, N.Y., were held up by the U.S. Government, owing to the lack of war trade export license, then necessary, and the damage complained of was caused during this delay. The court found that when the goods were damaged they were in the company's warehouse awaiting documents, that the company acted as warehouseman only, and its liability was not that of a common carrier. There was, however, certain damage for which the company must be held responsible, and judgment was given for $50.88.

The Brunswick-Balke-Collender Co. of Canada sued the Dominion Ex. Co. in the Superior Court, Montreal, recently, for $262 for the express company's failure to deliver three phonographs which it undertook to forward to Moncton, N.B., in Nov. 1918. The express company denied that the goods were delivered to it, and in the alternative, if they were, the contract was duly executed. The express company also pleaded, however, that in any event no liability could attach to it, as under the contract of carriage it was agreed that it should not be liable for non-delivery or loss or destruction of shipments in Canada, unless written notice thereof was given within four months from the time delivery should, in the ordinary course of transit, have been made. As it was alleged that the goods were shipped Nov. 8, 1918, and notice of loss was not given until June 11, 1919, it was submitted that the claim failed. The action was dismissed with costs.

Preventing Express Shipments from Going "On Hand."

The American Railway Ex. Co.'s Educational Service Bureau has issued the following:—A campaign has been started in the express business, to keep down the number of shipments which find their way to "on hand" departments, because the addresses are inaccurate, or incomplete, or because of cancellation of orders, or some other disagreement between shipper and consignee. An energetic effort is being made to clear up the undeliverable matter found in the "on hand" rooms and at express employes' right way meetings throughout the country, the subject is receiving special attention. It is the opinion of operating heads in the express business that the growth of "on hand" freight is a handicap to improvement in the express service. Practically every industry is interested in prompt delivery of goods, and the carrier is seeking the co-operation of the shipping public to remove the heavy burden which the storing and care of "on hand" freight involve. It is found that a large number of claims and annoying controversies are directly chargeable to the abuse of the "on hand" privilege. While it is a decided advantage to the transient shipper to have the express carrier hold his goods for him until he arrives, and to do this without added expense, it was not intended that regular express patrons would ask or expect the carrier to store their goods while some argument between shipper and consignee was being settled. The express company does not generally charge for storing shipments, but some such step may be taken unless the situation improves. In seeking the co-operation of the shippers, the transportation company lays emphasis upon the importance of every shipper having the consignee's full name and address, street and number, plainly stencilled or otherwise marked, on each piece he sends by express. It is equally important, the carrier points out, that each shipper shows his name and adress clearly on each piece of a shipment. That consignees should accept delivery of shipments tendered and not leave them on the carrier's hands is the contention of the express company in this campaign. This should be done, even if shipments are offered in bad order, for then the consignee can dispose of them to the best advantage, and thereby reduce the loss to the lowest possible figure. Shippers and consignees are urged to give special attention to postal notices sent out by the carriers to both of them, when a shipment cannot be delivered by an express driver, for any reason. When a shipper is informed by the express company, through the usual postal notices, that the consignee to whom he sent his goods has refused to accept them, it will facilitate matters if he will give prompt and definite instructions for the disposal of the shipment in question.

Bridge over Burlington Channel.—The Public Works Department has let a contract for the superstructure of the bascule bridge over Burlington channel, Lake Ontario, to Hamilton Bridge Works. This bridge was fully described in Canadian Railway and Marine World for February, pg. 84.

Electric Railway Department

Accident Prevention is Everybody's Business.

By R. Mayne-Reade, Superintendent, Quebec Railway, Light & Power Co.

I suppose there is not one here who has not thought more or less about the subject of accident prevention. For the past generation, utility men have been talking about it, and thinking about it; and some have had their minds made up about it, and doubtless some have not, and although all these years have rolled away, this question comes up, addressed to each of us today, "Do you realize that accident prevention is everybody's business?"

Accident prevention—what meaning do these words convey to us? I shall try and define them as we understand and feel them. Accident prevention is a duty of Christian honor. To believe in it not only because it seeks to save life, save money and promote efficiency, but because we think we see within it, or underneath it, the effort to stimulate fundamental spiritual ideals of better human co-operation, more thoughtfulness for the welfare of other people, and sounder mental and moral discipline.

Every industry, including electric railways, pays for but two things, matter and motion. Anything that occupies space is matter. The cost of materials and supplies is fairly well fixed, and approximately the same with all of us. The difference in cost of using the product depends on what is paid for motion, and how carefully and efficiently this motion is done. In our efforts to obtain the best results, we generally find them hampered in the quality of the service rendered by the human element, who, under the cloak of selling capacity, have shown that human weakness in their make up by being what is commonly known as time servers.

Probably you are going to offer a lot of excuses and arguments as reasons for your conditions and costs of motion, but that will not lower the costs or stop the extravagance. There is just one unpardonable business sin; making explanation why you failed to get better results. There's a reason. First: efforts have only been spasmodic; second, because this great humanitarian work has not been seriously taken by the majority of the people, they having failed to realize the fact that accident prevention for the safety of life and limb is everybody's business.

If I were to ask you what you think of any prominent man, you would already have your mind made up about him. If I were to ask you what you thought of prohibition, you would speak right out and tell me your opinion in a minute. Then why dodge the issue? Why should people throughout this great Dominion of ours not make up their minds about the safety first movement and take their stand for or against it, before the crepe appears on their door.

If I were to ask you to think of the amount of effort and money already expended on the safety first movement, including the great war just fought, with the loss of many millions of lives, to make the world safe for democracy and democracy safe for the world; the many volumes that have already been written covering this subject for the benefit of mankind, the continual work of the National Safety Council, the American Museum of Safety, the Red Cross and other kindred organizations, you would be ready to say that every man, woman and child, every public utility, traction company, industry and corporation, both great and small, every civic and provincial organization, had been educated and stimulated by these efforts to the gospel of self preservation, that recklessness and carelessness in the human element had been eradicated, and that this movement had become an established order in the routine of our daily life.

Now, let us look on the other side of the picture, and see what it reveals? Pick up your daily newspaper, every day in the year, and as you read through the pages you are appalled at the horrible selfishness displayed there in cold type, at the awful toll of accidents and deaths happening on our streets, in our industrial establishments, even in the homes of the people, and you wonder how these things can be, how they could happen in a so called Christian country. Suddenly you begin to realize there is one thing we, as conscious, reasoning beings, can do, which must tend to the further development and security of human well-being, that we must be embued with that moral sense of our responsibilities as sincere thinking men, throw down the gauntlet of safety to fight this selfishness so much in evidence in every walk of life, to help men to educate themselves, to help men to save themselves; that all our efforts along these lines must be persistent and systematic in driving out this recklessness and carelessness, by devoting our services, not of time, but of thought and action, in that spirit of brotherhood, and "Am I my brother's keeper?"

We have to admit that some progress has been made, but there is more to be done and can be done, as we have only scratched the surface as yet. Why pussyfoot about this all important matter, upon which hangs the health and well being of the Canadian nation? Let us travel in the middle of the road, with our efforts hitched to a purpose, and get after that element of our population that belongs to the procrastinating class, the "let George do it" kind. We find this attitude in all classes of the people, even among our most educated and cultured business men and women, on down through all walks of life and varied vocations, who waste precious effort in antagonizing the liberty of the citizen on the most trivial matters, instead of devoting such time and service to educate by example and precept the principles of safety first on our streets with the rigid enforcement of traffic regulations, so that each and every citizen may travel in safety along our public highways, and to ensure this safety insist that the law be obeyed which has been enacted for the general good and welfare of the people. There are some ready at all times to find fault, censure and criticize, but seldom willing to lend a helping hand; some may donate money to the cause, but their personal efforts and personal sacrifices are also necessary as well as their gold. Not that these people are antagonistic to the movement or not in sympathy with the ideals of safety first, but its importance to the welfare and prosperity of the nation has not been seriously considered by them. Oh, what a difference if safety first was like scandal, everybody would be out pushing it along, but we have arrived at that stage in the life of this movement to realize that it will take more than a slogan to convert the public to a spirit of brotherhood.

Sir John Lubbock, the first Lord Avebury, said: "Life is a great gift. As we reach years of discretion, we most of us naturally ask ourselves what should be the main object of our existence? Even those who do not accept 'the greatest good of the greatest number,' as an absolute rule, yet admit that we should all endeavor to contribute as far as we may to the happiness of others." To accomplish this end, there must be a process of continuous weakening of selfishness, and the continuous strengthening of sympathy within the individual, by the inoculation of that spirit of brotherly love, that eternal spirit which touches the human heartstrings more effectively than any other interest known, except possibly the present day craze for the almighty dollar.

I am going to quote Theodore Roosevelt. Listen to what he said: "This country will not be a good place for any of us to live in unless we make it a good place for all of us to live in." He was speaking of the United States, but his message is just as applicable to Canada today as when he delivered this call to his own country.

We have all more or less conducted safety first campaigns, beginning with our own employes, and in our educational work it has been found necessary to season it with a certain amount of discipline. Have we not found that the ratio of effort to the results obtained by education has been greater than the ratio of effort by the discipline method, be-

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent. Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

cause the former carried with it a spirit of co-operation, while the latter was less humanitarian and suggested something of the strong arm method? The object sought being to make the employes, as well as the public, realize that safety first is just as important to them as to their employer and to the community as any work they undertake. Experience has taught us that owing to man's tendency to exercise what he calls his personal liberty and take chances, assuming risk of danger, acts of negligence, this so called other element in human nature, has made it imperative that education and discipline must go hand in hand, for neither alone will suffice. We have consistently supported regulations, ordinances and legislation for the protection of the many and punishment of the recalcitrant few. We have worked in harmony with our municipal councils, and have co-operated with public authorities to carry out these disciplinary measures as effectively as possible. We have continuously circularized automobile clubs, and individual owners of cars, in the interest of safety. We have and are carrying safety slogans around posted up in our street cars as an ever reminder to the car riders and the general public to "Watch their step." We have had erected at the company's expense "Danger" signs at important street intersections, and have equipped our rolling stock with the latest safety devices, yet politics more than anything else has increased our difficulties from the Atlantic to the Pacific.

Compensation laws have been enacted by our legislatures in the different provinces, the government having recognized the necessity of disciplinary measures, not only for the great moral objects of accident prevention, to preserve the life and limb of man, but for the proper control and supervision of the assumption of risk, indifference and thoughtlessness, negligence and weaknesses of human nature. We have installed safety devices in our workshops for the protection of our workmen around the machinery wherever necessary, shop cleaning and sanitation have been inaugurated and carried out systematically, proper lighting arranged efficiently, and fire protection apparatus, all have their effect in demonstrating our sincerity and frankness in safety work, and while it is corrective education, largely for the employes, it is most helpful in the seeking of co-operation rather than attempting to educate the public. Some companies may have progressed farther in the work, but taken on a fair average that is about where we stand today. But we cannot stop there. We must continue to tune up our minds, which draw their food from the medium of intelligence and thought, for this nourishment is necessary to give body to our work, in action as in reasoning when in quest of new ideas. The popularity of the safety movement should grow as more of us begin to appreciate that its benefits are individual as well as general. For we must always remember the greatest asset in Canada is the Canadian people.

Ten years ago the steam railways headed the list in the number of fatal accidents, followed by electric railways, industrial establishments and others. Today it is known that automobile accidents not only are at the top of the list in the United States and Canada, but the total fatal ones credited to them is more than the combined total of all other classes of accidents on the calendar. This fact most assuredly indicates that there is a something radically wrong in the administration and regulation of our traffic laws throughout the country. It is quite patent to all that the seriousness of our street hazards has been brought about largely by the increase in the number of automobiles in use. "Permit laxity in traffic law enforcement and accident death tolls will continue to grow. Regulate traffic, enforce the traffic laws, and the accident death toll will drop." This, briefly, is the opinion of the heads of police traffic of twelve of the largest cities on this continent, visited recently by L. J. Smith, Director of the National Safety Council, in a study of traffic methods, the object being to find, from the experience of other cities, more effective ways of meeting the serious accident situation in Kansas City, which shows an alarming increase in traffic accidents.

Are our present traffic laws adequate? Is traffic law enforcement efficient? The answer in both cases is no! It is just as well to call a spade a spade, to arrive at the truth, for the proof of the answer is in the fact that in almost all large cities the automobile death toll is increasing, and while traffic law and enforcement are not entirely responsible, the fact remains that they are the foundation of the solution of the accident problem. Analysis of traffic laws shows their purpose is to safeguard the masses of the people, restrain the reckless, avoid congestion and confusion, and give equal rights to all on the streets.

R. Mayne-Reade,
Superintendent, City Division, and Quebec County Ry., Quebec Railway, Light & Power Co., and member of Executive Committee, Canadian Electric Railway Association.

I have said that traffic laws are inadequate. This applies to all cities, not because the laws in themselves are not sufficiently regulatory, but because one law primarily needed to make all traffic laws enforceable is missing in most cases, and when it is found it needs strengthening. The missing statute is the driver or operators license law, providing for the mental and physical examination of the applicants before licenses are granted to drive a car or vehicle, a law which should be enacted by every province in the Dominion. In the city, where the traffic laws are indaquate or unjust, where enforcement of the laws is unfair, where the motorist or driver with influence can escape punishment, the result is that the citizens as a whole do not take seriously the police or courts, readily blame the traction company if in any kind of collision with a street car, oftentimes procuring doubtful witnesses to substantiate their alleged claims, and violations increase, bringing an increase in accidents, and additional financial burdens on the treasury of the utility. There are many drivers on our streets whose utter disregard of all principles of safety is a constant menace, not only to pedestrians, but to other drivers as well. Many of them wealthy, with political influence, consider the police court fine as a joke to them. Sometimes they pay the fine or dodge it through influence, going out to continue their sprees and recklessness. This class of drivers would be reached through a drivers license law.

We have the beginner, another menace, and the physically incompetent. Why should the former be allowed to guide an engine of destruction through crowded streets, or the latter permitted to face situations constantly that require physical as well as mental competency? Too drastic, some will say; not a bit of it. Every careful, competent driver, and all pedestrians, should welcome such a law. Motormen driving street cars should also come under the same requirements of the law, procuring their own licenses to have the right to operate a street car on the community's busy thoroughfares. It is in the interest of the inexperienced driver to make him safe before he may drive. The physically and mentally incompetent, particularly those with political pull, must not be permitted to drive under any circumstances. There is too much at stake when human life is he price.

The law should not only set the fine, but require the judge to assess the fine on proof of guilt, and in this case the penalty should be jail instead of a fine. A judge who has his own ideas is not safe in a traffic court, the laws should fix his decision and compel penalties fitting the offence. Every city in every province of the Dominion should have its traffic court; there should be no mixing of cases, as the court would be able to give its individual attention to traffic problems, and not be distracted by other kinds of troubles and tangles.

Our government during the war spent millions of dollars in publicity to enlist men for our armies, for raising victory loans to carry on successfully to win; let them now carry on, if they are sufficiently interested in the preservation of humanity and the reduction of accidents and the conservation of its crippled man power, be it city, province or Dominion, let them enact a law calling on publishers of newspapers and periodicals, upon solicitation, voluntarily and gratuitously to give up a sufficient amount of space according to the size of the periodical, and devote this space for humanity's sake.

Our Dominion, provincial and local health agencies should now realize that accident prevention which is everybody's business may be developed to a level in keeping with other standards of modern business establishments. It is their duty to the country to lead the way on a much larger scale than at present and reduce the "if" in life, by planting the seeds of

safety in every city, town and hamlet in Canada, for life indeed must be measured by thought and action, not by time. I suggest that every theater curtain, programme and billboard throughout the Dominion be made a Canadian safety billboard—every business card, every letter head should carry a line or two on safety. The regular postage stamp of the three cent variety should carry the safety message on every letter posted in Canada. Our provincial governments should add a safety section to their education departments, and introduce safety instruction in all the public and private schools to reach the workmen and the grown ups through the child, for the best insurance policy is a careful person.

I further suggest that the electric railways of the country, as a part of their safety campaigns, appreciating the value of making safety a community proposition, might during the annual exhibitions in their respective provinces, stage an exhibit on both traffic and public safety. I believe that interesting exhibits of this kind would be instrumental in bringing home to all of the people in their community a sense of responsibility and a recognition of the principles of safety and precaution which are so important today for the well being and security of all mankind.

It makes no difference whether a drowning man is pulled out of the water just in time to save him, or whether, in a less spectacular way, through a system of training and education, he is kept from falling under the wheels of a street car, or whether, by the application of approved safety devices, he is kept from being ground up in the gears of a machine. The result is the same. It is a life saved. And it is because hundreds of big men, employers in industry, have responded to the call of humanity, that many lives have already been saved. For every reduction that has been made in an accident record on any railway or in any industrial plant means that lives have been saved, just as truly as if they had been snatched from a watery grave a few seconds before life would have become extinct.

In every community, from the largest city to the smallest hamlet, there leads a road to destiny; as we come to the end of the long, long trail, we arrive at a silent city. On the finest hill in the cemetery, where lots are expensive, we read on a great mausoleum of stone:—"Youth: In memory of our Beloved Son, aged 23." The family history includes also a line omitted from the monument, "Killed by carelessness." And in these graveyards, with youth and middle age are buried success, opportunity, joy, fame, genius, wealth and happiness. This is the price of carelessness. This is the why of the safety movement — everybody's business.

There are men enough here this morning, there are men enough sitting here within the sound of my voice today, if they were inspired by the spirit of brotherly love, and counted it the great privilege of their life to do this work of the Almighty; there are men enough here to save this country, to make it the best and safest place on God's earth to live in.

You remember the days of the war, and how ashamed of himself a man felt who never touched with the finger the great struggle in which Canada was engaged. Oh, to go through this life and never touch with our own fingers this vast and Christian work of safety first, and when the cry of triumph arises at the end, to stand there, not having done one little, unknown, unnoticed thing to bring about that which is the true life of the men in this great cause, that is awful. And I dare believe there are some men here this morning who, failing to be touched by every appeal, will still lift themselves up and take upon them the duty of men, and be soldiers of safety first, and have a part in this humanitarian battle, and have a part somewhere in the victory which is sure to come, and which depends so much upon nobility of purpose, persistence of effort and unselfish service.

In conclusion, I want to emphasize that we need our clergy to help along this good work, by preaching safety sermons and holding safety revivals. When we have done all these things we can point with a pride and a clear conscience to a useful life and when the grim reaper calls us, the Ruler of the Universe can justly say: "Well done, good and faithful servant, enter thou in."

The foregoing paper was read at the Canadian Electric Railway Association's annual meeting in Ottawa recently.

Electric Railway Employes Wages, Working Conditions, Etc.

British Columbia Electric Ry.'s electrical workers, including linemen and substation operators, at Vancouver and Victoria, returned to work, after a 16 days strike over wages. The company rejected the conciliation board's award on the ground that its decision was based on conditions as of Aug. 1920, and offered a 10% reduction. The deadlock was broken by the company granting the men their requests and signing an agreement on the basis of the award. During the strike, the light, power and railway service was maintained by the substations being operated by the company's office employes.

Regina Municipal Ry. — The Regina, Sask., City Council is reported to have under consideration a recommendation of the Street Railway Department to fix the rate of remuneration of the motor-conductors on one-man cars at 10c. an hour over the present rate of 55c. for motors and conductors, and that they be given two weeks holidays yearly.

Toronto & York Radial Ry.—Negotiations are in progress between the company and its electrical workers as to wage schedules.

Toronto Suburban Ry.—The electrical workers met recently to discuss wages and labor conditions.

Nipissing Central Railway Operat- Results, Etc.

The Timiskaming & Northern Ontario Ry. Commission, which operates the Nipissing Central Ry. for the Ontario Government, has reported on the results for the year ended Oct. 31, 1920. The N.C. R. has 20.23 miles of electric railway track, of which 15.37 miles are main track, and 4.86 miles are sidings and spurs. Of the main track mileage, 4.92 miles are owned and maintained by the railway, 5.28 miles are leased from the T. & N.O.R., and are maintained by the N.C.R., and the remaining 5.17 miles are leased from and maintained by the T. & N.O.R. Commission. The rolling stock comprises 10 electric motor passenger cars, 1 combination switching locomotive, express car and snow plough, 1 motor driven snow plough, and 2 freight cars. No additions to rolling stock were made during the year. Following is a comparative statement of earnings and expeditures:—

	1919-1920	1918-1919
Revenue from transportation	$116,568.88	$106,700.74
	1919-1920	1918-1919
Other revenue	3,781.00	2,177.40
Total	$120,349.88	$108,878.14
Operating expenses	$134,211.70	$102,140.11
Net earnings (Dr.)	$13,861.82	$6,738.03
Deductions from income	10,206.37	10,009.77
Net result (Dr.)	$24,068.19	$3,271.74
Passenger car hours	27,537	28,237
Passenger car miles	282,015	289,143
Passengers carried	1,304,244	1,204,232
Average daily receipts	$918.49	$292.33
Average receipts per car hour	$3.80	$3.48
Average receipts per car mile	c.37.1	c.33.8
Earnings per passenger	c.08	c.08

Assets.

Cost of road	$316,573.26
Cost of equipment	128,363.47
North Cobalt town property	232,269.35
Working assets	30,687.29
Deferred debt items	1,962.05
Franchise	141,383.32
Profit and loss balance	41,094.33
	$892,333.07

Liabilities.

Capital stock	$530,000.00
T. & N.O.R. advances	326,899.50
Working liabilities	35,433.12
Deferred credit item	.45
	$892,333.07

Transportation of Postmen on Electric Railways.

The question of the remuneration to be paid by the Post Office Department to street railways for carrying postmen is about to be revised in Regina, Sask. The present contract, under which postmen are carried at $35 a year each, was entered into in 1917, and expires July 3. A press report states that the City Council is considering the price to be fixed in a future contract, and that it is contemplated to ask $50 a man per year.

It is pointed that that the $35 a year per man works out at a rate which would only pay for 1.8 rides per man a day, if regular fares were charged. In 1917, when this rate was agreed to, the council considered it inadequate, it being estimated that the 34 postmen then employed made on an average three trips a day each. The regular fare at that time was 6 tickets for 25c, now it is 4 tickets for 25c. The suggested rate of $50 a year a man would be paying on a basis of 2.6 rides a man per day.

British Columbia Public Utilities Commission.—The B.C. Legislature has a special committee investigating a claim of Major Retallack, for compensation in connection with the abolition of the Public Utilities Commission, of which he was Commissioner, a few months after it had been instituted. His salary was $7,000 a year, and he is asking for additional compensation, because of having had to give up certain appointments, and to incur expenses to accept the position.

Transfer Frauds.—Emile Roy and Hellodore Lemieux were each fined $40 and costs in the Montreal Recorder's Court recently for defrauding the Montreal Tramways Co. by the illegal use of transfers. The evidence showed that Roy, on his way home, took transfers, which he did not need, and handed them to Lemieux when the latter boarded the car a few minutes later. Lemieux admitted that he and Roy divided the 6c. fare saved.

Increases in Electric Railway Freight and Passenger Rates.

The British Columbia Electric Ry. has opened negotiations for new franchises with the cities of Vancouver, North Vancouver and New Westminster, and the municipalities of Point Grey, South Vancouver and North Vancouver District. A temporary agreement, permitting the present fares to be charged until June 30, 1922, has been signed, and the company has withdrawn its application for a Dominion charter which would have removed it from provincial to Dominion control. Under the temporary agreement, new franchises must be signed before Aug. 31, 1921, otherwise the company will be at liberty to renew its application for a Dominion charter. The company is charging 6c. on its city lines, with a 7c. commutation rate to suburban zones.

Fort William Municipal Ry.-Port Arthur Civic Ry.—A bill now before the Ontario Legislature contains the following preamble:—"Whereas petitions have been presented by the corporations of the cities of Port Arthur and Fort William praying that it may be enacted as hereinafter set forth; and whereas by their petitions the municipalities have represented that they each own and operate an electric street railway, and that the fare of the said railway has, up to Sept. 1, 1920, never exceeded in each city 5c., but on or about that date the municipalities, by bylaw, increased the said fare to an amount exceeding 5c. in each city, and doubt has arisen as to whether or not the said municipalities have power to collect and take such increased fare; and whereas it has been further represented that the fare of 5c. is inadequate; and that the traffic on the railways at that rate is not sufficient to pay the expenses of the railways; and that each year a large deficit results which has to be borne out of the general funds of the municipalities; and whereas it is expedient to grant the prayer of the said petitions."

The single clause of the bill, as introduced, is as follows:—"Notwithstanding the provisions of clause 6 of schedule A, to an Act respecting the Town of Port Arthur, passed in the 56th year of the reign of Her late Majesty Queen Victoria, chapter 78, and notwithstanding anything contained to the contrary in The Ontario Railway Act, each of the municipalities of Port Arthur and Fort William, may collect and take such fare over and above the sum of 5c. from passengers on its street railway as may from time to time be fixed by bylaw to be passed by such municipalities."

The private bills committee added to the above section the words:—"Provided that no such bylaw or bylaws shall come into force or have effect until same have been approved by a vote of the electors qualified to vote on money bylaws of the said municipalities and have also been approved by the Ontario Railway and Municipal Board."

Hamilton St. Ry.—The Dominion Power & Transmission Co.'s President is reported to have said at the recent annual meeting that fares on the Hamilton St. Ry. will have to be increased if the public is to have the accommodation required, and added that it is not reasonable, while companies in other cities had secured increased fares, to expect the Hamilton company to continue with no reasonable return for its investment. A later report states that the company has decided to ask the city council to approve of an increase in fares.

Ottawa Electric Ry.—The Ottawa City Solicitor has been instructed by the board of control to enquire whether or not the O.E.R. has authority to apply to the Board of Railway Commissioners for an increase in fares above the maximum fare of 5c., as provided in the franchise agreement.

Winnipeg Electric Ry.—The Manitoba Court of Appeal commenced on March 22 the hearing of Winnipeg City Council's appeal against the Manitoba Public Utilities Commissioner's order granting an increase of fares to the Winnipeg Electric Ry. The city has raised the question of the Commissioner's powers in the matter, and the arguments on this point were of an elaborate character. The hearing was concluded March 14, judgment being reserved. It is expected that judgment will be delivered early in April.

Winnipeg Electric Railway and the City Council.

Winnipeg City Council, on Feb. 28, passed a resolution setting out conditions on which all litigation between the city and the Winnipeg Electric Ry. Co. could be put a stop to. These conditions were the company's consent to a Court of Appeal order setting aside the Manitoba Public Utilities Commissioner's order of Aug. 23, 1920, granting an increase of fares; the preparation of an agreement providing for certain rates of fares, that the Commissioner should not have any jurisdiction over the company's fares; to assist the city in the obtaining of any agreement reached as the result of negotiations; and to fix fares at 40% increase over those fixed in the original bylaw. A. W. McLimont, Vice President, wrote the Mayor March 1, giving reasons why the company could not agree to the conditions proposed and saying that the company would agree to a temporary setting aside of the order and to negotiate all matters of difference.

The company had previously suggested an agreement on a service at cost basis. The city council, on March 14, reaffirmed its resolution of Feb. 28, which is the position of affairs at the time of writing.

Ontario Hydro Electric Railways Enquiry.—The Commission, appointed by the Ontario Government, to investigate the system of hydro electric radial railways proposed by the Hydro Electric Power Commission of Ontario, and of which Mr. Justice Sutherland is Chairman, resumed its sittings at Toronto, March 2, the first witness being L. A. Herdt, D.Sc., E.E., Macdonald Professor of Electrical Engineering at McGill University, and Vice Chairman, Montreal Tramways Commission. Other witnesses were R. M. Fuestel, President, Indiana Service Corporation, and C. E. Bailey, of J. G. White Engineering Corporation, New York. The hearing was adjourned on March 9, to enable R. McKay, K.C., representing pro hydro municipalities, to arrange for witnesses. On the resumption on March 28, H. T. Foster, fruit grower, Burlington, gave evidence, being followed by J. E. Richards, Manager and Treasurer, London & Port Stanley Ry.

Electric Railway Statistics for Year ended June 30, 1919.

Following are extracts from the electric railways statistics for the year ended June 30, 1919, as prepared by the Dominion Bureau of Statistics, Transportation Division.

Length of lines, miles.

	1918-19	1917-18
1st main track	1,696.52	1,616.36
2nd main track	482.36	453.11
Sidings and turnouts	220.92	206.57
Total	2,399.80	2,276.04

Capitalization.

	1918-19	1917-18
Stocks	$93,042,368	$73,864,820
Funded debt	78,852,188	93,388,273
Total	$171,894,556	$167,253,093

Earnings, operating expenses, etc.

	1918-19	1917-18
Passenger earnings	$32,826,609.79	$21,943,644.04
Freight earnings	2,045,303.31	1,575,408.57
Mails and express	163,703.74	129,317.96
Other car earnings	105,548.39	139,104.86
Miscellaneoous earnings	545,417.11	512,424.26
Gross earnings from operation	$35,696,532.34	$24,299,889.69
Maintenance of way and structures	$2,792,258.13	$1,684,561.97
Maintenance of equipment	3,868,378.71	2,204,875.57
Operation of power plant	4,435.96	3,083,383.47
Operation of cars	11,801,071.50	7,810,063.13
General, traffic, superintendence, etc.	3,942,298.47	2,753,090.49
Total operating expenses	$26,839,070.77	$17,535,974.63
Net operating earnings	$8,857,461.57	$6,763,915.06
Miscellaneous income	2,723,510.02	2,311,176.60
Total corporate income	$11,580,971.59	$9,075,091.66
Taxes, interest, etc.	10,114,425.86	6,150,074.21
Total net income	$1,465,545.73	$2,925,017.45
Appropriated to reserve	$1,394,921.52	$1,466,339.35
Appropriated to dividends	1,508,716.00	1,671,358.93
Deficit	$1,437,091.79	$212,680.83
Ratio of operating expenses to gross earnings	1918-19: 75.18%	1917-18: 72.16%
Fare passengers carried	686,124,263	487,365,456
Tons of freight hauled	2,474,892	2,497,530
Passenger car mileage	103,998,809	81,786,198
Other car mileage	2,962,798	2,649,125
Total car mileage	106,961,607	84,435,323
Equipment of all kinds	5,719	4,314
Employes, all grades	17,242	11,646
Salaries and wages	$17,210,851.72	$11,840,864.86
Accidents, all kinds—		
Killed	94	77
Injured	3,511	2,596

Grand Valley Ry. Liquidation. — An appeal by bondholders of the Grand Valley Ry. Co., the affairs of which are being closed out by the courts ,against an order of the master in chambers, who allowed the Standard Reliance Mortgage Corporation to rank as a creditor on the money in court, was granted by Mr. Justice Rose at Toronto, March 11. The Grand Valley Ry. Co. owned the electric railway in Brantford, and a line from Brantford to Galt, which on the company's assignment were sold to Brantford City Council. Part of the suburban line has since been dismantled.

The British Columbia Electric Ry. is reported to have started recently to operate on the skip-stop plan on its Kerrisdale line, 12 streets having been designated as non-stop points. A saving of three or four minutes in the running time of each trip is expected to be made.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry. — Brantford, Ont., Street Railway Commissioners have recommended to the city's advisory board of control the following betterments for this year:—

Mohawk Park, construction	$3,291
West Mill St.	23,111
West Oxford St.	5,411
Holmesdale and Ferrace Hill	38,742
Eagle Place, construction	9,297
	$79,852

(Aug. 1920, pg. 450.)

Hamilton St. Ry. — The Hamilton Board of Control has been considering the questions of paving on streets where the Hamilton St. Ry. operates. It is stated that the company had cancelled orders for rails to be laid on certain streets, and that it has no money to do its part of the repaving work. The City Engineer is reported to have advised that application be made to the Ontario Railway and Municipal Board.

The extension of the King Street west line from Margaret Street to Paradise Road, one mile, is reported to have been opened for traffic recently as far as the McKittrick bridge. The track is laid as far as Paradise Road, but owing to the difficulty in getting cement last autumn the completion of the extension was postponed. The work will now be completed, and it is expected to have the whole extension opened shortly. (Jan., pg. 36.)

Hydro Electric Ry.-Essex Division. — Plans for extensions and improvements of the electric railway in Windsor, Ont., which include some second track work, in addition to other betterments, are under consideration by the Windsor City Council in connection with the repavement of the streets. It is said that the percentages paid to the city by the old Sandwich, Windsor & Amherstburg Ry. Co. were used in connection with the paving on the streets on which the rails are laid, and it is claimed that the cost should be borne by the users of the cars and not by the ratepayers generally. (Feb., pg. 92.)

Lethbridge Municipal Ry.—We are officially advised that automatic reclosing circuit breakers are being installed on the feeders on this line, with totalizing breakers of the same design between feeders and generators. These breakers may be set to throw out on any desired overload and to automatically throw in on any time limit. They will also throw out and stay out in the event of a ground until it is removed. This installation, together with bearing indicators, will enable the station to be run without operators except to start up the units and is particularly suitable to situations such as obtain at Lethbridge, where the substation is in conjunction with car barns and there is always someone who can be used to do the starting up. (Feb., pg. 92.)

London & Port Stanley Ry.—A press report states that consideration is being given to a proposal to instal wireless telegraphy for the operation of cars as an auxiliary to the present system. Each car would be equipped with a receiving apparatus, the aerials being placed on the top of the car in front, while the receivers would be placed in the front baggage compartment in view the motorman. (Jan., pg. 36.)

London St. Ry.—A press report states that the company is stringing new copper wires on its Springbank line to provide for an improved service. (Jan., pg. 36.)

Montreal Tramways Co.—We are officially advised that the new power station under construction at Cote St. is laid out for an ultimate capacity of 10,000 k.w. There will be 4 rotary convertors installed, making the capacity of each 2,500 k.w. The alternating current to operate them will be delivered by the Montreal Public Service Corporation and the Montreal Light, Heat & Power Co. from their hydraulic plants. The building is completed and one unit has been completed and is in operation. The other units will be installed as soon as they can be taken care of.

The Montreal Tramways Commission is reported to have prescribed anextensive programme of extensions and renewals on the Montreal Tramways Co.'s line for this year, to include a new car line on Park Ave., from Atlantic Ave. to Ball St., the Kelly Ave. extension in Bordeaux ward, and a new line from Cote des Neiges Road, along Shakespeare Road, to the park rangers house on the side of Mount Royal. The renewal work will, it is stated, be on St. Catherine St., from St. Lawrence Boulevard to Atwater Ave.; St. Denis Ave., between Carrieres and Isabeau Sts., and two sections on Ontario St., from Champlain St. to Frontenac St., and from St. Lawrence St. to Pavet St.

The Montreal Administrative Commission is reported to have directed the Montreal Tramways Commission to proceed with the construction of the projected electric railway on Mount Royal early in the spring. The route will, it is stated, be along the west side of Shakespeare Rd., skirting the cemetery wall, and linking up the Outremont line with the Guy St. line. By the construction of the line, it is said, a double track service over the mountain will be possible between the north and the south sections of the city. The Montreal Tramways Co. is reported to have objected to the construction of the line this spring on the ground that certain paving and sewer workhas to be done, but the Administrative Commission states that by placing the line on the west side of the road by the cemetery wall no obstruction will be caused to the roadwork. (Mar., pg. 159.)

Ottawa Electric Ry.—The question of the construction of a loop for the company's lines in Hull, Que., is, according to a press report, likely to be considered at an early meeting of the Hull Chamber of Commerce. (Dec., 1920, pg. 672.)

Ottawa Electric Railway Franchise, Etc.—The Ottawa City Council is reported to have given some consideration recently to a motion submitted by Controller Ellis to the board of control, requesting the Hydro Electric Power Commission of Ontario to estimate the value of the Ottawa Electric Ry. Co.'s property, to advise the council regarding the cost of improving the service, and whether it would be to the city's advantage to acquire the railway pursuant to the franchise terms or to enter into an agreement with the company for service at cost. The council referred the matter back to the Board of Control to find out whether the company would consent to allow such an enquiry into its financial condition.

Toronto City Estimates for Street Railways.

The Toronto Works Department estimates for 1921, submitted recently to the City Council contain the following items:—

Maintenance.	
Street railway lines owned, but not operated by city	$3,000
Civic Railway (maintenance and operation).	
Danforth Ave. and Gerrard St.	$253,676
St. Clair and Lansdowne Aves.	202,895
Bloor St. .	38,880
Claims for damages	10,000
Taxes on land, 1919, 1920, 1921	10,074
Capital expenditures.	
Reconstruction Gerrard St. bridge and erection of temporary wooden trestle for street car traffic	$832,000
Reconstruction of north Glen Road bridge	100,000
Reconstruction of south Glen Road bridge	450,000
Reconstruction of Main St. bridge, city's proportion . .	182,200
Construction of street railway line — Prince Edward viaduct, from Sherbourne St. to Broadview Ave.	185,200
Civic Railway, installation of insulated negative feeder cable, Danforth Ave. line, to prevent electrolysis	31,350
	$2,273,550

The estimates for the Civic Ry. maintenance and operation are for eight months, Jan. to Aug. 31, and it is contemplated that the Transportation Commission will assume control on the latter date. The estimate of expenditure on these lines is exclusive of estimate debt charges for the eight months amounting to $133,303. The estimated revenue for the eight months is $419,455.

Canadian Electric Railway Association's Activities.

The Association's active membership has been added to by the admission of the Kitchener & Waterloo St. Ry., owned and operated by the City of Kitchener, Ont.; the London & Port Stanley Ry., operated by the London Railway Commission, London, Ont.; and the Toronto Transportation Commission, which will operate the Toronto Ry., when it is taken over by the City of Toronto, on the expiry of the Toronto Ry. Co.'s franchise in a few months.

The following have been admitted to associate membership in the Association: Don M. Campbell, Canadian Cleveland Farebox Co., Canadian National Carbon Co., Canadian Steel Foundries, Canadian Westinghouse Co., C. E. A. Carr Co., Dawson & Co., Equipment Specialties, Lyman Tube & Supply Co., Ohio Brass Co., Ontario Safety League, Ottawa Car Manufacturing Co., Railway & Power Engineering Corp., Southam Press, and United States Steel Products Co.

C.P.R. Westminster Branch Electrification.—Proposals have been made for the electrification of the C.P.R. line between New Westminster and Westminster Jct., B.C., 8.35 miles, and the operation of this branch by the British Columbia Electric Ry. Overtures made by the New Westminster Board of Trade have been rejected by the B.C.E.R. Co. on the ground that it cannot undertake further capital expenditures at present, and owing to the fact that other interurban lines operated by it do not indicate that the venture would be profitable. The C.P.R. is required to meet all main line trains at Westminster Jct., and even this service is unsatisfactory to New Westminster people. There is a considerable mileage of freight yards in New Westminster which would come under an electrification scheme.

London Street Railway Operating Results and Position.

The Ontario Railway and Municipal Board, which has been operating the London St. Ry., since June 16, 1920, has furnished the city council with monthly reports of the results, and recently presented a report giving details of the results from June 16 to Dec. 31, 1920, also for the calendar year 1920 and comparative statement from 1915 to 1919. The report says in part:—"It is not contemplated by the act under which the Board is in possession of the railway, that the Board's possession and operation would be a permanent solution of the difficulties under which the city's transportation system labors. In the very nature of things, in view of the statutory limitations on the powers of the Board, and its inability to properly finance such an undertaking, the Board is unable to provide adequately for the inevitable wear and tear and depreciation of the plant, much less is it able to meet the probable demands for the improved service and extensions certain to arise in a growing community like London. The Board feels that it need not further emphasize these features of the situation which are plain and obvious, and it mentions them merely to remind the council of the urgent need for prompt action looking to some workable solution of the transportation difficulties which will meet the city's present and future requirements."

Statement for Year 1920.

Earnings—	Operation by company, Jan. 1-June 15.	Operation by O.R. & M. Board, June 16-Dec. 31.	Total for year.
Passengers	$222,249.00	$295,078.56	$517,327.56
Other sources	2,956.06	4,444.67	7,400.74
Gross earnings	$225,205.06	$299,523.24	$524,728.30
Maintenance—			
Way and structures	$15,751.18	$24,302.97	$40,054.15
Equipment	26,182.58	36,906.97	63,089.55
Transportation—			
Power	15,423.61	18,951.66	34,375.27
Car service	112,436.27	154,888.26	267,324.53
General and miscellaneous	25,310.59	24,403.26	49,713.85
Total operating expenses	$195,104.23	$259,453.12	$454,557.35
Net earnings	$30,100.83	$40,070.12	$70,170.95
Deductions from net earnings—			
Interest on bonds	$12,120.36	$14,435.68	$26,556.04
Interest on loans	539.58	820.81	1,360.39
Taxes	4,375.00	5,129.69	9,504.69
Total	$17,034.92	$20,386.18	$37,421.12
Net income before providing for depreciation or bond redemption	$13,065.89	$18,683.94	$32,749.83
Depreciation of road and equipment invested in bond redemption	13,768.48	19,500.00	33,268.48
Net deficit of company	$702.59		$518.65
Net income of O.R. & M.B.		$183.94	183.94
Net deficit of company for 1920			$702.59

Following are extracts from the company's Secretary's report to A. B. Ingram, Vice Chairman, Ontario Railway and Municipal Board, who is acting as Operating Manager:—

On May 1, 1920, the company's employes went on strike due to the company's inability to accede to their demands as to wages for the year commencing May 1, 1920. On May 5, the Ontario Railway and Municipal Board took possession of the railway and arranged with the employes for a resumption of service on May 6, an audit of the books to be made and a report to be submitted to the city council. On May 18, the Board submitted its report to the city council. On June 8, the employes again went on strike, as the council was unable to determine on a policy of relief, whereby the Board could meet the increase in wages demanded. The second strike continued for eight days, service being again resumed on June 16 under agreement with the Board whereby the employes received an increase of 4c. an hour, to be increased as revenues warranted, to a maximum increase of 8c. an hour. The two strikes were costly to company and employes alike. The direct loss to the company, due to 13 days non-operation, was $2,717.00, and to the employes in wages $12,870.00, an average of $913.54 each day, or $51.48 in wages to each employe on strike.

Figures presented herewith for 1915 to 1919 inclusive show that while the earnings increased, the operating expenses increased in a much greater amount yearly. The following statement shows a division of the operating expenses each year as to wages paid and other operating expenses:—

	Wages	Other operating charges	Total operating charges	Total earnings
1915	$181,799.38	$112,866.11	$294,665.49	$398,858.00
1916	186,098.51	108,075.11	294,173.62	426,314.77
1917	216,217.55	117,823.95	334,041.50	417,862.36
1918	235,123.73	120,364.37	355,488.10	456,355.91
1919	300,670.21	131,935.12	432,605.33	532,469.77
1920	328,933.32	125,624.03	454,557.35	524,728.30

In comparing 1920 with 1915, the following condition is noted:—

Increase in wages, 1920 over 1915	$147,133.94
Increase in other operating expenses	12,757.92
Total increase in expenses 1920, compared with 1915	$159,891.86
Total increase in earnings in 1920, compared with 1915	125,870.30
Increase in expenses above increase in earnings	$ 34,021.56

Such statements show conclusively the difficulty in operation to be a question of wages.

The following statement shows the improvements to the road and equipment in 1915 to 1920 and the capital secured for improvements:—

	Improvements	Capital secured
1915	$40,245.76	$50,000.00
1916	52,603.97	16,680.00
1917	46,692.98	64,800.00
1918	41,537.22	None
1919	8,763.44	None
1920	None	None
	$189,843.37	$131,480.00
Deficiency of capital		58,363.37
		$189,843.37

Improvements were made to the road and equipment in each year to 1919. The company was unable to secure any new capital after 1917, due to discontinuance of dividends. During 1918, however, the policy of improvements was continued, the work being financed by bank loans. Five cars contracted for were delivered in 1918 and air brake equipment was installed on part of the equipment in 1918 and 1919. It became necessary to repay the loans made for such improvements and the net income earned by the company in the last three years, which should have been available to the shareholders as a return on capital invested, was, of necessity, used to repay such loans. The surplus therefore represents an investment in improvements to the road and equipment.

The important item for consideration now entering into the operation of the railway is that of securing the necessary new capital to continue improvements to the property both as to paving and equipment. Paving, of course, does not produce earnings for the company, and while an asset, is at the same time an indirect tax. The paving of the track allowance will not produce adequate car service. It is necessary to have cars. At present the railway is operating all its available equipment during rush hours, and if an improvement in car service is required, it will become necessary to secure new equipment both for additional car service and to replace some old cars in service. Where is this money to come from unless the company is placed on a basis where it can sell securities to furnish such equipment? There is no doubt that this is now the most important item for consideration in the solution of the street railway transportation problem in London. Delay in this matter only means that it will require more capital later to accomplish the same result. Whether the road is privately or municipally operated in the future, the question of securing new capital will be an ever present one.

Street railways throughout the country, like steam railways, have been placed in a critical position, over which the management has no control. The rates in effect, prior to the war, while sufficient to at least pay expenses, were found woefully inadequate, after 1916, to provide for the service the public demanded, and maintain their property in anything like proper conditions. Conditions have tended to break down the credit and stability of the electric railway industry. Unless the confidence of investors in the securities of public utilities is restored, the public must, in some way, assume the responsibility and provide funds for the carrying on of an essential public service. Lack of confidence in public utilities investments, at present, is very serious, embarrassing the companies and depriving the public of adequate or satisfactory service.

The question then is, whether the need for local transportation can best be met by public ownership and operation, or by private ownership and management with public control. If the public was qualified to carry out the management of public utilities, it would probably ask that this be done, and I would say that there should be no objection provided a fair valuation of the property is allowed. Municipal ownership is urged by some as a panacea against increased fares. It does not matter by which plan the street railway is managed, the cost of the service must be found, either from those who use the cars or by taxation. It is plainly evident that whether the public shall decide to operate its railways, whether it assumes greater control over them, or whether it allows them to remain in the hands of private individuals, the revenue must be such as to provide for the full cost of service.

London has grown in the six years 1915 to 1920, and will no doubt continue to do so. The figures submitted clearly indicate such a growth. If London is to

enjoy an industrial expansion as expected, and car service is to be adequate to the future needs of such an expansion, then it becomes necessary to adopt a policy covering a permanent solution of the transportation problem in the city.

The question of the future operations of the railway is undecided. It is said that the employes have intimated to the Ontario Railway and Municipal Board that they will continue working under the existing arrangements until May 1, when a new understanding will have to be arrived at. The Board, no doubt, desires to relinquish its control, but no definite action has been taken. The question of what will be done is under consideration and the latest report is that a definite proposal by the company to the city council for operating the line on the service at cost plan will be made on an early date.

British Columbia Electric Railway's Application to Dominion Parliament.

In connection with the application of the Vancouver, Fraser Valley & Southern Ry. Co., a subsidiary of the British Columbia Electric Ry. Co., to the Dominion Parliament for legislation to permit it to take over the B.C.E. Ry. Co.'s railway and other properties, and to declare them to be for the general advantange of Canada, we are officially advised that the application for a federal charter, which would place the company's railway, light and power lines in Vancouver and Victoria under the Board of Railway Commissioners, has been withdrawn temporarily by the company, pending a settlement with the municipalities. The various municipal councils have tentatively agreed to permit the present fares to be charged until July 1, 1922, and not to press for a return to the franchise fares. Provided bylaws to this effect are passed by each city and municipality served, the company agrees to withdraw its application for a federal charter, but within six months new agreements must be entered into with the view of adjusting the company's rates and fares on a stable basis. Failing such agreemments, the company may reinstate its application for a Dominion charter.

A press report states that the mainland municipalities interested have all signed an agreement granting the company the right to continue to charge the existing rate of fares until July 1, 1922.

Quebec Public Service Commission.—A press report states that A. Beaudry, K.C., on the prorogation of the Quebec Legislature, resigned the position of Deputy Speaker, and has been appointed Chairman of the Quebec Public Service Commission, succeeding the late F. W. Hibbard, K.C. Another report of March 21 stated that he would continue to act as a commissioner for a few weeks, when he would resign, the state of his health being given as the cause. J. Ahern, who has been Secretary of the Commission since its formation, will, it is reported, be appointed to succeed Sir George Garneau. The third member of the Commission is F. C. Laberg, C.E.

A New Safety First Maxim.—"Never run after a street car, or a woman; there will be another along in a few minutes. There aren't so many after midnight, but they go faster."—The Goblin.

Preparations for Taking Over the Toronto Railway.

The Toronto City Council put through all its stages recently a bylaw providing for the issue of $5,000,000 city consolidated loan debentures, to provide funds on account to acquire and take over the Toronto Ry. Co.'s property and to provide plant, equipment and facilities for operating the railway when acquired.

Some matters connected with this projected loan and the Transportation Commission's work, etc., are under consideration in connection with a bill before the Ontario Legislature. Some of the things desired are that the Commission be given power to build subways, and operate busses without the assent of the electors, but on the initiative of the city council; provision for three arbitrators instead of one to fix the value of the Toronto Ry.; power to postpone for three years payment of sinking fund charges on account of the purchase of the Toronto Ry. and to fix the period of the debentures to be issued in payment therefor at 40 years.

The Toronto Transportation Commission has authorized the purchase of steel rails for from 20 to 65 miles of single track, together with ties, bolts, overhead work, etc., for the same. Details in connection with this matter, we are officially advised, have not yet been settled.

The question of the purchase of cars for the railway is being considered, and some discussion has taken place on the advisability of the city providing its own car building plant.

The Levis County Railway's Fire and its Future.

The fire at the Levis County Ry.'s car barns at Levis, Que., Feb. 23, which was mentioned in our last issue, started at the back of the barns, in or around a double truck car which had not been in service since Feb. 19. An alarm was sent in to the fire station immediately, and three of the company's employes who were on duty, coupled up the hose to the hydrants inside the barn and endeavored to extinguish the flames. Owing to the lack of water pressure they were unable to do anything effective and within 10 minutes the whole barn and shops were in a blaze. All the company's equipment was destroyed, together with the shops and stores, except four new safety cars, and 2 rebuilt one-man single truck cars. The equipment destroyed consisted of 5 double truck cars, 8 safety cars, 3 rebuilt one-man cars, 2 rotary ploughs and 4 sweepers. The company was therefore left without any snow fighting equipment and only 6 cars to continue operations. All the property destroyed was insured at purchase value, but not at replacement value. The estimated total loss is placed at $300,000, and a press report states that the actual loss to the company will be $200,000.

C. Blonin, Vice President, is reported to have stated that the fire was probably caused by a short circuit, also that the directors are not very keen on replacing the buildings and rolling stock, as the railway has not been a paying proposition from the start, and further that the company's attitude towards reconstruction will depend largely upon the municipalities served by the line. The Manager, H. E. Weyman, is also reported to have made a very similar statement.

A press report of March 10 stated that the Levis Board of Trade has appointed a special committee to take the matter up with the interested municipalities. This committee was stated to have concluded its work, and to have arranged for a meeting of representatives of all the municipalities interested at an early date to discuss the question.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Dec. 1920	Dec. 1919	6 mos to Dec. 31, 1920	6 mos. to Dec. 31, 1919
Gross	$868,677	$783,324	$4,709,709	$4,221,916
Expenses	604,958	522,079	3,500,866	3,065,409
Net	263,719	261,245	1,208,843	1,156,507

Cape Breton Electric Co:—

	Jan. 1921	Jan. 1920
Gross	$59,409	$49,082
Expenses	54,366	44,115
Net	5,043	4,967

Dominion Power & Transmission Co.—A press summary of the Dominion Power & Transmission Co.'s report for 1920 states that the gross earnings were $3,803,723.15, and the operating expenses $2,771,875.79, and that after sundry deductions had been made there remained $940,525.91, compared with $1,000,119.48 for 1919. The properties are valued at $23,481,327.79.

London St. Ry.—A press report gives the following particulars of operations for January:—

Total income	$45,792.81
Operating expenses	39,232.68
Net earnings	$6,560.13
Interest on bonds	$2,202.34
Bond redemption	3,000.00
Interest on current account, taxes, etc.	859.22
Total deductions	$6,061.56
Net income	$498.59
Car mileage	144,949
Net income per car mile	3.4 mills

Moncton Tramways, Electricity & Gas Co.—The following were elected directors recently:—R. Law, Jr., E. B. Reeser, F. N. Minard, E. O. Bartlett, T. O. Sullivan, E. A. Cummings, and Dr. J. A. S. Henderson.

Toronto Civic Railway:—

	1921 Revenue	1921 Passengers	1920 Revenue	1920 Passengers
Jan.	$50,392	3,025,700	$41,989	2,493,296
Feb.	46,600	2,788,606	39,331	2,334,431
	$96,992	5,814,306	$81,320	4,827,727

Toronto Ry.—The annual meeting of shareholders, which had been adjourned to Mar. 2, was further adjourned to Mar. 30, and then again to a later date. A special meeting of shareholders was also postponed to the same date. The reason for the postponements is that the agreements in connection with the sale of the company's outside properties to the Hydro Electric Power Commission of Ontario and the City of Toronto are not completed.

Winnipeg Electric Ry. and allied companies:—

	Jan. 1921	Jan. 1920
Gross	$506,229	$498,837
Expenses	360,959	365,031
Net	145,270	133,806

The surplus for January 1921, after allowing for fixed charges, was $80,202.65.

An additional $2,000,000 of the company's common stock has been listed on Toronto Stock Exchange.

The company is reported to be offering to investors in Winnipeg and neighborhood a portion of the $3,000,000 of preference share put on the market recently. The price is $90 per $100 share, payments to be made in monthly instalments of $10, interest on the unpaid balance being charged at 6½%, and adjusted together with the dividend when final payment is made.

Mainly About Electric Railway People.

Charles W. Carson, heretofore Inspector of Reliefs, has been appointed Assistant Superintendent, Ottawa Electric Ry., Ottawa, Ont. He was born there Sept. 15, 1877, and entered Ottawa Electric Ry. service June 22, 1897, since when he has been, to March 1909, conductor; March 1909 to Jan. 1920, inspector, and from Jan. 1920 to Feb. 1921, Inspector of Reliefs.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association, took part in a skating carnival, given by the Governor General and the Duchess of Devonshire, at Rideau Hall, recently, appearing as a Chinaman, and Mrs. Gale as a pink and black pierrette.

L. E. Marcus, heretofore Yardmaster, C.P.R., Windsor, Ont., has been appointed Superintendent, Grand River Ry., and Lake Erie & Northern Ry., Preston, Ont.

John Allan Olive, whose appointment as Secretary-Treasurer, New Brunswick Power Co., St. John, N.B., was announced in our last issue ,was born there Aug. 4, 1887, and entered transportation service in Aug. 1901, since when he has been, to Feb. 14, 1921, in various positions as follows: Clerk and accountant and Secretary-Treasurer, William Thomson & Co. Ltd.; chief accountant, Furness Withy & Co. Ltd., St. John, N.B., resigning Feb. 14 to accept his present appointment.

J. R. Ong, who, for the past two years, wa Transportation Engineer of the Winnipeg Electric Ry., was, on March 7, presented with a gold combination fountain pen and pencil by the company's traffic department employes, on leaving the company's service for Atlanta, Ga., to take a similar position with the Georgian Ry. & Power Co.

Frank Phripp, who for several years was Toronto & York Radial Ry. Agent at Newmarket, Ont., died in the Weston Sanitarium, at Weston, Ont., March 4, after a long illness.

Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry., has retired from command of the Queen's Own Rifles of Canada, owing to ill health.

Charles McD. Smyth, whose appointment as Superintendent, Light and Power Department, Cape Breton Electric Co., Sydney, N.S., was announced in our last issue, was born at Woking, Eng., Apr. 24, 1890, and prior to his present appointment was, from Mar. 1920 to Feb. 8, 1921, Assistant to Superintendent, Light and Power Department, Nova Scotia Tramways & Power Co., Halifax, N.S.

John Whitsell, heretofore General Superintendent, Chicago & Interurban Traction Co., Chicago, Ill., has been appointed Manager, Winnipeg Electric Ry., Winnipeg, vice F. L. Butler, who resigned recently, as announced in a previous issue. He began his electric railway service in ~~1894~~ 1891 in the Sioux City Traction Co.'s car service department. In 1897 he transferred to the Suburban Railway Co., Chicago, and was later appointed Master Mechanic, and then General Superintendent. On the merging of that company with the County Traction Co., Chicago, he was appointed General Superintendent of Transportation and Shops, and in 1913 on the reorganization of the properties, as the Chicago & West Towns Ry., he was appointed General Superintendent, and on May 5, 1920, was appointed General Superintendent, Chicago & Interurban Traction Co.

C. J. Yorath, formerly City Commissioner, Saskatoon, Sask., has been appointed Commissioner of Utilities and Public Works, Edmonton, Alta., as reported in our last issue, and assumed his new duties March 1. The Edmonton Radial Ry., which is owned by the city, comes under his jurisdiction.

Winnipeg Electric Railway's Snow Fighting Equipment.

The Winnipeg Electric Ry.'s snow fighting equipment consists of one rotary snow plough, one large double end sweeper and nine double end single truck sweepers, all of which were manufactured in the United States. In addition to this equipment, the company has one work car, which is equipped with a 14 ft. wing operated by air control for clearing back the snow. This wing was attached to a flat car in the company's shops.

Cars operating on the suburban lines are equipped with a 14 in. nose plough attached to the trucks, which can be lowered or lifted by the motorman from his cabin. All of these ploughs were manufactured and attached to the cars in the company's shops.

Snow conditions in Winnipeg are not unusually heavy, due to the dryness of the climate, but on account of the extreme low temperature, and heavy winds which usually accompany such temperatures, it is very difficult to keep the tracks clear of snow, which, being light and dry, is easily blown about. As a result it is necessary to operate the sweepers more miles per year than is the case in cities where climatic conditions are different. While the snowfall in Winnipeg is not so heavy as at other points in Canada, the sweeper miles are considerably greater.

Electric Railway Notes.

The Fort William, Ont., Utilities Commission is, a press report states, considering adoption of one-man cars on the municipal railway.

The Regina, Sask., Municipal Ry. will, it is reported, completely equip the Blue line with one-man cars before converting any for the other lines.

The Lake Erie & Northern Ry. station at Brantford, Ont., was robbed March 2 by two young men who, a press report states, held up the agent and took $25 from the till.

The Hydro Electric Power Commission of Ontario has received 2 four-wheel (0-4-0T) switching locomotives, with cylinders 16 in. diar. by 24 in. stroke, from Montreal Locomotive Works.

The British Columbia Electric Ry. is reported to be introducing the skip-stop plan on its lines on Vancouver Island. An experiment will, it is stated, be made on the Fowl Bay line, Victoria.

The cost of snow removal from Montreal streets for the winter of 1920-21 is reported to have been $157,347 up to March 5. The Montreal Tramways Co. is responsible for half of this.

The Interurban Rapid Transit Co., operating suburban and elevated lines in Manhattan, N.Y., is reported to have had a net deficit of $2,682,760, for the six months ended Dec. 31, 1920.

The Toronto Transportation Commission, which is to take over and operate the Toronto Ry., on the expiry of the company's franchise, in a few months, is in the market for some 25 to 100 cars.

The Montreal Tramways Commission and the Montreal Administration Commission are reported to have practically reached an agreement with regard to the carrying of freight in the city by the Montreal Tramways Co.

The Montreal Tramways Co. is reported to have advised the Montreal Association for the Blind that it will issue certificates entitling blind persons to ride free on the company's cars, but a fare will be collected for an accompanying guide.

The Regina, Sask., Municipal Ry., in starting the operation of one-man cars recently put a second man on board to assist the man in charge until he became thoroughly familiar with the operation of his car under the new system.

C. Morden and H. Brooker, ticket clerks, Niagara, St. Catharines & Toronto Ry., at Niagara Falls, Ont., have been arrested for the theft of $1,000 from the company, and it is reported that they have confessed that they set fire to the station there, March 7.

The Calgary, Alta., City Council's finance committee is reported to have passed a resolution expressing the opinion that altogether too many passes have been supplied to city employes and that all passes should be eliminated except for amputation cases and policemen and carmen in uniform.

The Western Canada Power Co.'s offices are reported to have been removed to the British Columbia Electric Ry.'s head office building in Vancouver, and the business is being conducted under the direction of George Kidd, General Manager, B.C.E.R. Wm. McNeill, former head of the power company, has left for England.

St. Thomas, Ont., Municipal Railway was authorized by the Board of Railway Commissioners on Feb. 23 to operate p.a.y.e. one-man cars, for three months, over London & Port Stanley Ry., on Wellington St. and on Elm St., and on Feb. 26 it was given similar authority for three months to operate over the L. & P.S.R. on Talbot St.

Port Arthur, Ont., city employes are reported to have used 31,950 car tickets during 1920, which, figured at 6¼c. a ticket, represents a total of $1,996.87½c. A suggestion has been made that these tickets, which are issued to employes in books of 50, on the order of the heads of departments, are being used rather freely during non-working hours.

Edmonton, Alta., City Commissioners are reported to be arranging a reorganization of the street railway department. The report states that it is intended to appoint a Superintendent of the Edmonton Radial Ry., and that an outside man will be appointed as W. J. Brownlees, acting Superintendent, is reported to have intimated that he does not desire the appointment.

The Niagara, St. Catharines & Toronto Ry. is reported to have settled an action brought against it by the Town of Thorold, in the Ontario Supreme Court, for damages to water mains by electrolysis. The amount claimed was $1,300 for repairs to pipes and $3,000 for restoring brick pavement on Front St. The action was to have been heard at St. Catharines, but is said to have been settled out of court, the company to pay $3,000 and undertaking to rebond its lines.

1891

Marine Department

Ocean, Coast, Lake and River Steamship Officers for 1921.

The following appointments made by Canadian navigation companies for their various steamships and tugs, have been reported to Canadian Railway and Marine World. The first column contains the names of the ships, the second those of the captains, and the third those of the chief engineers:—

Alberta & Arctic Transportation Co., Toronto.

B. C. Express	—. Baker	.....
D. A. Thomas	—. Buecy	.....
Distributor	—. Shannon	.....
Slave River	—. Brown	.....

Algoma Central Steamship Line, Sault Ste. Marie, Ont.

Agawa	M. A. Livingston	J. Smith
Home Smith	A. McIntyre	D. McLeod
J. Frater Taylor	J. D. Montgomery	A. Chalmers
W. C. Franz	W. C. Jordan	A. M. McInnes

Bathurst Lumber Co., Bathurst, N.B.

Betty D.	A. Haines	R. Kane
Nipisiquit	F. Purwin	P. Adams
Peggy L.	E. Chomberlin	A. Lavigne

Bear River Steamship Co., Bear River, N.S.

Bear River	A. Moore	S. Stevens

Bridgetown Steamship Co., Bridgetown, N.S.

Valinda	E. H. Lewis	C. Mills

Burnham, Morrill & Co., Portland, Me.

Robie, M.	B. Hines	B. Smith

Butler Freighting & Towing Co., Victoria, B.C.

Grainer	W. B. McCartney	H. McIlroy

B. W. B. Navigation Co., Vancouver, B.C.

Coutli	R. W. McNeil	J. Mowat
Maagen	J. Williams	S. Westcott
Phoenix	L. O. Larsen	S. Juber
Projective	H. Lysell	S. Diamond
Pronative	C. Johnson	K.Cassidy
Prospective No. 2	C. Rystedt	R. Gillikesen
Prosperative	-T. T. Edwards	J. Hawkens

Canada Atlantic Transit Co., Montreal.

Arthur Orr	J. Simons	D. E. Mance
Kearsarge	H. Jaenke	.....

Canada Steamship Lines, Ltd., Montreal.

A. E. McKinstry	A. N. Hogue	E. Spencer
Advance	J. A. Lepine	G. W. Clarke
Arabian	W. A. Blackwell	J. A. C Hawman
Beaverton	J. Mann	F. A. McAuley
Belleville	J. J. Jarrell	G. Sauve
Canadian	K. LaRush	T. E. Readman
Cape Diamond	W. Gagne	J. Natte
Cape Eternity	W. Cornett	N. Crepeau
Cape Trinity	J. P. Stevenson	J. A. Boulanger
Cape St. Francis	T. P. Stephenson	A. Chayer
Cataract	J. J. Lawrence	M. J. Sherman
Cayuga	C. J. Smith	W. Taylor
Chippewa	W. J. Malcolm	E. A. Prince
City of Hamilton	O. Patenaude	W. Dungan
City of Ottawa	E. Walkinshaw	W. Keith
Collingwood	G. W. Pearson	H. J. Jack
Corona	B. A. Bongard	J. Kennedy
E. B. Osler	J. H. Hudson	R. R. Foote
Edmonton	H. A. Leavey	J. A. McDonald
Emperor	D. W. Burke	G. W. Smith
Glenellah	J. L. Baxter	A. E. Kennedy
Glenmount	W. J. Brown	J. Kirk
India	N. Menard	W. L. Rennie
J. H. G. Hagarty	P. McKay	I. J. Boynton
Joyland	A. Francis	F. Patterson
Kenora	W. Brian	J. Douglas
Kingston	A. E. Stinson	G. McDonald
Longueuil	H. Mandeville	N. Noel
Macassa	G. J. Corson	J. A. Gunn
Manola	J. Dufour	T. W. Verity
Mapleboro	A. N. Hogue	C. Gray
Maplebranch	A. Wilson	A. E. Crosthwaite
Maplebrook	H. A. Patterson	W. H. Fletcher
Maplegrange	D. H. Porter	John Kennedy
Mapleheath	H. Brian	C. A. Stillson
Maplehill	E. J. Shannon	M. O'Brien
Maplehurst	N. G. Menard	H. Myler
Mapleton	M. Heffernan	D. S. Simmons
Martian	R. McIntyre	J. B. McLaren
Midland King	A. J. MacLennan	C. Leriche
Midland Prince	A. B. McIntyre	J. A. Pickard
Montreal	F. X. LaFrance	N. Peloquin
Oatland	T. R. McLeod	S. Ashie
Quebec	N. McGlennan	O. Bonin
Rapids King	G. Batten	W. Hazlett
Rapids Prince	S. Putnam	G. N. Hazlett
Saguenay	J. Simard	G. Gagnon
Sarnian	T. H. Johnston	J. G. McHattie
Simla	C. E. Coons	A. Dunn
Three Rivers	A. Mandor	G. Gagnon Jr.
Toronto	E. A. Booth	A. Baillie
Valcartier	J. Reoch	W. C. Spencer
Vinmount	J. A. Ferguson	F. Moyle
W. D. Matthews	R. F. Pyette	W. Reid
W. Grant Morden	C. E. Robinson	J. McGregor
Westmount	J. F. Davis	F. Morris
Windsor	M. Hefferman	.....
Winona	T. S. Patterson	G. Fleming

Canadian Government Merchant Marine, Montreal.

J. A. McKee	J. Lintlop	.....
Sheba	J. Y. Smeltzer	.....
Thomas J. Drummond	W. F. Davies	.....

Canadian National Rys. Car Ferry Service, Eastern Lines, Moncton, N.B.

Scotia No. 1	J. N. MacKinnon	P. Campbell
Scotia No. 2	L. R. Maguire	J. Anderson
	R. Keating	R. Morrison
	W. Brophy	P. Campbell
Prince Edward Island	J. L. Read	J. A. Sutherland

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Canadian Pacific Ry., British Columbia Lake and River Service, Nelson, B.C.

Hosmer	M. P. Reid	P. H. Pearse
Kuskanook	L. McKinnon	J. G. Cameron
Minto	A. Forslund	N. Hawthorne
Moyie	F. L. Orr	J. Donaldson
Naramata	J. B. Weeks	J. P. Sutherland
Nasookin	W. Seaman	T. F. McKechnie
Sicamous	G. Robertson	D. H. Biggam
Slocan	W. Kirby	D. McLeod
Ymir	J. Ferguson	T. C. I'Anson

C.P.R. Great Lakes Steamship Service.

Alberta	J. McIntyre	W. S. Struthers
Assiniboia	J. McCannell	A. A. Cameron
Athabasca	M. McKay	G. S. Rae
Keewatin	M. McPhee	C. Butterworth
Manitoba	F. J. Davis	G. D. Adam

Canadian Pacific Car & Passenger Transfer Co., Prescott, Ont.

Charles Lyon	W. Henry	L. Black

Canadian Robert Dollar Co., Vancouver, B.C.

Bessie Dollar	J. Kerr	J. Welton
Esther Dollar	J. McPhail	D. Murray
Grace Dollar	J. Tasker	W. Green
Harold Dollar	M. Ridley	D. McGill
M. S. Dollar	J. Abernethy	W. Whitehill
Melville Dollar	W. Wright	J. Drysdale

Chicago, Duluth & Georgian Bay Transit Co., Chicago, Ill.

North American	R. H. Nutting	H. Hawkens
South American	E. W. Taylor	J. F. Buritz

Coast Steamship Co., Vancouver, B.C.

Celtic	J. Finlay	H. Spencer
Clansman	R. W. H. Lloyd	R. Dutton
Coaster	M. F. MacDonald	W. Snowdon

Coastwise Steamship & Barge Co., Vancouver, B.C.

Amur	J. McNaughton	R. Middlemass
Anyox	S. Snoddy	T. Drummond
Marmion	W. Canterbury	A. Findlay
Tartar	T. Thomson	E. Elkquist

Crystal Stream Steamship Co., St. John, N.B.

D. J. Purdy	J. Gilchrist	W. Hurdor
Majestic	H. Crabbe	J. W. Gorman

Dominion Towing & Wrecking Co., Fort William, Ont.

Strathmore	A. Morrison	J. Farquharson

Dominion Transportation Co., Sault Ste. Marie, Ont.

Caribou	A. A. Batten	J. Walters
Manitou	N. J. McCoy	W. Owens

Donnelly Salvage & Wrecking Co., Kingston, Ont.

Cornwall	W. J. Phelix	W. Kennedy
Frontenac	T. J. Murphy	T. Compeau
William Johnston	T. Murphy	.....

Farquhar & Co., Halifax, N.S.

Sable I	G. A. Murley	A. Talk
Stella Maris	W. A. Poole	S. Hartling

Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C.

Prince Albert	H. E. Needen	A. Cameron
Prince George	W. S. Moorehouse	R. Knox
Prince John	D. Donald	H. Milvain
Prince Rupert	H. L. Robertson	D. H. Cochrane

Grand Trunk Ry. Detroit River Car Ferries, Windsor, Ont.

Great Western	O. Lalonde	W. Belsom Jr.
Huron	A. Baillargeon	A. Cook
Lansdowne	M. Bausette	W. Belsom

Great Lakes Transportation Co., Midland, Ont.

Glenbrae	B. Garvie	R. Knight
Glencairn	M. Stalker	J. Gilpin
Glenfinnan	W. Taylor	J. Silverthorne
Glenisla	J. Tindall	P. Eagles
Glenlivet	C. Scott	J. A. McChristie
Glenlyon	A. A. Hudson	D. Sinclair
Glenorchy	F. Burke	G. Price
Glenshee	W. A. Lavigne	F. Goodwin
Glenstriven	J. A. Brown	E. Hurl

George Hall Coal Co. of Canada Ltd., Montreal.

Florence	V. Gendron	S. Legendre
J. F. Morrow	R. Chatel	H. Lamoureaux
J. H. Hackett	W. Allison	J. Desrocher
James W. Follett	W. Liddell	M. J. McFaul
John B. Ketchum 2nd	W. J. Jenitt	U. Hamelin
John Rugee	W. Mills	O. E. Thurston
Lehigh	W. H. Ransom	F. A. Collier
Margaret Hackett	M. Allison	T. Assaunt
Rockferry	C. A. Mahoney	A. Carrier
Senator Derbyshire	E. A. Groulx	A. Croteau

Halifax & Canso Steamship Co., Halifax, N.S.

Scotia	P. Cooper	A. Innes

Hugh Cann & Sons, Yarmouth, N.S.

Bruce Cann	I. A. Banks	H. L. Goodwin
Keith Cann	A. L. McKinnon	J. B. Greig
LaTour	F. E. Smith	J. Nixon
Mary H. Cann	E. F. Peters	M. Wyman
Percy Cann	I. A. Banks	F. Hitchen
Robert G. Cann	W. E. Morris	B. A. Lumsden
Wanda	W. Brush	H. L. Goodwin

Imperial Oil Ltd., Toronto.

Imperial	G. Mackay	E. Brisbin
Imperoyal	D. Sutherland	J. Beedle
Impoco	W. A. Smeltzer	A. McLaren
Iocolite	R. Laing	H. R. Welch
Iocoma	H. C. Minns	F. Pringle
Royalite	A. Geddes	R. Ritchie
Sarnolite	C. R. Treweek	J. P. Davidson
Talaralite	F. F. Foote	D. J. Dow

Keenan Towing Co., Owen Sound, Ont.

Keenan	—. Hindman	— Clendenning

Keystone Transports, Ltd., Montreal.

Keybell	L. Beaupre	R. J. Muchmore
Keynor	W. V. Smith	J. Robertson
Keyport	G. Bunting	L. Nordnes
Keyvive	E. Smith	G. Baker
Keywest	D. Whitley	A. Horton

Kingsley Navigation Co., Vancouver, B.C.

E. D. Kingsley	M. Udall	J. Price

Kingston Navigation Co., Kingston, Ont.

St. Lawrence	W. Bloomfield	D. Leslie

Leonard Steam Trawlers, Ltd., Montreal.

Baleine	K. Kristiansen	A. G. Beatty
Maynie V.	J. Luckeman	.....

La Have Steamship Co., West La Have, N S.

Tussle	G. D. Pentz	H. Oakes

Lake Erie Navigation Co., Walkerville, Ont.

Marquette and Bessemer No. 1	J. A. Patterson	H. L. Culp

Maritime Steamship Co., Blacks Harbor, N.B.

Connors Bros.	E. H. Warnock	G. Comie
Harbinger	P. Drew	C. Haines

Marquette & Bessemer Dock & Navigation Co., Walkerville, Ont.

Marquette and Bessemer No. 2	J. A. Van Buskirk	J. Stevens

Monarch Towing & Trading Co., New Westminster, B.C.

Burrard	A. Carmichael	H. Preston
Flyer	M. Ingalls	J. Gibson
Protective	H. A. Young	F. Larson

Mathews Steamship Co., Toronto.		
Cicoa	P. McIntyre	J. K. De Mille
Clinton	D. A. Kennedy	J. N. Maxwell
Easton	J. Woolner	S. Murray
Glenafton	N. Scott	E. Scott
Glencadam	W. McLean	F. Brickenden
Glenclova	G. Henebury	M. Manner
Huronton	W. Beatty	F. Lancaster
Laketon	C. R. Albinson	J. Y. Myler
Malton	J. A. Smith	J. H. Robinson
Riverton	W. J. Moles	D. McKenzie
Yorkton	W. J. Kirkwood	G. Jarrell
North Vancouver Municipal Ferries, North Vancouver, B.C.		
North Vancouver No. 2	R. R. Spicer W. Fatke	D. Becker
North Vancouver No. 3	W. J. Spracklin I. B. King	W. McLaren
Northern Navigation Co., Sarnia, Ont.		
Hamonic	H. J. Aiken	J. W. McLeod
Huronic	W. Montgomery	H. H. Moore
Noronic	A. M. Wright	S. Brisbin
Thousand Islander	F. G. Moles	.....
Northern Trading Co., Edmonton, Alta.		
Northland Echo	L. R. Morton	D. McKenzie
Northland Trader	C. E. Davis	.....
Nova Scotia Steel & Coal Co., New Glasgow, N.S.		
Volunda	J. Meikle	J. Somers
Watuka	J. Ritcey	D. A. Cameron
Ontario Car Ferry Co., Montreal.		
Ontario No. 1	S. McCaig	D. S. Smyth
Ontario No. 2	F. D. Forrest	J. A. Nicoll
Pacific Salvage Co., Victoria, B.C.		
Alaskan	J. McLeod	G. Wilson
Algerine	J. M. Hewiston	T. W. Allan
Richmond Steamship Co., Sydney, N.S.		
Aspy	—. Yorke	P. Shrump
Bras d'Or	D. M. McDonald	R. L. Riley
Richmond	T. Boudrot	J. McDonald
Pembroke Transportation Co., Pembroke, Ont.		
Oiseau	—. Tessier	J. Trottier
Peninsula Tug & Towing Co., Wiarton, Ont.		
Crawford	F. Wood	W. C. Fox
Pennsylvania-Ontario Transportation Co., Cleveland, Ohio.		
Ashtabula	C. F. Myers	S. M. Sylvester
Port Huron & Sarnia Ferry Co., Port Huron, Mich.		
City of Cheboygan	G. Waugh	D. B. Smith
Hiawatha	E. M. Thomas	H. Myers
Omar D. Conger	W. S. Major	R. A. Campbell
Prescott & Ogdensburg Ferry Co., Prescott, Ont.		
Ferdinand	S. J. Delaney	W. J. Jento
Miss Vandenburg	A. Black	F. Lavery
Quadra Steamship Co., Britannia Beach, B.C.		
Quadra	M. F. Butler	.....
Ross Navigation Co., Pas, Man.		
Nipawin	H. H. Ross	W. Venables
Royal Mail Steam Packet Co., Halifax, N.S.		
Caraquet	C. Adam, R.D., R.N.R.	C. Kernan
Chaleur	T. A. Hill	W. J. Mitchell
Chaudiere	B. Shillitoe, R.D., R.N.R.	M. McCaul
Chignecto	W. H. Parker, C.B.E., R.N.R.	C. Hull
J. F. Sowards, Kingston, Ont.		
Jeddah	J. Doyle	G. Lamoreaux
Jeska	J. Kirkwood	.....
Jex	M. Shaw	W. McCote
Shanly	J. F. Sowards	P. Clarks
Sparrow Lake Steamer Line, Sparrow Lake, Ont.		
Glympse	F. Stanton	G. T. Stanton
John Tackaberry, Lionshead, Ont.		
Henry Pedwell	N. McKay	G. Webster
Three Rivers Ferry, Three Rivers, Que.		
Le Progres	H. Duval	A. Franett
Timagami Fur Co., Timagami, Ont.		
Keego	E. T. Guppy	D. L. Stover
Union Steamship Co. of B.C., Vancouver, B.C.		
Camousun	A. E. Dickson	A. Beattie
Capilano	N. Gray	P. J. V. Farina
Cassiar	J. Boden	N. Tweedie
Chasina	E. Georgeson	J. Maitland
Cheakamus	R. Wilson	R. Logan
Cheam	F. W. Gilbert	.....
Chelohsin	H. Stacey	G. H. Foster
Chilco	J. E. Laurey	J. Rogers
Chilkoot	J. Findlay	J. Hogan
Chilliwack	C. B. Smith	E. Edgaar
Coquitlan	A. Johnstone	.....
Cowichan	G. Gaisford	L. P. Thomas
Venture	J. E. Nowell	C. Arthur
Valley Steamship Co., Annapolis Royal, N.S.		
Granville III	B. S. Collins	H. Logan
Ville Marie Navigation Co., Ville Marie, Que.		
Bobs	R. Kelly	A. Adams
Meteor	H. A. Kelly	J. E. Sauvageau
Silverland	A. Kelly	B. Sauvageau
Temiscaminguc	McC. Burns	E. Vezina
R. G. Weddell, Trenton, Ont.		
Aurelia	M. Palmeteer	J. Couture
Katie Brainard	G. Lalonc	.....
M. Sicken	B. Bowen	W. B. Clark
White and Friant	M. Gamlin	.....
West Coast Towing & Salvaging Co., Vancouver, B.C.		
Masset	J. Barberie	W. J. Muir
Moresby	H. S. McLellan	A. Gill
Western Transport Co., Nanaimo, B.C.		
We Two	D. Martin	D. D. Mackie
Windsor & Pelee Island Navigation Co., Windsor, Ont.		
Pelee	J. N. Sheats	J. R. Ferguson

Vancouver Harbor and Marine Matters.

From a Correspondent.

The Harbor Commissioners are considering the construction of lumber assembly and coal handling wharves, and it is expected that a decision will be arrived at very soon.

The C.P.R. has completed the dredging and filling for its new pier B.C. The fill is 800 ft. long, the filling exceeding 1,000,000 su. yd. The design for the pier has not yet been decided upon, and its construction will not be proceeded with at present.

At the Ballantyne pier, which is being built by the Harbor Commissioners, the shore quay fill has been completed, and the dredging and filling for the pier are about 50% completed. The material consists of soft sandstone, with occasional pockets of conglomerate.

Construction of the Harbor Commissioners' terminal railway, on Burrard Inlet, has not been begun, as details in connection with the Board of Railway Commissioners' order 30,430 have not been completely agreed upon, between the Commissioners and the Canadian Pacific and Great Northern Railways.

The Harbor Commissioners received tenders to March 5 for dredging, filling, bulk heading, pile driving and other steel construction for a car ferry terminal on the foreshore of Mission No. 1 Indian Reserve, North Vancouver, and also for an eight car ferry or timber float. It is hoped that, eventually, North Vancouver will have the same through freight rates as the south shore of Burrard Inlet has.

The Canadian National Rys. are filling in behind the concrete wharf construction at Main St., in accordance with the agreement with the city. The China Creek drainage water is being carried under Main St., and through the wharf, by the construction of a large concrete conduit, the foundation of which is being piled. The Pacific Construction Co. has the contract.

The Harbor Commissioners propose to extend Gore Ave. wharf, for the use of the local tug boat fleet, the Commissioners to bear all the cost. The city has not yet been able to arrange for this, with the tenants, who lease a certain amount of wharf space. The accommodation is badly needed, as Heatley Ave. wharf, now used by the Ballantyne pier contractors is not available.

C.P.O.S. Cabin Class Steamships.—It is announced that the third of the cabin class steamships being built for Canadian Pacific Ocean Services will be named Montclare, instead of Metapedia, as intended originally. Of these three, two, Montcalm and Montrose, the latter of which was intended originally to be named Montmorency, have been launched, the Montcalm by John Brown & Co., and the Montrose by Fairfield Shipbuilding & Engineering Co. The Montclare is being built by John Brown & Co., and it is hoped to launch her about July, if there are no further labor troubles. The three ships referred to are to supplement the service of similar ones in the C.P.O.S. trans-Atlantic service.

Canal Estimates for 1921-1922.

The Railways and Canals Department estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items:—

Chargeable to Capital, $5,339,000.	
Welland Ship Canal, construction	$5,000,000
Trent Canal, construction and betterments	339,000
Chargeable to Income, $833,500.	
Chambly, improvements	$26,000
Carillon and Grenville, improvements	25,000
Lachine, improvements	50,000
Soulanges, improvements	9,500
Quebec dredging fleet, new tug	25,000
St. Anne's lock, improvements	3,500
St. Ours lock, improvements	4,500
Trent, improvements	515,000
Trent, to rebuild wharf at Lindsay	10,000
Welland, improvements	165,000

Chargeable to Collection of Revenue Staff and repairs, $2,270,000.

St. Lawrence Channel Dredges and Tugs.

The following questions were asked in the House of Commons March 4, by P. J. A. Cardin, M.P. for Richelieu, Que., the answers being given by the Minister of Marine.

Q. "Is it the Government's intention to make necessary repairs during this winter to the dredges and tugs of the fleet organized for the dredging of the St. Lawrence Channels?" A. "Yes, to the equipment required for this season's operations."

Q. "Is the Government aware that several ships of this fleet have suffered serious damage, for a number of years, through lack of necessary maintenance and repairs, and that any delay in the carrying on of said repair works impairs all the more the value of said ships?" A. "The Government is aware of the usual deterioration which is consequent on the ships being tied up."

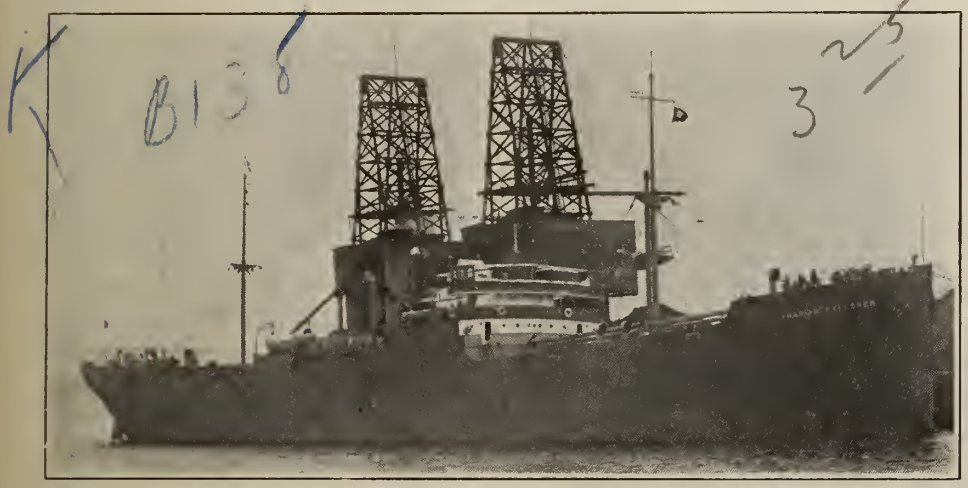
Q. "Is the Government aware that a certain number of said ships are practically discarded or abandoned along the shore on the St. Lawrence, in the vicinity of Sorel, and that they are liable to complete destruction?" A. "No ship of the channel fleet has been discarded or abandoned."

Canada Steamship Lines' Prospects.—J. W. Norcross, President and Managing Director, who returned to Canada, Mar. 21, after a business visit to Great Britain, is reported to have stated that he had been successful in arranging considerable shipping contracts, and that financial arrangements were being completed which would further improve the company's position. The bulk of the company's profits are derived from inland traffic rates, which are not affected by the depression in ocean rates. Among the agreements concluded, one is stated to be with Scandinavian interests for a freight and passenger service between Canadian and Scandinavian ports, and it is also stated that the company will extend its service to other European ports.

Atlantic Ship Chandlery Ltd. has been incorporated under the New Brunswick Companies Act, with $24,000 authorized capital and office at St. John, N.B., to carry on a general ship chandlery business, and in connection therewith to own and operate ships and carry on a general importing and navigation business. The incorporators are F. A. McFadzen, J. U. Seely and R. A. Jamieson, St. John, N.B.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Dates of Laying Keels.—In the table published in Canadian Railway and Marine World monthly, headed "Orders for Steel Cargo Steamships, Canadian Government Merchant Marine Ltd.," and which appears in this issue on page 222, giving details of steel cargo steamships ordered for Canadian Government Merchant Marine, we have published for some months the dates for the laying of three keels by J. Coughlan & Sons Ltd., Vancouver, B.C., as follows:—Canadian Importer, Marine Department contract 34, builder's yard no. 11, deadweight tonnage, 8,391, April 26, 1919; Canadian Exporter, Marine Department contract 35, builder's yard no. 12, deadweight tonnage 8,380, May 3, 1919; Canadian Inventor, Marine Department contract 36, builder's yard no. 13, deadweight tonnage, 8,350, July 24, 1919. These dates were given us in letters from the company's then Secretary, but we are now informed by the President that they are incorrect, and that the keels were actually laid as follows:—Canadian Importer, July 25, 1919; Canadian Exporter, Aug. 8, 1919; and Canadian Inventor, Aug. 19, 1919.



Steel Cargo Steamship Canadian Explorer, approximately 8,390 d.w. tons, built for Canadian Government Merchant Marine, by Halifax Shipyards Ltd.

Launchings of Steamships. — We have been advised of the launching of the following steel cargo steamships for Canadian Government Merchant Marine, in addition to those mentioned in previous issues:—

March 17, s.s. Canadian Skirmisher, Marine Department contract 56, builder's yard no. 104, approximately 8,390 d.w. tons, Wallace Shipbuilding & Drydock Co., Vancouver, B.C.

March 24, s.s. Canadian Coaster, Marine Department contract 58, builder's yard no. 16, approximately 3,890 d.w. tons, Collingwood Shipbuilding Co., Kingston, Ont.

Deliveries of Steamships.—In addition to the steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation:—

Feb. 24, s.s. Canadian Explorer, Marine Department contract 22, builder's yard no. 2, approximately 8,390 d.w. tons, Halifax Shipyards Ltd., Halifax, N.S. She sailed March 10 for Galveston, Texas, to load a full cargo of grain for Greece. It is reported that she is on charter and that. for a time at least, she will not be assigned to any of the existing C.G.M.M. routes.

Feb. 26, s.s. Canadian Forester, Marine Department contract 16, builder's yard no. 8, approximately 5,100 d.w. tons. This ship was built by Tidewater Shipbuilders Ltd. at Three Rivers, Que., with the exception of the interior fittings for passenger accommodation, etc., which were put in by Halifax Shipyards Ltd. at Halifax, N.S. She is the second of the ships with passenger accommodation to be delivered. She sailed from Halifax, March 2, with a full passenger list and cargo, for Nassau, Bahamas; Kingston, Jamaica; and Belize, British Honduras, and return.

Deadweights of Steamships.—The following table shows the approximate weights mentioned in the contracts for the steel cargo steamships referred to, which have been built for Canadian Government Merchant Marine, and the finally ascertained deadweights, as settled between the Marine Department and the builders:—

Contract	Ship	Deadweights. Approximate.	Ascertained
17	Canadian Trapper	4,992	5,054.45
29	Canadian Winner	8,390	8,407.20
37	Canadian Prospector	8,350	8,367.00
57	Canadian Rover	3,890	3,919.75
59	Canadian Sapper	2,800	2,781.00

Officers of Steamships.—In addition to the officers of steamships, whose appointments have been mentioned in previous issues, the following captains and chief engineers have been appointed:—Canadian Explorer, Capt. W. Wyman, heretofore on s.s. Canadian Runner; chief engineer, J. McMillan; Canadian Fisher, Capt. F. Ferguson, heretofore on s.s. Canadian Planter, vice Capt. J. T. Randell; Canadian Forester, Capt. T. R. Coffin,; Canadian Gunner, Capt. J. B. Millns, vice Capt. C. Wallace, transferred to s.s. Canadian Runner; Canadian Importer, Capt. C. R. Bissett, heretofore on s.s. Canadian Volunteer, vice Capt. A. O. Cooper, chief engineer, F. C. Brown; Canadian Navigator, Capt. R. V. Bennett, heretofore on s.s. Canadian Trader, vice Capt. W. H. Millar, transferred to Canadian Planter; Canadian Planter, Capt. W. H. Millar, heretofore on s.s. Canadian Navigator, vice Capt. F. Ferguson, transferred to s.s. Canadian Fisher; Canadian Runner, Capt. C. Wallace, heretofore on s.s. Canadian Gunner, vice Capt. W. Wyman, transferred to s.s. Canadian Explorer; Canadian Sapper, chief engineer, A. Brown; Canadian Settler, chief engineer, Wm. McNicol; Canadian Sower, Capt. E. E. Manning, vice Capt. F. Nelson; Canadian Squatter, Capt. G. B. Leonard, vice Capt. C. L. Hunter; Canadian Trader, Capt. G. W. McIlroy, vice Capt. R. V. Bennett, transferred to s.s. Canadian Navigator; Canadian Traveller, Capt. E. S. Wilson; Canadian Volunteer, Capt. J. E. Roop, vice Capt. C. R. Bissett, transferred to s.s. Canadian Importer; Canadian Warrior, chief engineer, L. C. Lamoureux.

Home Ports of Ships.—The Halifax Board of Trade has, in response to a protest, been informed by the Minister of Marine, that all Canadian Government Merchant Marine ships will be registered at Montreal, irrespective of the place at which they are built, thus following the procedure of shipowners in general. He points out that the port of registry is largely a matter of convenience, and it would be highly inconvenient, for a company, with its head office in one place, to have to register ships at various ports between Halifax, N.S., and Victoria, B.C.

Ships in Service.—The Minister of Railways gave the following information in the House of Commons, March 4, in answer to questions by T. Vien, M.P. for Lotbiniere, Que.:—The Canadian Government Merchant Marine now has 48 steamships in service, sailing between Canada and United Kingdom, West Indies, South America, British India Australia and Newfoundland, on regular routes. They are managed by the directors of Canadian Government Merchant Marine Ltd., all of whom are directors of Canadian National Rys., and the ships are operated in conjunction therewith.

Service from the Atlantic to the Pacific.—The s.s. Canadian Carrier sailed from Halifax, N.S., March 4, for Vancouver, B.C., on a special trip, and it is said that similar trips will probably be made as occasion offers. The Carrier arrived at Baltimore, Md., March 12, and left there March 18, for the Panama Canal. After passing through the canal, she will run down the west coast of South America to Callao, Peru, and from thence proceed direct to Vancouver, B.C.

Sailings of Steamships.—The following dates have been announced:—

Atlantic Service.

London service, from St. John, N.B., Canadian Aviator, Apr. 14.

Liverpool service, from St. John, N.B., Canadian Hunter, Apr. 15.

Glasgow service, from Halifax, N.S., Canadian Rover, Apr. 9.

Cardiff and Swansea service, from St. John, N.B., Canadian Aviator, Apr. 14.

St. John's, Nfld., service, from Halifax, N.S., Canadian Sapper, Apr. 7.

Havana, Cuba, service, from Halifax, N.S., Canadian Miner, Apr. 9.

Barbados, Trinidad and Demerara service, from Halifax, N.S., Canadian Gunner, Apr. 6.

Nassau, Kingston and Belize service, from Halifax, N.S., Canadian Forester, Apr. 13.

Rio de Janeiro, Santos, Montevideo and Buenos Aires service, from Halifax, N.S., Canadian Volunteer, Apr. 20.

Pacific Sailings, from Vancouver, B.C.

To Auckland, Wellington and Lyttleton, Canadian Winner, Apr. 15.

To Sydney and Melbourne, Canadian Highlander, May 15.

To Auckland, Wellington and Lyttleton, Canadian Exporter, June 15.

To Singapore and Calcutta, Canadian Inventor, May 10.

To Kobe, Taku Bar and Shanghai, Canadian Importer, May 15.

General Carrying Trade.—A London, Eng., copyright cable of March 16, to the Montreal Gazette, says:—The Canadian Government Merchant Marine ships

which were built to develop Canadian trade have been forced to enter into the general carrying trade of the world as a result of the commercial depression. Wm. Phillips, the European Manager, said to-day that the vessels were being sent from British to Scandinavian ports, and also to Holland and Germany, with a view to keeping them employed until the Canadian export trade revives. Now that the Swedish liner Buenos Aires has successfully completed a shipment of western wheat from Vancouver via the Panama canal, the Canadian Government ships will be put into this service. It is also intended to develop Canadian business with Southern Ireland through Cork, to which port Canadian Government ships have not as yet sailed, though there is a service to Belfast and Dublin.

No Sales to Norwegian Government.—W. Duff, M.P. for Lunenburg, N.S., asked in the House of Commons March 4: Has the Government been negotiating with the Norwegian Government for the sale of 35 ships of the Canadian Government Merchant Marine? What were the terms of said arrangement or negotiations? What has been the result of said negotiations? The Minister of Railways replied: I have not the answer with me, but I may reply at once "No." to each one of the questions.

Steel Cargo and Passenger Steamship, Canadian Forester, approximately 5,100 d.w. tons, built for Canadian Government Merchant Marine by Tidewater Shipbuilders Ltd.

Work on Steamships at Montreal.—W. Duff, M.P. for Lunenburg, asked in the House of Commons recently:—"What are the names of Canadian Government Merchant Marine ships which entered at the port of Montreal since May 1918? On which of them was work performed by Hall Engineering Co., of Montreal? What is the total amount paid the Hall Engineering Co. for work on the ships? Was the work performed after tenders were asked for and contracts granted, or was the company allowed to charge its own rates? What other engineering firms, if any, made repairs and performed work on Canadian Government Merchant Marine ships, and what amounts were paid each such firm?" The Minister of Railways replied:—"From Customs reports, the following Canadian Government Merchant Marine ships entered at Montreal since May 1918: Canadian Adventurer, Canadian Aviator, Canadian Beaver, Canadian Carrier, Canadian Conqueror, Canadian Farmer, Canadian Gunner, Canadian Miller, Canadian Miner, Canadian Navigator, Canadian Observer, Canadian Otter, Canadian Pioneer, Canadian Planter, Canadian Railder, Canadian Rancher, Canadian Ranger, Canadian Recruit, Canadian Rover, Canadian Runner, Canadian Sailor, Canadian Sealer, Canadian Seigneur, Canadian Settler, Canadian Signaller, Canadian Sower, Canadian Spinner, Canadian Squatter, Canadian Trader, Canadian Trapper, Canadian Trooper, Canadian Victor, Canadian Volunteer, Canadian Voyageur, Canadian Warrior, Thos. J. Drummond, J .A. McKee. No reports are filed at Ottawa as to work performed on Government steamships, as these are matters in connection with operation and under the board of management of the Canadian Government Merchant Marine, who are responsible for all matters in connection with operation."

Salvaging s.s. Canadian Recruit.—W. Duff, M.P. for Lunenburg, N.S., asked the following questions in the House of Commons recently, the answers being given by the Minister of Marine:—

Q. "What was the total cost of floating, repairing, and making ready for sea, the Canadian Government steamship Canadian Recruit?" A. "Approximately $545,000."

Q. "What was the amount of insurance on the ship?" A. "Annual premium $4,497.19 and £5,824 7s. 6d.; total paid, currency, $30,034.07."

Q. "What was her value as appeared in the insurance policies?" A. "Hull insured value $578,571; disbursements, etc., $231,429; total insurance on ship, $810,000."

Q. "What is the amount which the marine adjusters found that the marine underwriters should pay toward the floating, repairs, etc.?" A. "Adjustment is not yet complete, but on approximate cost of sea voyages, repairs, etc., the insurance payable by underwriters would be approximately $540,000."

Q. "What amount of the adjustment has been paid by or collected from the marine insurance companies?" A. "$350,-023.79."

The s.s. Canadian Signaller arrived at Boston, Mass., towards the end of February from Fowey, Eng., about a week overdue, having encountered very severe storms on the Atlantic. A press telegram states that all food on board had been used and the coal supply practically exhausted. During the final days of the voyage navigation was carried out on dead reckoning, and it was only on the day before arriving at Boston that she knew her exact position, having been acquainted with it by radiotelegraph. While about half way across the Atlantic her engines broke down, but repairs were undertaken and she proceeded to complete her voyage without assistance.

Canadian Sapper.—J. H. Sinclair, M.P. for Antigonish and Guysborough, N.S., asked the following questions in the House of Commons recently, the answers being given by the Minister of Marine:

Q. "Did the s.s. Canadian Sapper arrive in Halifax from St. John's, Nfld., on or about Jan. 22, 1921?" A. "Customs at Halifax reports the arrival of Canadian Sapper at that port on or about Jan. 22, 1921."

Q. "What is her d.w. tonnage?" A. "Approximately 2,800 tons."

Q. "How many tons of cargo did she carry on the trip in question from St. John's to Halifax?" A. "The board of management of Canadian Government Merchant Marine has made no report respecting the cargo carried."

Q. "How many tons of coal a day does this ship consume?" A. "About 18 tons."

Q. "What rate of wages was paid to the able bodied seamen on this ship during the sail voyage?" A. "No information in the Department, the matter being one entirely under the direction of the board of management."

Collingwood Shipbuilding Co., Kingston, Ont., launched the steel cargo steamship Canadian Coaster, Marine Department contract 58, builder's yard no. 16, approximately 3,890 d.w. tons, for Canadian Government Merchant Marine, on March 24.

The christening was performed by Miss Kay, niece of H. C. Welch, Manager of the Kingston shipyard. The Canadian Coaster was launched in a very advanced condition, the boilers and engines having been installed and all connections made, and the cabin and other interior work being well towards completion.

J. Coughlan & Sons, Vancouver, B.C. The Minister of Marine gave the following information in the House of Commons, March 4, in answer to questions by W. Duff, M.P. for Lunenburg, N.S. The two steel steamships are being built at Vancouver for the Government, by J. Coughlan & Sons. Their deadweight tonnage will be about 8,390 tons each. The contract price is $167.50 per d.w. ton, and it will cost about $65,000 each in addition to fit them ready for sea. The contracts were entered into April 7, 1920.

J. Coughlan & Sons Ltd., which is building two steel cargo steamships, for Canadian Government Merchant Marine, viz., Canadian Transporter and Canadian Freighter, Marine Department contracts 62 and 63, builder's yard nos. 20 and 21, each approximately 8,390 d.w. tons, the keels of which were laid on Jan. 6, advised us recently that it could not then

state approximate dates for the launchings.

Halifax Shipyards Ltd., Halifax, N.S., delivered the steel cargo steamship Canadian Explorer, Marine Department contract 22, builder's yard no. 2, approximately 8,390 d.w. tons, to the Marine Department Feb. 24. She sailed March 10 for Galveston, Texas, to load a full cargo of grain for Greece.

The steel cargo steamship Canadian Forester, Marine Department contract 16, builder's yard no. 8, approximately 5,100 d.w. tons, which was built by Tidewater Shipbuilders Ltd., with the exception of the interior fittings for the passenger accommodation, which was put in by Halifax Shipyards Ltd., at Halifax, was delivered to the Marine Department, Feb. 26, and sailed from Halifax, March 2, with a full passenger list and general cargo, for Nassau, Bahamas; Kingston, Jamaica; and Belize, British Honduras, and return.

Harbour Marine Co., Victoria, B.C.—The s.s. Canadian Traveller, Marine Department contract no. 30, builder's yard no. 2, 8,390 d.w. tons, was, at the time of our last advice, expected to be handed over to Canadian Government Merchant Marine Ltd. for operation during March, and she was to load cargo at Vancouver for Calcutta and Bombay. This is the second of the two ships built by this company, the first one, s.s. Canadian Winner, Marine Department contract 29, builder's yard no. 1, approximately 8,390 d.w. tons, having been delivered Nov. 29, 1920. As stated in a previous issue, the company's plant is being dismantled.

Prince Rupert Drydock & Engineering Co.—The Minister of Marine gave the following information in the House of Commons, March 4, in answer to questions by W. Duff, M.P. for Lunenburg, N.S. Two steel ships are being built at Prince Rupert for the Government, the contract having been entered into with Prince Rupert Drydock & Engineering Co. The deadweight tonnage of each ship is approximately 8,390 tons. The contract price is $198 per d.w. ton. The contract was negotiated with the John L. Mullen Construction Co., which assigned its interests to Prince Rupert Drydock & Engineering Co. in Nov. 1918. The order in council authorizing the construction of the ships was passed Dec. 12, 1918. The contract was signed Feb. 21, 1919. The following amounts have been advanced to the contractors on progress estimates, ship 1, Canadian Reaper, $968,204.07; ship 2, Canadian Thrasher, $882,090. Wallace Shipbuilding & Drydock Co. has contracted to finish the ships, on the basis of cost of labor and material, plus 8% for profit.

The completion of the ships, when gone on with, will be done under the supervision of Henry A. Butt, overseer for the Marine Department. H. Turney will be in charge for the Wallace Shipbuilding Co., with T. Allen as hull superintendent.

Reference was made in our last issue to a Prince Rupert press dispatch which stated that Mr. Justice Murphy had delivered a judgment interpreting a clause in the agreement between the Dominion Government and the company, which gave the Government a lien, not only on the two ships in process of construction at the time of the bankruptcy, but also the shipyard's plant and equipment, and that under this judgment, W. E. Hodges, trustee in bankruptcy, would be required to return nearly $100,000 worth of material, which he had seized on behalf of the creditors, and removed to a private warehouse in Prince Rupert. What really occurred was that Mr. Justice Murphy, after hearing the application on behalf of the Dominion Government, gave his opinion that the real question for decision was to construe the contract properly and for this purpose the trustee must be regarded as standing in the shoes of the company. Admittedly there had been a breach justifying the Crown in exercising remedial measures. Although under one of the clauses of the contract the wording was that the lien was to be "for all monies paid to contractors on account of purchase price," yet the whole object of the lien was to enable the Government to take possession of the ships, yards and necessary material to finish the work. Such appeared to be the clear intent of the parties to the contract. He concluded by giving his opinion that the Dominion Government was entitled to succeed in so far as the goods set out in part of clause 15 of the agreement are concerned. The clause refers to "the hulls of the ships and materials, their engines, boilers, auxiliaries and fittings, whether such shall be on board the ships or in the building yards, and whether wrought or in the rought state, until the ships are completed and delivered."

A further dispatch stated that an order of the Court reserves to the trustee the plant, for which the Dominion Government will have to pay such rent as may be agreed on, and, it is said, that he may be able to obtain sufficient from this source to enable preferred creditors to be paid in full, the remainder to receive 60c. on the dollar.

Tidewater Shipbuilders Ltd., Three Rivers, Que.—The steel cargo steamship Canadian Forester, Marine Department contract 16, builder's yard no. 8, approximately 5,100 d.w. tons, which was built by this company at Three Rivers, with the exception of interior fittings for passenger accommodation, which were put in by Halifax Shipyards Ltd., at Halifax, N.S., was delivered there on Feb. 26 to the Marine Department, was transferred to Canadian Government Merchant Marine for operation, and sailed Mar. 2, with a full passenger list and general cargo for Nassau, Bahamas; Kingston, Jamaica; and Belize, British Honduras, and return.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—It was announced recently that a representative of the company had left North Vancouver for Ottawa, in order to sign the contract for the completion of the steel cargo steamships Canadian Reaper and Canadian Thrasher, Marine Department contracts 42 and 43, builder's yard nos. 1 and 2, ordered from the Prince Rupert Drydock & Engineering Co., and partially completed at the time of its failure. See also Prince Rupert Drydock & Engineering Co.

Wallace Drydock & Shipbuilding Co. launched the s.s. Canadian Skirmisher, Marine Department contract 56, builder's yard no. 104, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, March 17, the christening being performed by Miss Dorothy Langford, niece of F. W. Peters, General Superintendent, British Columbia District, C.P. R.

United States President Harding, in his inaugural address, on Mar. 4, urged the development of the U.S. Merchant Marine, so that it might carry all U.S. products in foreign commerce.

Esquimalt Drydock Contract.

The following questions were asked in the House of Commons March 4, by W. Duff, M.P. for Lunenburg, N.S., the answers being given by the Minister of Public Works:—

Q. "Has the Government entered into a contract to build a drydock at Victoria, B.C., and if so what is the contractor's name, and what was the amount of the tender?" A. "Tenders were invited by public advertisement on Sept. 14, 1920, due Dec. 9, 1920; and on Dec. 30, 1920, an order in council was passed accepting P. Lyall & Sons Construction Co.'s tender, at schedule prices, approximating $4,217,400, but the contract is not yet signed."

Q. "What are the names of the other persons or firms who submitted tenders, and what were the amounts of their tenders?" A. "Sir John Jackson (Canada) Ltd., tendered to construct at cost, plus a fixed sum, the estimated value of work being placed by that company at $5,021,000, and based on this the company offered to carry out the work for a fixed fee of $750,000. If completed for less than the estimate, the company to receive 50% of the saving in cost, but if the cost exceeded the above estimate 5% of the above fee to be deducted for every 10% increase in cost, but in no case was fee to be less than $400,000."

Q. "What was the amount paid for the land where the drydock will be built?" A. "About 17 acres were expropriated, and $34,000 was tendered, and refused, and the compensation to be paid will be fixed by the Exchequer Court. Two smaller parcels of 0.57 acre, for which $285, and another of 0.36 acre, for which $800 was offered."

Q. "From whom was the land purchased?" A. "The Hudson's Bay Co. owns the larger area. The Puget Sound Agricultural Co. and the Esquimalt & Nanaimo Ry. the smaller lots."

Q. "What will be the capacity of the drydock when completed?" A. "Length 1,150 ft.; width 125 ft.; depth 40 ft.

It is reported that the contractors, P. Lyall & Sons Construction Co. have ordered 7,000,000 ft. of lumber to be used in the construction of the drydock. The greater portion of this lumber will, it is stated, be 12 x 12 x 40 and 60 ft.

Ship Plates Contract Cancelled.—The Minister of Marine, in replying to a question in the House of Commons recently, said: "The Government has rescinded the contract with the Dominion Iron & Steel Co. for the supply of steel plates. The contract provided for the construction by the company of a modern 110 in. plate mill at Sydney, N.S., and for the purchase by the Government from the company of a minimum quantity of 50,000 tons of plates a year for five years."

H.M.C.S. Canada has, it is announced, been given by the Dominion Government for a training ship for the Boys' Naval Brigade, and it is stated that she will be placed on the Great Lakes, where training cruises for the different brigades will be made during the summer.

W. T. Clarke, a former lake captain, died in Toronto, March 23, aged 68. He was born at Port Hope, Ont., and after retiring from sailing, about 16 years ago, had a coal and wood business there for some years before removing to Toronto.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" " "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 23, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	.....
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	Aug. 8, 1921	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Aug. 19, 1921	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	.....	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	.....
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	.....
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,390	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	Mar. 17, 1921	.....
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,390	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,390	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	Mar. 24, 1921	.....
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,300	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	.....
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
					$79,296.80		$72,813,073.19						

General Shipbuilding Matters Throughout Canada.

B.C. Yacht & Boat Builders Ltd., Victoria, B.C.—The two 75 ft. motor patrol boats under construction by this company for the Marine Department's B.C. coast patrol service have not been completed, some changes in the specifications having been made, which necessitated a supplementary agreement, which, we were advised on March 12, had not then been signed. The first of these boats was launched Jan. 4 and the second Jan. 17. It is reported that the work remaining to be done is mainly on the superstructure and installation of fittings.

Canadian Vickers Ltd., Montreal, announces that its first launching for 1921 will take place early in May. The ship, which will be named Idefjord, will be about 6,400 d.w. tons, and is for Norwegian interests. She will be followed shortly after, by a sister ship, to be named Topdalsfjord, for similar ownership.

Montreal.—With further reference to the report as to the laying out of a shipbuilding yard on the south shore of the St. Lawrence River, near St. Lambert, Que., as mentioned in Canadian Railway and Marine World for January, it is reported that the ground has been surveyed, and that plans are being prepared for the construction of the yard and buildings, at an approximate cost of $1,000,000. The promoters are stated to have secured the co-operation of several British shipbuilding experts, conversant with Canadian conditions.

Nova Scotia Steel & Coal Co., New Glasgow, N.S.—Fire destroyed the machine and forging shops and boiler house of this company's shipbuilding plant, at the end of February, the damage being estimated at $60,000, partially covered by insurance. A large amount of construction material and machinery was lost. The company is building a yacht

Docks at Cape Town, South Africa. Canadian steamship in foreground, Table Mountain in background.

Halifax Shipyards Ltd., Halifax, N.S. Montreal press dispatch March 21.—Directors of the Dominion Steel Corporation and the Nova Scotia Steel & Coal Co. met here today to discuss the proposed amalgamation of the two companies and the Halifax Shipyards in the British Empire Steel Corporation. After the meetings of the two boards it was announced that both had approved of the contracts covering the consolidation and that special meetings of both the Steel Corporation and Scotia common shareholders would be called for April 7 next to pass upon the directors' recommendations. The basis of exchange of the common stocks of the three companies to constitute the British Empire Steel Corporation is as follows: Each fully paid ordinary or common share of the Dominion Steel Corporation will be exchangeable for $95 of fully paid 7% cumulative second preference shares and $40 fully paid common stock in the British Empire Steel Corporation. Each fully paid common share of Nova Scotia Steel & Coal Co. will be exchangeable for $90 fully paid 7% cumulative second preference shares and $40 common shares of the new corporation. Each $100 fully paid common share of Halifax Shipyards will be exchangeable for $60 7% cumulative second preference shares and $25 common stock of British Empire Steel Corporation.

to be named Sea King, which was ordered last year, and is of steel, for exploring purposes, for Baron Bliss, Bahamas, British West Indies. She will be 137 ft. between perpendiculars, with a moulded depth of 28½ ft., and will be equipped with two 250 h.p. Vickers-Peters semi-Diesel oil engines. All the auxiliaries will be electrically driven, including the anchor windlass and capstan. It is expected that she will be launched during May.

The company's report for 1920 states that during the year the company completed and delivered two steamships, Canadian Miner and Canadian Sapper, each 2,800 d.w. tons, for Canadian Government Merchant Marine, and a steamship of similar type, s.s. Volunda, which has been retained for its own business, and that at present, shipyard operations are restricted to finishing the hull of the yacht Sea King mentioned above.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—A Port Arthur paper stated recently that this company had received an order from Mathews Steamship Co., Toronto, for a large lake freight steamship. We are officially advised by the shipbuilding company that the report was incorrect.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—As mentioned in our last issue, the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Albert has undergone her annual overhaul at this plant, with the addition of some repairs necessitated by her striking an uncharted rock in Cumshewa Inlet in the autumn. The company's s.s. Prince John was docked during the first week in March for overhaul. The work in both cases has been done by Wallace Shipbuilding & Drydock Co., North Vancouver, which is operating the plant in connection with the completion of the two steel cargo steamships Canadian Reaper and Canadian Trasher, under construction there, when the Prince Rupert Drydock & Engineering Co. failed.

Smith & Rhuland, Lunenburg, N.S.—The schooner Bluenose, being built at this yard for the International schooner races off Halifax this year, was schedul ed to be launched March 26.

Sorel Government Shipyard.—The following questions were asked in the House of Commons, March 4, by P. J. A. Cardin, M.P. for Richelieu, Que., the answers being given by the Minister of Marine: Q. "Why were a number of working men in the Sorel shipyards discharged recently?" "A. On account of the lack of authorized work." Q. "Is it the Governmena's intention to have former activities resumed in the Sorel shipyards, and if so when?" A. "The spring activities are starting and men are being re-engaged gradually."

Victoria (B.C.) Ship Owners Ltd., Victoria, B.C.—A meeting of shareholders was held March 1, to consider the company's position in connection with its agreement to build four barquentines under special aid from the Dominion Government. After considerable discussion a committee of five shareholders was appointed to confer with Government representatives and go over the facts and figures showing the reason for the present condition of affairs. This action was taken on the motion that the Dominion Government be advised that the company is financially embarrassed, and calling on the directors to resign, and also requesting the Government to advance money so that the other three ships may be completed. The yards where the ships are under construction is leased by the company from Cholberg Shipyards Ltd., and covers the period required for the construction of the four ships which it was agreed to build under Dominion Government aid. Considerable difficulty has been experienced in obtaining payment for shares subscribed, the amount outstanding at present being approximately $44,000, and the company's solicitors have been instructed to take legal proceeding to obtain payment of the amounts due, of which it is stated about $30,000 is collectible. The first ship, named S. F. Tolmie, is sufficiently advanced to allow a close estimate of the cost of construction to be made, and it is stated that the cost completed will exceed the original estimate by $85,000.

The following questions were asked in the House of Commons recently, by W. Duff, M.P. for Lunenburg, N.S., the answers being given by the Finance Minister.

Q. "How many wooden ships have been built or are being built at Victoria, B.C., on which the Government has advanced or will advance money?" A. "Four."

Q. "What is the name of the company building the ships?" A. "Cholberg Shipyard."

Q. "What will be the deadweight tonnage of the ships?" A. "Calculated

deadweight cargo capacity 2,400 tons."

Q. "What amount of money has the Government advanced to the builders, and what further amount will be advanced?" A. "Advanced to date, $600,000."

Q. "Under what authority or what statute is money being paid, advanced, or loaned to the builders or owners of the ships?" A. "Appropriation Act, 1920, item 549. Supplementary estimates year ending March 31, 1921."

Q. "On what date was the arrangement between the builders or owners and the Government entered into?" A. "Agreement between owners and builders Jan. 19, 1920; agreement between owners and Government March 16, 1920."

Q. "Who are the owners of the ships?" A. "Victoria, B.C., Shipowners Ltd."

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—Work is proceeding satisfactorily on the steamship being built by Wallace Shipbuilding & Drydock Co. for the C.P.R. British Columbia Coast Service.

See also Prince Rupert Drydock & Engineering Co.

Yarrows, Ltd., Victoria, B.C.—Work was completed recently on the Canadian Government Merchant Marine's s.s. Canadian Exporter, consisting of considerable engine room repairs, and damage to hull caused by heavy weather. British Canadian Steamships' s.s. City of Vancouver has been cleaned, painted and some minor repairs carried out. The Pacific Salvage Co.'s s.s. Algerine, which was docked for repairs, and also to be equipped with oil-burning apparatus, has been completed. Repair work on the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert is proceeding rapidly. The C.P.R. British Columbia Coast Service s.s. Princess Beatrice is undergoing repairs to her bow, and bottom of her hull, after having been aground on Steep Island.

Stranding of Car Ferry Ontario No. 2.

An enquiry into the cause of the stranding of the Ontario Car Ferry Co.'s car ferry Ontario No. 2, near Cobourg, Ont., Jan. 23, while en route from Charlotte, N.Y., was held at Cobourg, March 18, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. J. B. Foote and G. D. Frewer, Toronto, as nautical assessors. After hearing the evidence, the court reprimanded the master, Capt. F. D. Forrest, for leaving the bridge in charge of an inefficient man, during a temporary absence of the second officer, but on account of his long and unblemished record his certificate was not interfered with. The certificate of first officer Kirk was suspended for three months, for failing to keep a proper lookout, for not reducing speed and for not calling the master at the allotted time, before entering fog. The court criticized the method of keeping the chief engineer's log and advised that accurate entries of essential events are necessary. The remainder of the crew were exonerated from blame.

Had to Raise the Wind.

An ex-sea captain, expostulating with his daughter, exclaimed: "This is a fine time to be coming home, after automobiling with that lubber."

"But, daddy," exclaimed his daughter, "we were becalmed. The wind died down in one of the tires and we had to wait for it to spring up again."

Dominion Marine Association's Activities.

Wm. Livingstone, President of the Lake Carriers Association, Detroit, Mich., has been elected an honorary life member of the Dominion Marine Association.

W. B. Elsworth, Marine Superintendent, Imperial Oil Ltd., Toronto, has been elected a member of the Association's executive committee, succeeding that company's former Marine Superintendent, John Wilkie, deceased.

The Association has been informed that there was no foundation for the recent report that tolls on the Dominion canals were to be re-imposed.

The question of a new bill of lading for grain continues to be a subject of friendly discussion between shippers and carriers, but the proposal for the establishment of a new bill is in abeyance.

The Association's committee on aids to navigation, consisting of the President, A. A. Wright, T. R. Enderby and W. H. Smith, has been consulting with masters of steamships of the various companies, and 82 proposals have been prepared, endorsed by the executive committee, and submitted to the Lighthouse Board.

The Association having been consulted as to the desirability of enacting legislation in Canada for the installation of radiotelegraph apparatus on all ships, in accordance with legislation in Great Britain, has, after investigation of the English statute and consideration of the Canadian statute, which applies to passenger ships only, and also in regard to the number of passengers they carry and the distance travelled from shore, recommend that the present statute covers all requirements. The Association has been advised that it will be consulted before any proposals in this connection are presented to Parliament.

The Association has sent strong protests to the Dominion Prime Minister and to other members of the Government particularly interested, with reference to the continued withdrawal of water through the Chicago Drainage Canal, and action is promised, with a view to securing adherence to the limitation placed by the U.S. Secretary of War in 1912, at 3,167 cu. ft. a second. Mr. Justice Landis, in the pending proceedings at Chicago, between the U.S. Government and the Chicago Sanitary District, delivered an informal judgment recently, granting an injunction against the withdrawal of any amount above that fixed by the War Secretary. This judgment is not yet final, and an appeal is expected. In the meantime a much larger quantity, probably more than double that allowed, is being withdrawn, with serious results in levels in the lower lakes and St. Lawrence, and great loss of carrying capacity.

Halifax Drydock Expropriation.—The Minister of Public Works gave the following information in the House of Commons, March 4, in answering questions by W. Duff, M.P. for Lunenburg, N.S.: The Government expropriated the Halifax Graving Dock Ltd. property, but did not buy or expropriate the Dartmouth Marine Railway. The Halifax Graving Dock property was taken over June 7, 1918, the price paid by the Government on Oct. 7, 1920, being $1,545,137.35, including interest, under the Exchequer Court's award. The property is leased to the Halifax Shipyards Ltd., which paid rent of $156,250 to Dec. 24, 1920.

Sales of Cruisers Niobe and Rainbow.

The following questions were asked in the House of Commons recently by W. Duff, M.P. for Lunenburg, N.S., the answers being given by the Minister of Marine:—

Q. "Has the Government disposed of or sold the naval cruisers Niobe and Rainbow? If so, when?" A. "Yes; Niobe in Oct. 1920; Rainbow in Sept. 1920."

Q. "Was the disposition or sale made after tenders were called for, or otherwise?" A. "Sale of the Niobe and Rainbow was effected as the result of tenders invited by advertisements published in the press of Canada, United States and England, and of succeeding negotiations."

Q. "What are the names of the parties who submitted offers and the respective amounts of each tender?" A. "For the Niobe—John Simon, Halifax, $20,000; J. Lipsitz Co., Chelsea, Mass., $56,000; Baker & Betcherman, Ottawa, $75,000; J. Lipsitz Co., Chelsea, Mass., $80,00; Baker & Betcherman, Ottawa, $88,000; Baker & Betcherman, Ottawa, $100,500; A. Garson & Co., St. John, $112,000; New Brunswick Rolling Mills, St. John, $130,000; New Brunswick Rolling Mills, St. John, $135,000. The offers of the New Brunswick Rolling Mills included the submarines C.C. 1 and C.C.2. The highest offer previously received for these ships was $17,000 for the two.

For the Rainbow—C. S. Sutherland, Edmonton, $5,000; Yarrows Ltd., Vancouver, $8,000; Alex. Zeeve, Seattle, Wash., $34,565; Evans, Coleman & Evans, Vancouver, $36,855; Nieder & Marcus Seattle, $67,777; Alex. Zeeve, Seattle, $35,565; Alex. Zeeve, Seattle, $40,000."

Q. "To whom were the ships transferred?" A. "Niobe, sold to New Brunswick Rolling Mills, St. John, but not yet transferred pending receipt of final payment. Rainbow, sold to Nieder & Marcus, Seattle, Wash."

Q. "Have the monies been paid to the Receiver General, and when?" A. "The first instalment of $20,000 on the sale of the Niobe and the two submarines was paid to the Receiver General on Nov. 16, 1920."

Canadian Navigators Federation. — Some details of the organization of the Canadian Navigators Federation, an amalgamation of the Canadian Merchant Service Guild, Great Lakes and British Columbia Divisions, the National Association of Masters, Mates and Pilots of America (as far as Canadian members are concerned), and the Masters, Mates and Pilots of the Atlantic Coast, were given in our last issue. At a meeting of the last named organization, at Halifax, N.S., March 15, amalgamation with the Federation was adopted, and the Atlantic Division formed. The officers are: President, Capt. Wm. Matthews; Vice President, Capt. L. A. Doyle; Secretary, Capt. W. A. Innes; Treasurer, Capt. M. T. Murphy; board of management: Capt. T. R. Coffin, representing ocean going members; Capt. P. Cooper, coastwise; Capt. T. Ormiston, towboats; Capt. J. Blois, Canadian Government marine and fishery boats, and H. Latter, pilots. Capts W. Rowe, and W. MacLeod, and Pilot W. Gorman, are trustees.

Steamboat Inspection Estimates.—The estimates for the year ending March 31, 1921, presented to the House of Commons recently, contain an item of $108,810 for steamboat inspection.

Mainly About Marine People.

Sir Mcntagu Allan, formerly of the Allan Line Steamship Co., has been appointed honorary Lieutenant-Colonel of the Royal Highlanders of Canada.

Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and of the Naval Service, was confined to his house in Montreal recently, suffering from la grippe, but was able to return to his official duties in Ottawa at the end of March.

Senator A. B. Crosby, who died at Ottawa, Ont., Mar. 10, was born at Belfast, Ireland, May 5, 1859. He was founder of A. B. Crosby & Co., shipbrokers, etc., Halifax, N.S. While serving in the House of Commons as a member for Halifax, and since his appointment to the Senate in 1917, he was chiefly concerned with the improvement of transportation facilities, by rail and water, and was a strong supporter of the Water Carriage of Goods Act.

Frank Turner Cuttle, whose appointment as Insurance Agent, Canada Steamship Lines Ltd., Montreal, was announced in our last issue, was born at Montreal, Mar. 20, 1891, and entered navigation service in 1909, since when he has been, to 1914, clerk, Montreal Transportation Co.; 1915 to 1916, accountant, same company; 1917, Superintendent, same company; 1918 and 1919, in military service overseas; 1920 to Feb. 1921, Secretary, Montreal Transportation Co., Montreal.

James Henry Edwards, whose appointment as Freight Claims Agent, Canada Steamship Lines, Montreal, was announced in our last issue, was born at Birmingham, Eng., Oct. 4, 1890, and entered Canada Steamship Lines service Feb. 1, 1915, since when he has been, to June 15, 1915, record clerk; June 16, 1915 to Apr. 30, 1916, clerk; May 1, 1916 to Nov. 15, 1918, claims investigator; Nov. 16, 1918 to Feb. 1, 1920, chief clerk, Freight Claims Department; Feb. 2, 1920 to Feb. 6, 1921, Assistant Freight Claims Agent, Montreal.

Capt. W. A. Glass, a well known pilot on the Great Lakes, died at Sarnia, Ont., recently, aged 63.

Capt. J. A. Irving, who died at Hamilton, Ont., March 3, aged 74, spent practically the whole of his life on the Great Lakes, and is said to have piloted the first boat through the present Welland Canal. He had been master of the steamships Strathcona, Macassa and Modjeska.

Lt. Col. G. H. Kirkpatrick, Chairman, Vancouver Harbor Commissioners, was in Ottawa and Montreal during March, to confer with the Minister of Marine, regarding the Ballantyne pier construction and the proposed North Vancouver car ferry, and also for dealing with other matters connected with Vancouver harbor.

Capt. Alex. McPhee, said to be the oldest mariner in the Georgian Bay district, died at Owen Sound, Ont., Mar. 1, aged 88, after a short illness. He was born at Islay, Scotland, in 1833, and went to sea at an early age. He sailed with the old s.s. Canada, out of Owen Sound, as far back as 1856, and later served on the steamships Clifton and Silver Spray, the latter being burnt over 40 years ago. He was later on the C.P.R. s.s. Algoma, when she sank off Isle Royale in 1884. He served as master on several steamships operating on the Great Lakes up to 20 years ago, when he retired from active service.

Thos. Franklin McVeigh, who has been appointed Assistant Deputy Minister of the Naval Service, Ottawa, Ont., was born there June 22, 1874. He was for five years with the Quebec, Montreal and Southern Ry. (Delaware & Hudson Co.) and for 12 years with the Canada Atlantic Ry., and the G.T.R. He entered Dominion Government service as Assistant to the Director of Stores May 31, 1912, and was appointed Director of Stores, Naval Service Department, Apr. 1, 1919, which position he held at the date of his present appointment.

J. W. Norcross, President and Managing Director, Canadian Steamship Lines Ltd., returned to Montreal, Mar. 21, after a business trip to Great Britain. While in England, he was received by the King, on his appointment as a member of the Foreign Commercial Commission, which has for its object, the rehabilitation of the world's trade.

Sir Frederick Orr-Lewis, President, Canadian Vickers Ltd., Montreal, and Lady Orr-Lewis, are occupying the Villa Beaulieu, at Cannes, France.

Joseph Nordman has been appointed Travelling Passenger Agent, White Star-Dominion Line, in charge of the company's Canadian interests in Poland, with headquarters at Danzig.

Commander A. H. Reed, R.N.R., harbor master, Vancouver, B.C., has been elected chairman of executive committee, Vancouver Branch, Navy League of Canada.

Capt. H. N. Smith, for many years in the Calvin Co.'s service, Garden Island, Ont., and latterly employed by Collingwood Shipbuilding Co., Kingston, died at Kingston recently, aged 59, after about two years illness.

Hon. E. K. Spinney, M.P. for Yarmouth and Clare, N.S., and minister without portfolio, has been elected chairman of the House of Commons' Marine and Fisheries Committee.

Capt. F. H. Spinney, a well known master mariner of Yarmouth, N.S., died at sea, on his ship Lake Leden, recently, en route to Bermuda. He was for some years in Quebec Steamship Co.'s service, but latterly had been engaged by the U. S. Shipping Board.

W. J. Stewart, Chief Hydrographer, Naval Service Department, is to be voted $1,000 for the year ending March 31, 1922, for services performed in relation to questions under consideration by the International Joint Commission, this vote being the same as the previous year.

Rene A. Wiallard, Agent, Marine Department, Montreal has been appointed Acting Superintendent of Pilots, Montreal and Quebec Division. He was born Aug. 10, 1879, received his permanent appointment in the civil service, Jan. 19, 1904, and was appointed Agent, Marine Department, Montreal, May 4, 1909. He was on active military service overseas with the French army during the war.

Dominion Government Aid for Shipbuilding.—The Finance Minister submitted in the House of Commons recently a statement showing that no endorsements had been made, to aid shipbuilders to build ships, under the provisions of the Act Respecting the Shipbuilding Industry, passed by the Dominion Parliament in 1920, and which was published in full in Canadian Railway and Marine World for Aug. 1920.

Ice Report for the Great Lakes.

The following report was issued by the U.S. Agriculture Department's Weather Bureau at Detroit, Mich., March 15:—Reports from the regular and display stations of the Weather Bureau and Canadian Meteorological Service of Canada furnish the data for the following summary of the several lakes.

Lake Ontario.—The harbors are open and there is no ice reported over the western, central or eastern portions, except at Kingston, where it is rapidly softening and breaking up. Reports from Cape Vincent and Ogdensburg indicate that the ice has run out of the St. Lawrence River at those points. Some ice is in the bays at Ogdensburg.

Lake Erie.—No ice reported in Lake Erie; the field off Erie has disappeared and the harbor is open.

Lake St. Clair and Detroit River.—Lake St. Clair is apparently free of ice and the ice stopped running down the Detroit River on March 12.

Lake Huron.—The ice in the eastern portion of the straits is broken up, and considerable of it has moved out into the lake. The reports from Parry Sound indicate that the ice is softening and has decreased to 5 in. Practically no ice is reported from Detour south to Port Huron. There is some ice in Tawas Bay, but it is breaking up rapidly and disappearing. The field reported last week at Port Huron has disappeared and St. Clair River is reported open to Lake St. Clair.

Lake Michigan.—In Green Bay, there has been no material change over the northern portion. The ice at Gladstone is 12 in. thick. and 15.5 in. at Escanaba. At Menominee, the ice is broken up. The Ann Arbor car ferry arrived March 8, having but little difficulty with the ice. Over the southern portion, the ice is rotten and unsafe. In Lake Michigan, no ice is reported along the west shore south of Chicago or east shore northward to Beaver Island. The ice fields at Charlevoix and Beaver Island have disappeared during the week. The straits are filled with packed ice, which moves about with shifting winds; the harbor ice has decreased to 8 in. thick.

Lake Superior.—No reports from Duluth or Houghton. There was no ice visible at Two Harbors. In Chequamagon Bay, the ice ranges from 10 to 15 in. thick, with no change. At Port Arthur, the ice inside the breakwater is 15 in. thick, through which the tug has no difficulty in passing. There is open water outside of Silver Islet. No ice fields are reported over the eastern portion of the lake. At Whitefish Point on March 8, there were no ice fields visible to the north or northwest, and on March 9 no ice fields in the lower bay. At Sault Ste. Marie, the ice continues 14 in. thick, with no change during the past week in the lower river.

Wireless Sets for Motor Lifeboats.—The Marconi Co. has designed a wireless set for the motor lifeboats which are being gradually installed at all the Royal National Lifeboat Institution's stations. The new set, which has a radius of about 50 miles, has been designed on very simple lines and can, it is said, be operated by a comparatively unskilled man. It has, moreover, been specially designed to work under rough weather conditions and to remain in good order even if it is only used at comparatively rare intervals.

Canadian Notices to Mariners.

British Columbia, Malaspina Strait.—The light on Cyril rock, off Grilse Point, Texada Island, has been fixed at an elevation of 15 ft.

Seaforth Channel.—The black gas and whistle buoy, in lat. n. 52, 13 min. 9 sec., long. w. 128 deg. 11 min., will be moved, without further notice, to a position off the north extreme of Dull Patch, outside the wreck of the barge Drummond, a red conical buoy being established on the old site. It will no longer be considered as a fairway buoy.

New Brunswick, Bay of Fundy.—On the re-opening of navigation, the gas and whistling buoy at Quaco Ledge will be replaced by a gas and bell buoy, the bell being rung by the action of the waves.

Bay of Fundy, St. John Harbor.—The attention of masters of all ships fitted with radiotelegraph apparatus is called to the fact that a new radiotelegraph direction finding station has been established, named St. John, N.B., Direction Finding Station. It is placed near Red Head, on the east side of the entrance to the harbor, and 1.93 miles 67 deg. 25 min. from Partridge Island lighthouse. The call sign is VAR, and the wave length, to be used in transmitting and receiving, is 800 meters.

Nova Scotia, Bay of Fundy.—The range lights near the west corner of Amherst Basin will be discontinued without further notice.

Cape Breton Island.—On or about Apr. 1, the fog bell at the lighthouse, on the west extremity of the southeast bar, Sydney harbor, will be discontinued.

Cape Breton Island.—A new edition of the chart of Sydney Harbor, no. 415 of the Canadian Hydrographic Survey, corrected to Jan. 1921, has been published. Price 15c.

North Coast, Pictou River.—On the re-opening of navigation the occulting white lights, near the outer end of the east pier, by the entrance to Stonehouse Point lock, at Trenton, will be replaced by occulting red lights.

Pictou Harbor.—During 1920, the Public Works Department dredged berths, as follows:—Burnham, Morrill & Co.'s wharf, on the west side covering an area 120 x 80 ft., to a least depth of 10 ft.; Canadian National Rys. wharf, on the west side of the east wharf, an area of 75 ft., from a point 40 ft. inside, to the outer end of the wharf, shoreward for 350 ft., to a least depth of 25 ft. The east side of the dredged area is 15 ft. west of the wharf.

South coast.—Lightship 15 has been replaced on her station on Sambro outer bank, at Halifax harbor entrance, and will be maintained there until about June 1, when she will resume her station off Heath Point, Anticosti.

South Coast, Jordan.—The fixed red light, on the breakwater, on the east side of Jordan River, will be discontinued about March 31.

West coast.—The black and white vertical striped gas and whistle buoy will be replaced on its former position in 16 fathoms, 6 miles from Pubnico lighthouse, about Apr. 1, and its characteristic will be changed to an occulting white light. The St. Johns ledge red steel conical buoy will be re-established on its former position, southwestward of the ledge.

Ontario, Lake Ontario.—The Public Works Department has dredged the channel at the entrance to, and inside the piers at, Oakville, to a depth of 14 ft. below zero of the gauge, which is 245 ft. above mean sea level at New York; the east extreme of the channel begins 2,700 ft. from the southwest corner of the east pier, the channel being 100 ft. wide, gradually narrowing to 50 ft. nearly opposite, and 25 ft. from, the lighthouse on the east pier. Between the piers, the dredged channel is 50 ft. wide, the east side of the channel being parallel to, and 25 ft. from, the east pier. From the inside end of the piers the channel is 50 ft. wide and 600 ft. long, extending northerly to the mouth of Oakville Creek.

Port Maitland.—A new back range light has been established at the angle of the west pier, 900 ft. from the front light, consisting of a fixed white electric light shown from a reflector lantern at an elevation of 75 ft., enclosed in a square steel skeleton tower surmounted by a small lantern. A fog bell has also been established on the balcony of the front range lighthouse; it is operated by electricity, and rings continuously during excessively thick weather.

St. Marys River.—About May 14, the front range light will be moved eastward of its present position, about 436 ft. 314 deg. 16 min. from the back light. The new bearing of this range will be in the same alignment as the new bearing of the Point of the Woods (U.S.) range.

Ships Registered in Canada During December, 1920.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 10 0tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. N.h.p.	Owner or Managing Owner
150273	Anyox*	Vancouver, B.C.	Winslow, Wash. 1917	193.4	39.7	19.6	1267	749	98½ Sc.	Coastwise Steamship & Barge Co., Vancouver, B.C.
150265	Canadian Highlander*	Montreal	North Vancouver, B.C. 1920	400.0	52.4	28.8	5370	3260	266 Sc.	Minister of Marine, Ottawa.
141682	Canadian Winner*	"	Victoria, B.C. 1920	399.8	52.2	28.5	5482	3375	266 Sc.	Minister of Marine, Ottawa.
141863	Cape Eternity*	"	Wyandotte, Mich. 1910	246.8	42.3	14.6	2484	1407	183 Sc.	Canada Steamship Lines Ltd., Montreal.
150266	City of Victoria*	Vancouver, B.C.	Vancouver, B.C. 1920	411.5	54.1	27.5	5699	3530	266 Sc.	British Canadian Steamships Ltd., Vancouver, B.C.
122296	David S. Winton	Prince Albert, Sask.	Pas, Man. 1920	120.0	25.2	4.3	289	147	9 Pa.	A. L. Mattes, Pas, Man.
76556	Edward Pyke	Quebec, Que.	Birkenhead, Eng. 1880	100.0	21.5	7.9	124	44	70 Sc.	Price Brothers & Co., Quebec, Que.
150271	Kelowna	Vancouver, B.C.	Okanagan Landing, 1920	89.0	19.4	8.0	96	35	27 Sc.	Canadian Pacific Ry. Co., Montreal.
138658	Volunda	Pictou, N.S.	Trenton, N.S. 1920	270.0	38.2	17.9	1789	1056	166 Sc.	Wasis Steamship Co., New Glasgow, N.S.

*Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
150243	Acadian	Halifax, N.S.	Schr.	Weymouth, N.S. 1920	111.6	27.8	10.7	238	212	R. G. Beazley, M.O., Halifax, N.S.
141614	Berquist No. 2	Victoria, B.C.	Barge.	Victoria, B.C. 1920	86.0	27.9	7.3	135	135	A. Berquist, Victoria, B.C.
150272	C.P.R. Barge No. 9	Vancouver, B.C.	"	Okanagan Landing, B.C. 1920	186.0	36.6	7.0	396	396	Canadian Pacific Ry. Co., Montreal.
141077	Ena F. Parsons	Windsor, N.S.	Schr.	Cheverie, N.S. 1920	112.4	28.6	10.1	230	221	G. M. Parsons, Cheverie, N.S.
141076	Fieldwood	"	"	Canning, N.S. 1920	154.6	33.8	13.0	483	435	H. J. Steck, M.O., Halifax, N.S.
134507	Gunn & Anderson Bros. Canso, N.S.		"	Sherbrooke, N.S. 1920	140.4	33.4	12.1	396	362	C. W. Anderson, M.O., Sherbrooke, N.S.
141696	J. H. Sinclair	Lunenburg, N.S.	"	Chester Basin, N.S. 1920	124.0	26.6	11.0	170	114	W. Duff, M.O., Lunenburg, N.S.
141577	Lucy R.	Weymouth, N.S.	"	Church Point, N.S. 1920	96.5	23.3	8.9	128	104	J. F. Rood, Halifax, N.S.
134506	Mable E. Gunn	Canso, N.S.	"	Sherbrooke, N.S. 1919	142.0	33.5	11.5	420	367	C. W. Anderson, M.O., Sherbrooke, N.S.
141697	MacLean Clan	Lunenburg, N.S.	"	Mahone Bay, N.S. 1920	125.2	27.6	11.4	283	239	H. W. Adams, M.O., Lunenburg, N.S.
138657	Mary F. Anderson	Pictou, N.S.	"	River John, N.B. 1920	139.3	34.0	11.5	443	418	C. W. Anderson, M.O., Sherbrooke, N.S.
150292	P.W.D. Dredge No. 4	Sydney, N.S.	Dredge.	Ottawa, Ont. 1911	91.4	34.2	7.5	396	396	Minister of Public Works, Ottawa.
141798	S. L. C. No. 3	New Westminster	Barge.	New Westminster, B.C. 1920	82.2	29.1	7.3	155	155	Straits Lumber Co., Red Gap, B.C.

St. Marys River.—As a result of dredging carried on by the Public Works Department in 1919, and 1920, the Canadian side of St. Marys River, in front of Sault Ste. Marie, south of a line connecting the outer ends of the wharves, from the Algoma Central & Hudson Bay Ry. coal wharf, to the Government wharf, easterly to its intersection with the west side of Church St. produced southerly into the river, and thence southeasterly to the west end of Bayfield shoal, is now clear of all obstructions to a depth of 21.5 ft. below the elevation 582.57 ft. above mean sea level at New York, with the exception of a small shoal spot 300 ft. from the southwest corner of Government wharf, which has a depth of 21 ft. below the same elevation, and which is 1 ft. below the lower sill of the Canadian lock. The depth of the U.S. channel in this locality is 2.4 ft. below the lower sill of the Canadian lock.

Quebec, Gulf of St. Lawrence.—On the re-opening of navigation, the black steel buoy on the edge of the shoal, 600 ft. off the wharf at the mouth of the St. Anne des Monts River, will be replaced by a red wooden spar buoy.

Lake St. Francis, St. Anicet.—About May 1, the fixed white light, on the bar, on the south side of the channel, will be replaced by an occulting white acetylene gas light. This light will be unwatched, and the fog horn will be discontinued.

River St. Lawrence, Escoumains.—Owing to the total destruction, by storms, of the Government wharf, the light and fog horn, on the west side of the entrance to the bay, have been discontinued. On the reopening of navigation, a red wooden spar buoy will be established ,immediately south of the ruined wharf.

United States, St. Marys River.—Light 6, on the east side of the West Neebish channel, has been re-established, in 3 ft. of water, off Moon Island, and the gas buoy has been discontinued.

Montreal Dock Accommodation.—It is stated that all the dock accommodation at Montreal has been leased for this year. Sheds 18 and 19, at Victoria pier, which were completed last year, have been leased to Canada Steamship Lines, and sheds 16 and 17 will be used by Furness Withy & Co. and Manchester Liners. Shed 19, the last to be completed, is 900 x 100 ft., 2 stories high, with a floor load on the first story of 600 lb. per sq. ft. and with a flat roof for cargo and other purposes, this having a floor load of 250 lb. a sq. ft. Shed 44 will be used by Hudson's Bay Co., shed 45 by Elder Dempster & Co., shed 46 by New Zealand Shipping Co., and shed 47 by Ellerman & Bucknall Steamship Lines for their Indian and Java service. Other sheds will be occupied as heretofore by Robert Reford Co., for the Cunard, Anchor-Donaldson and Cairn Lines; by the White Star-Dominion Line; Canadian Pacific Ocean Services; Canadian Government Merchant Marine; and McLean Kennedy & Co. for Head & Houston Lines.

Kirkwood Steamship Co., and Patrol Boats.—J. Archambault, M.P. for Chambly and Vercheres, Que., asked in the House of Commons recently, whether the Government had sold any patrol boats to the Kirkwood Steamship Co., if so, how many, and at what prices, whether the sale was advertised, and in what manner, and what was the price paid by the Government for the boats? The Finance Minister, Sir Henry Drayton, replied that the Government had not sold any patrol boats to the company.

Reconditioning the White Star-Dominion Line s.s. Regina.

The large triple screw 16,600 ton s.s. Regina, for the White Star-Dominion Line Canadian service, is in the hands of the builders, Harland & Wolff, Ltd., of Belfast, Ireland, for reconditioning. The original intention was that she should be the pioneer of a new class of passenger ship, but the need which existed when she was approaching completion during the war, for cargo carrying tonnage, was such that she was immediately equipped for carrying large numbers of troops and stores, and having satisfactorily accomplished this work for the Government she has now been returned to her builders to be completed in accordance with the original design.

The alterations and additions involved are considerable. All temporary cabins used for housing the troops have been removed, public rooms and extensive promenades have been substituted, and she is to emerge a splendid specimen of the "cabin and third class" type. She will have accommodation for 2,300 passengers, 600 cabin and 1,700 third class. For cabin passengers there will be a large dining saloon extending the whole width of the middle deck, a smoking room and a decorated reading and writing room, whose furnishings and embellishments will be in perfect harmony with the present tendency toward simplicity and dignity of design. The third class appointments will include three commodious dining saloons, a general room, a smoking room, and a barber's shop. The idea has been to embody different color schemes for the several public rooms, yet to preserve a harmonic whole.

Hudson's Bay Co.'s Water Transport in Mackenzie River District.

It was reported recently from Vancouver that 11 boats, ranging in size from gasoline launches to stern wheelers over 200 ft. long, would be built in Vancouver this year for the Hudson's Bay Co., for operation on the Mackenzie River route. The company's Fur Trade Commissioner states that the construction of a river steamboat to replace the one now in use is unavoidably delayed, but that two gasoline tugs and three freight barges will be ready for this year's trade, and it is expected that these auxiliaries to the company's fleet will take care of its requirements, and such outside freight and passenger traffic as it has previously been in the habit of carrying. The company's improvements to its transport system in the Mackenzie district, as in others, are for the purpose of its own trade requirements, and not due to any outside influence, and therefore it wishes to warn travellers and prospectors, who contemplate using the company's transport to the Norman oil fields, that it cannot guarantee to carry passengers or freight, unless previously accepted by the company's transport department at Edmonton.

Canadian Pacific Ocean Services Traffic Agency.

The Liverpool Journal of Commerce stated recently that the Canadian Pacific Ocean Services Ltd. had announced that it had appointed the Canadian Pacific Ry. as its sole traffic manager and that as soon as the necessary arrangements could be completed the C.P.R. would take over the C.P.O.S. traffic organization.

Canadian Railway and Marine World is officially advised that the C.P.R. has been appointed Traffic Agent, not Traffic Manager, for the C.P.O.S., and will secure both freight and passenger business for its ships, the arrangement covering Canada as well as abroad.

G. M. Bosworth, Chairman, C.P.O.S., issued the following circular March 15: "This company has appointed the Canadian Pacific Ry. Co. its Traffic Agents, effective April 1."

We are officially advised that all the C.P.O.S. officials and staffs, in its freight and passenger departments, will be absorbed by the C.P.R., except C. E. Benjamin, Passenger Traffic Manager, and W. T. Marlow, General Freight Agent, who will remain with the C.P.O.S.

Shipping Losses During the War.—A British Board of Trade return dealing with shipping casualties and loss of life amongst merchant shipping registered in the United Kingdom, British dominions, colonies, and protectorates, and in India, occurring in or near United Kingdom coasts between July 1, 1914 and Dec. 31, 1918, show the number of ships lost was 915, with a gross tonnage of 1,048,498. Those lost by enemy action were 3,781 ships, with a gross tonnage of 8,363,777, a total of 4,696 ships and 9,412,275 gross tons. The number of deaths in connection with those other than due to enemy action was 18,900, and the number of deaths due to acts of war was 21,886. Those of seamen were 4 killed by bombs from enemy aircraft, 1 executed; 67 died as prisoners of war in enemy countries, and 2 died in Holland after being released from German prisons. The total number of deaths of seamen, fishermen and officers was 40,860.

Ships Added to and Deducted From the Canadian Register During December, 1920.

	Steam.			Sailing		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross	Registered	No.	Gross	Reg'red
Built in Canada	13	18,861	11,459	16	4,050	3,731
Purchased from foreigners	3	3,766	2,164	1	24	24
Transferred to United Kingdom	1	124	44	....	.....	.....
Registered anew	1	17	11	....	.....	.....
Totals	18	22,768	13,678	17	4,074	3,755
Deducted.						
Wrecked or otherwise lost	18	2,811	1,813	27	2,430	2,345
Broken up or unfit for use	59	1,154	769	89	3,889	3,864
Sold to foreigners	11	6,264	3,630	....	.....	.....
Transferred to British Possessions	....	.....	.....	2	46	46
Registered anew	....	.....	.....	2	64	64
Other ships	2	655	190	....	.....	.....
Totals	90	10,884	6,402	120	6,429	6,319

Atlantic and Pacific Ocean.

The Williams Steamship Co., New York, is reported to be arranging for the inauguration of a steamship service between Montreal and Vancouver, via the Panama canal.

The Jamaica Legislative Council is reported to be considering a bill to make Kingston a free port of call, and it is hoped to obtain considerable traffic from ships routed through the Panama Canal.

United States steamship companies have increased their first class passenger rates to Europe by 10%. The new rates do not apply to passages booked and paid for prior to Feb. 24, and second and third class rates are not affected.

The Italian Government's s.s. Monte San Michele, 1,000 d.w. tons, which sailed from New York, Feb. 2, for Italy, has not, according to an advice from the Italian Government to its shipping agents, J. T. Knight & Co., St. John, N. B., been heard from, and shipmasters have been requested to keep a lookout for the ship, or news of her.

The Thomson Line's s.s. Cairndhu, from Genoa, Italy, will open the company's St. Lawrence sailings for this year, leaving Genoa about Apr. 11, and arriving at Montreal during the first week in May. On the way out calls will be made at Leghorn, Cadiz, Malaga, Tarragona, Messina, Palermo and Valencia. Robert Reford Co., Montreal, are agents.

Elder Dempster & Co.'s s.s. Kaduna, which touched bottom on Bad Neighbors Reef, near Fourchu, towards the end of February, underwent temporary repairs at Louisburg, N.S., and then proceeded to Halifax, where she was drydocked for a thorough overhauling. The damage includes several holes in the port tank, and some punctures in the hull farther astern.

The former German steamship Kurland, which, as stated in our last issue, has been bought by Canadian Robert Dollar Co., Vancouver, is to be renamed Robert Dollar, and was expected to leave England, early in March, for the Pacific coast. She was built at Bremen in 1918, and has a deadweight capacity of 16,500 tons. She is equipped with twin reciprocating engines for a speed of 13 knots.

Furness Withy & Co. are reported to have bought the Fraser Building and site at the corner of St. Sacrament and St. Alexis Sts., Montreal, which they intend to remodel, or to rebuild, for offices. The building will be known as Furness House, the company's office buildings in other places being similarly named. It is stated that the amount paid for the property was approximately $100,000, that building operations will be commenced about May 1, and that the first two floors will be reserved for the company's purposes.

The Cunard Steamship Co.'s s.s. Antonia was launched at Barrow-in-Furness, Eng., by Vickers Ltd., Mar. 12. She is stated to be the first of a series of six ships which the company is having built, for cabin and third class passengers. On the conclusion of the war, the company commenced a shipbuilding programme, covering 13 steamships of different types, and this is the fifth to be launched. The Antonia's dimensions are, length over all 538 ft., beam 65 ft., depth 43 ft., gross tonnage 13,000. She will have accommodation for 1,700 passengers.

A fire occurred on the Canadian Pacific Ocean Services' s.s. Grampian at Antwerp, Belgium, recently, and, according to reports, did considerable damage. The temporary loss of the ship at the opening of the traffic season, is stated to have caused several changes in the sailing schedules. It is announced that the steamships Corsican, Scotian and Sicilian have had their sailings changed to meet the emergency, arrangements having been made to run the Sicilian from Glasgow and Antwerp alternately, instead of from Glasgow alone. The Corsican will sail from Glasgow, and the Scotian, which has been delayed in the drydock at Antwerp, will sail from Antwerp about May 31.

The Canadian Robert Dollar Co. is reported to be making a number of changes in the routing of its steamships between New York and the Orient. The six steamships operated on this service are being divided into two units, one comprising the steamships Bessie Dollar, Harold Dollar and Melville Dollar, and the other the Esther Dollar, Grace Dollar and M.S. Dollar. Those of the first unit will sail from New York and proceed, via the Panama Canal, to Vancouver and the Orient, and return by the same route. Those of the second unit will sail from New York, via the Panama Canal, to San Francisco, and thence to the Orient, and return to New York, via Calcutta, the Suez Canal and the Atlantic.

The Cunard Steamship Co. has taken over the former German s.s. Imperator, which it has been operating on behalf of the British Government. This is the largest steamship under the British flag, and the largest in the world actually in service. Her dimensions are, length 919 ft., breadth 98 ft., depth 63 ft.; tonnage, 52,200 gross. It is reported that the company has also bought from the Reparations Commission, the s.s. Bismarck, which, according to the peace terms, is to be completed and handed over to the Commission in satisfactory condition. Details of this ship are not available, but it is stated that she will be the largest ship in the world, and will have accommodation for 3,500 passengers, of four classes, and a crew of about 1,250.

The White Star-Dominion Line's s.s. Vedic will open that company's St. Lawrence service this year, sailing from Liverpool, Eng., Apr. 28, and arriving at Montreal about May 8. She will be operated on this route in conjunction with the company's steamships Megantic and Canada, a sailing being provided every week. She is of 9,332 gross, tons, and was built at Belfast, Ireland, in 1915. Her dimensions are, length 480 ft., breadth 58 ft. She has three decks, running the full length of the ship, dining accommodation for 555 passengers, is equipped with wireless and submarine signal systems and has a speed of 12 knots. There is accommodation for 1,178 third class passengers and a total cargo capacity of 605,960 cu. ft. She was built as a freight carrier, was operated as such during the war and has been recently rearranged for passenger traffic.

Maritime Provinces and Newfoundland.

The Naval Service Department has announced the opening of a fourth direction finding station on the Atlantic coast, at Red Head, on the east side of the St. John, N.B., harbor.

The Cape Steamship Co.'s s.s. Turret Cape struck heavy ice floes off Canso, N.S., March 6, and put back to Louisburg, with several plates sprung, and her forward tanks filled wtih water.

A bill is to be submitted to the New Brunswick Legislature at the instance of the St. John City Council, to provide for taking a plebiscite on the question of placing St. John harbor under a commission.

The Minister of Marine, in replying to an application by the Halifax Board of Trade recently, stated that the maintaining of a lightship at Sambro throughout the year, would receive his favorable consideration.

We have been officially advised that the proposed extension to Negropoint breakwater, in St. John, N.B., harbor, will not be proceeded with at present, and that the invitation for tenders has been withdrawn.

The Boston & Yarmouth Steamship Co.'s s.s. Prince Arthur arrived at Yarmouth, N.S., March 8, from Boston, Mass., on her first trip this year. She underwent extensive repairs and general overhauling during the winter.

Hillcrest Shipping Co. Ltd., Annapolis Ship Co. Ltd., Clair Shipping Co. Ltd., Cornwallis Shipping Co. Ltd., Port Wade Shipbuilding Co. Ltd., and Globe Steamship Co. Ltd., have had their Nova Scotia certificates of registration revoked.

The Reid Newfoundland Co.'s s.s. Portia was reported to be ashore at St. Jacques, Nfld., Mar. 20, the company's s.s. Kyle went from Port aux Basques to her assistance, and she was refloated on the following day without serious damage.

A press report states that the Sydney Foundry & Machine Co. has awarded contracts for lumber for construction of a marine railway to be built at Andersons Point, Sydney, and that considerable work has been done in the company's own plant on machinery necessary for the marine railway's operation.

The work in connection with the excavation of the drydock site and the extension of the breakwater at Courtenay Bay, St. John, N.B., is reported to have been practically completed, nothing remaining but the general cleaning up, which has been suspended until more favorable weather. The sub-contractor for this work was the Bedford Construction Co. The St. John Drydock & Shipbuilding Co., which has the general contract, will, it is said, probably resume dredging and other work during May.

The concrete ship Permanencia, which sailed from Belloram, Nfld., for Boston, Mass, with a cargo of fish, put in at St. Pierre, Miquelon, at the end of February during a storm, and left again, March 6. A few hours after sailing, she stranded at the southwestern extremity of Little Miquelon Island, where she was abandoned, the crew returning to St. Pierre. A report from Sydney, N.S., states that it had not been ascertained whether she would be a total loss or not, but little hope was held that she could be salved. She was built by Canadian Concrete Shipbuiding Co., North Sydney, N.S., for W. N. McDonald, Sydney, at an approximate cost of $75,000. Her dimensions are,—length 120 ft., breadth 27 ft., depth 12.7 ft.; tonnage, 338 gross, 292 net. She was built under Lloyd's survey for the highest rating, with a deadweight capacity of about 500 tons, and there is accommodation for 10 passengers in addition to the crew. The propelling machinery consists of a Bolinder crude oil engine, of 240 b.h.p., for a speed of from 9 to 10 knots.

Province of Quebec.

The Canadian Export Co., Montreal, is reported to have arranged for operating steamships between Quebec and Chesapeake Bay ports this year.

The St. Lawrence Stevedoring Co. Ltd. has been granted supplementary letters patent, under the Quebec Companies Act, increasing its capital from $100,000 to $500,000.

The s.s. Edward Pyke, bought from British owners by Price Bros. & Co., Que., recently, has been transferred to the Canadian register. She is an iron steamship, screw driven by engine of 70 h.p., and has the following dimensions,—length 100 ft., breadth 21.5 ft., depth 7.9 ft.; tonnage, 124 gross, 44 net. She was built at Birkenhead, Eng., in 1880, and was originally named George Stanton, and had her name changed in 1906, when she was acquired by the Port of Chicoutimi Co., Liverpool, Eng.

The Quebec Harbor Commissioners will, it is reported, expend about $250,000 on harbor improvements during this year and it is expected that a similar amount will be included in the Government's estimates each year until the proposed improvements are completed, the total cost of which is estimated at approximately $1,000,000. The most important work to be undertaken this year is the erection of a fixed fender, to replace the floating fenders, along the embankment near Beauport Flats.

Ontario and the Great Lakes.

The Toronto Works Department estimates for 1921 include $38,368 for the operation and maintenance of the tugs, G. R. Geary, National and Queen and 10 scows.

The s.s. Brockville, owned formerly by Canada Steamship Lines, is reported to have been secured, through the Belleville Chamber of Commerce, for navigation on the Bay of Quinte this year.

The Columbia Steamship Co., Cleveland, Ohio, is reported to have acquired the steamships owned and operated by W. C. Richardson, also of Cleveland. It is stated that 11 steamships are included in the deal.

The International Ferry Co., Bridgeburg, Ont., purposes asking the Dominion Government for authority to increase its fares. It is stated that the company proposes to double the commutation fares, practically double the cash fares, and increase the charges on automobile motor trucks, etc., considerably.

The Port Arthur City Council has been informed that the Dominion Government has agreed to extend the breakwater 300 ft. southerly from the end of the work completed recently. It is expected that the work will be done by Chambers, McQuigge and McCaffrey, who had the contract for the main breakwater.

It was reported from Detroit, Mich., recently that in the near future the United States Weather Bureau will distribute weather forecasts throughout the Great Lakes by a radiophone, supplanting the use of both telegraph and telephone for this purpose.

The s.s. Iona will be offered for sale by public auction, under an order of the Exchequer Court, Apr. 2, at Port Stanley. She is screw driven, with Steeple compound engine of 9 h.p. She was built at Meaford in 1904 and has the following dimensions, length 52.8 ft., breadth 13.2 ft., depth 5.6 ft.; tonnage, 29 gross, 20 net.

Canada Steamship Lines' freight officials held their annual conference at Montreal, early in March, to discuss prospects for the ensuing season. It is stated that the company has decided to transfer some of its steamships, which have been operating on the ocean, since the early days of the war, back to the Great Lakes. Those mentioned for transfer are, Beaverton, Canadian, Edmonton, Glenellah and Kenora. The majority of the steamships which the company transferred from Great Lakes to ocean service, during the war, were sunk by enemy action.

The Montreal & Cornwall Navigation Co.'s s.s. Britannic, which was moored in the Cornwall Canal for the winter, stranded and turned on her side March 12 owing to the receding of the water in the canal about 4 ft. The Britannic underwent repairs during the winter, costing about $20,000, covering the installation of a new boiler, etc. It is stated that the only method by which she can be raised is to tow her to the center of the canal, allow her to sink, withdraw the water from the level, and when the water is returned it is expected that she will right herself.

Manitoba, Saskatchewan and Alberta.

The Mandy Mining Co., Pas, Man., which owns the steamboats City of Prince Albert, Minasin, Notin, Sam Brisbin and Tonopah, has advised us that they will not be operated by the company this year, and that they have been offered for sale. The company's product will, it is expected, be handled in future by the proposed railway between Pas and Flinflon.

The Dominion Minister of Public Works wrote the United Farmers of Alberta recently, in response to a recommendation by that organization, that there is no intention at present of developing water transportation service in the west. It had been suggested that the North Saskatchewan River might be so improved as to permit of traffic from Edmonton to Lake Winnipeg, but the Minister stated that at the present rates of wages this work would cost approximately $45,000,000. He also stated that when conditions were more favorable the Government would probably give the matter further consideration.

British Columbia and Pacific Coast.

Tenders for repairs and general overhaul of the Dominion Public Works Department dredge No. 303 (Fruhling), were received by the Superintendent of Dredges, at Vancouver, up to March 21.

The Coastwise Steamship & Barge Co.'s s.s. Anyox, which ran ashore near Ladysmith, early in February, was hauled out at the Victoria Machinery Depot Co.'s plant, later in the month, for overhaul and repairs, the work being completed Mar. 2.

Vancouver Harbor Commissioners are reported to be asking tenders for the construction of a car float for operation between Vancouver and North Vancouver. It is said that the float, which is to be of wood, and the building of a slip on the north shore, will cost approximately $200,000.

The C.P.R. British Columbia Coast Service, in arranging its schedule for the Alaska touring season of this year, has assigned the steamships Princess Alice and Princess Royal to the service. The tourist season will open June 10, with the sailing of the s.s. Princess Royal from Victoria, to be followed June 17, by the s.s. Princess Alice, and a weekly service will be given until Sept. 2.

The C.P.R. s.s. Princess Mary, which sailed from Victoria for Alaska, March 5, carried the White Pass and Yukon Route employes on their return to the north for the reopening of transportation there. It is stated that owing to the loss last year of the steamships Selkirk and Washburn, the White Pass and Yukon Route is compelled to cancel the usual Midnight Sun excursion this year. The auxiliary engines of the s.s. Selkirk have been saved, but it has not been decided whether any attempt will be made to save the main engines and boilers, as it is said that new engines could be bought for less than the cost of salving.

A North Vancouver press dispatch states that after making an inspection of ferry No. 2, a report was issued by the inspectors that, owing to general depreciation of the hull, and the strained condition of the deck, the loads carried in one unit have had to be reduced to a maximum of three tons, and the maximum number of passengers to be carried has been fixed at 600. It is also stated that upon the completion of repairs a certificate for six months will be granted, on the expiration of which a further inspection of the hull will be necessary. The North Vancouver City Council is considering the advisability of obtaining a new ferry to replace No. 2.

Great Lakes Levels.

The U.S. Lake Survey reports the mean stages of the Great Lakes for Feb. in feet above mean sea level as follows: Superior, 601.76; Michigan and Huron, 579.84; St. Clair, 573.52; Erie, 571.85; Ontario, 245.46.

Lake Superior was 0.32 ft. lower than in January, 0.14 ft. lower than in Feb. 1920, 0.07 ft. below the average February stage of the last 10 years, 0.72 ft. below the high stage of Feb. 1901, and 1 ft. above the low stage of Feb. 1871.

Lakes Michigan and Huron were 0.08 ft. lower than in January, 0.14 ft. lower than Feb. 1920, 0.11 ft. below the average February stage of the last 10 years, 2.88 ft. below the high stage of Feb. 1886, and 0.68 ft. above the low stage of Feb. 1896. During the last 10 years the February level has averaged about the same as the January level, and 0.1 ft. lower than the March level.

Lake Erie was 0.14 ft. lower than in January, 1.07 ft. higher than in Feb. 1920, 0.29 ft. above the average February stage of the last 10 years, 1.90 ft. below the high stage of Feb. 1863, and 1.22 ft. above the low stage of Feb. 1902. During the last 10 years the February level has averaged 0.1 ft. lower than the January level, and 0.1 ft. lower than the March level.

Lake Ontario was 0.08 ft. lower than in January, 0.45 ft. higher than in Jan. 1920, 0.01 ft. below the average February stage of the last 10 years, 2.21 ft. below the high stage of Feb. 1886, and 1.63 ft. above the low stage of Feb. 1897. During the last 10 years the February level has averaged 0.1 ft. higher than the January level, and 0.1 ft. lower than the March level.

Stikine and Dease Rivers Navigation.

Lt. Col. C. W. Peck, M.P. for Skeena, B.C., asked the following questions in the House of Commons recently, the answers being given by the Minister of Public Works:—

Q. "Did two Public Works Department employes proceed up the Stikine River and down the Dease River to the lower post on the Liard last summer?" A. "Yes."

Q. "What was the expense of the trip, including wages of employes during the period they were engaged in same?" A. "$1,065.08."

Q. "For what purpose was the trip made?" A. "Reconnaissance was made and data secured as to requirements to improve the waterway for the handling of supplies, etc., to the mining district north of Dease Lake."

Q. "Was the purpose accomplished?" A. "A report has been submitted and is receiving the Department's consideration."

Welland Ship Canal Contracts.

The Railways and Canals Department, Ottawa, will receive tenders to April 5, for work on section 5 of the Welland Ship Canal, the bulk of which will consist of dredging. It is provided that dredges and other plant to be employed in this work, shall have been registered in Canada at the time of the filing of the tenders, or shall be built in Canada after the filing of the tenders.

Sec. 5 covers 2¾ miles, from just above bridge 12 to just above bridge 13. The original contract for this work was given to Canadian Dredging Co., Midland, Ont., Dec. 22, 1913, the work to be completed by April 1, 1918, and the amount of the contract, based on schedule rates, was $1,945,788. A subcontract for dry excavation was let to J. H. Corbett & Co., Moncton, N.B., in Oct. 1914. It was stated in 1916, in reply to questions in the House of Commons, that the work was then about 50% completed, and that the Government had paid to the contractors $903,789. On account of the war, all work on the Welland Ship Canal was suspended May 2, 1917, and at that date, the contract on sec. 5 was reported to be about 64% completed.

On Dec. 9, 1918, an order in council was passed authorizing the resumption of work on secs. 1, 2, 3 and 5, and contracts were entered into with the respective contractors, to proceed with the work on the basis of actual cost, plus a percentage not to exceed 8%, with materials, supplies and plant furnished by the Department to be excluded in computing the cost. A further order was passed Dec. 24, 1918, authorizing, among other things, that the contracts so entered into should not extend later than Dec. 31, 1919.

It was estimated that the amount which could be expended on sec. 5, during 1919, would not exceed $500,000.

The contract with the Canadian Dredging Co. for sec. 5 was further renewed, on a basis of cost plus 8%, early in 1920, and work was continued throughout the year. As the Canadian Dredging Co. owns its own dredging plant, the clause in the contract relating to the exclusion of plant loaned by the Government, in computing costs, does not apply to that company.

The following questions were asked in the House of Commons recently, by E. Proulx, M.P. for Prescott, Ont., the answers being given by the Minister of Railways and Canals:—

Q. "Who has the contract for supplying sand to the various contractors engaged in construction work on the new Welland Ship Canal?" A. "National Sand & Material Co., Welland, Ont."

Q. "What are the names of the parties interested in the sand contract?" A. "Their contract bears signatures, D. Dick, Jr., President; L. M. Stapf, Secretary-Treasurer."

Q. "What is the date of the sand contract?" A. "Sept. 16, 1919; Aug. 20, 1920, supplementary agreement."

Q. "Since the contract was made has it been varied in any way, and if so by what authority and in what respect?" A. "Yes, by order in council of June 18, 1920, an additional charge of 27c. per cu. yd. was allowed, for extra work in transferring sand from bins at points of delivery to stock piles or contractors' cars."

Q. "Was the contract let by tender?" A. "Yes, public tenders were called for."

Q. "Are the monies earned under the contract payable under power of attorney to any bank?" A. "Yes, Imperial Bank of Canada, Welland, Ont."

Steamboat Waubic Sold.—The Northern Navigation Co. has sold its s.s. Waubic. She was built at Collingwood in 1909, and has a steel hull with 4 watertight and 2 non watertight bulkheads, and steam pump wells. Her dimensions are,—length b.p. 135 ft., breadth moulded 25 ft., depth moulded 9 ft.; tonnage, 504 gross, 244 net. She is classed 100 on the Great Lakes Register for Georgian Bay and adjacent waters. She is equipped with triple expansion engines, having six cylinders, two 10 in., two 16½ in., and two 27 in. diar. by 15 in. stroke, 650 i.h.p., at 15 r.p.m., supplied with steam by a single Scotch boiler 12½ ft. diar. by 10½ ft. long, at 180 lb. A press report states that she has been bought by the Rockport Navigation Co., Kingston, Ont., for the route between Kingston, Ont., and Cape Vincent, N.Y., with R. Carnegie as master.

Ice Conditions and Navigation.—Reports as to ice in navigable waters indicate that the prospect for early navigation between the head of the Great Lakes and Montreal is good, but between Montreal and the Atlantic much will depend on the wind currents, which generally predominate over the strongest water currents in drifting ice. It is, however, expected that there will be in all probability an early opening of navigation on the St. Lawrence River and upper Gulf, probably about Apr. 10.

Geo. E. Bunting, Manager in Australasia, for Canadian Government Merchant Marine, Auckland, New Zealand, in remitting his renewal subscription for Canadian Railway and Marine World, writes: "Needless to say, I look forward to the receipt of Canadian Railway and Marine World each month, and keep it on file here for reference. I find it very useful, not only to myself, but also to many of the Canadians who call upon me, and New Zealanders who contemplate travelling to Canada."

Steamship Mail Services. — The Post Office Department's estimates for the year ending March 31, 1921, contain an item of $66,152.50 for mail service by steamships, which is precisely the same amount as for the year ended March 31, 1921.

Government Contract for Steel Plates for Ships.

W. Duff, M.P. for Lunenburg, N.S., asked the following questions in the House of Commons recently, which were answered by the Minister of Marine:—

Q. "When did the Government make a contract with the Dominion Iron & Steel Co. to supply steel plates for ships? What was the total quantity contained in the contract and which were to be delivered by the company to the Government? What was the price per ton agreed upon?" A. "The original contract with the Dominion Iron & Steel Co. was authorized by order in council of March 26, 1918, and was dated April 2, 1918. It provided for the erection of a modern 110 in. steel plate mill by the company, the Government undertaking to buy 50,000 gross tons of plates a year for five years at $4.15 per 100 lb. base f.o.b. cars Sydney, or f.o.b. steamships Sydney or Louisburg. A modification of this contract was authorized by order in council of July 26, 1919, and the modified agreement under the terms of that order was dated Dec. 10, 1919. This agreement provided for a reduction of the price to be paid the company, from $4.15 per 100 lb. to $3.65."

Q. "How many tons have been delivered so far and where delivered?" A. "40,000 gross tons delivered f.o.b. Sydney."

Q. "Has the contract since been cancelled?" A. Yes."

Q. "If so, what damages did the Government have to pay the company?" A. "None."

Q. "If not, has the company made any claim against the Government? If so, how much?" A. "No."

Bay of Fundy Navigation Aids.—The St. John, N.B., Board of Trade's harbor and transportation committee has recommended the following aids to navigation:—A steamship for buoy and life saving service, capable of going to sea at any time, under all conditions; the establishment of a light at Cape Sable, with a 25 mile range of visibility; that the Lurcher light ship be provided with oil burning equipment, and equipped with occulting instead of fixed lights; that a spare light ship be provided, for use either at Sambro or Lurcher, as occasion may require; and that a survey be made of the anchorage ground of the Blonde rock buoy, to obtain a smoother anchorage area.

Wireless Guide for Ships.—At the British shipmasters annual dinner at Liverpool, Eng., March 2, W. Marconi, G.C.V.O., announced the discovery of a wireless invention for the guiding of ships through dense fog, which he said had not yet been in operation anywhere. It is based on a principle by which electric waves may be directed in any definite direction, like flashes from a lighthouse, and he stated that these waves would take the place of leading lights, in thick weather, and would prevent collisions of ships during fogs.

Uniform Shipping Legislation. — A London, Eng., press dispatch states that the Imperial Shipping Committee has unanimously recommended the adoption of uniform legislation throughout the Empire, regarding the limitation of shipowners' liability under bills of lading. These recommendations, it is said, are based on the Water Carriage of Goods Act of Canada.

The Renaissance of the Windjammer.

By A. H. Morse, Managing Director, Marconi Wireless Telegraph Co. of Canada.

Seldom in the history of the world has the march of progress involved such a severance of sentimental ties as was caused by the passing of the sailing ship. Such a grand old institution, appealing, as it did, equally to artists, poets, adventurers and merchants, to dreamers and doers, was bound to find in our lives an anchorage that had no relation to its merits as a means of transport. Nevertheless it departed almost entirely. Its parting was speeded by a wide range of economic changes, some of which materialized only in the British Isles, or earlier there than elsewhere; hence few of the sailing ships which survive are of British register.

And, alas! the survivors; how little they can be reconciled with some of the romantic seascapes of two generations ago. The jaunty square-sails have mostly given place to schooner-rig, and the real old sailor—these twenty years "on the beach"—goes aboard for a breath of the old atmosphere, only to be disappointed. New "gadgets" confront him on every side, and his hairy old nostrils dilate to the spirituous odor of petrol. But let him be grateful that he is spared the sight, in some Pacific port, of the Glory of the Seas or The Two Brothers, with their lower masts alone standing. Grimy and inglorious, these and many such, are now mere derrick-crowded hulks, for hoarding the black wind of their snorting successors.

They were manned by real sailors, and their captains were navigators in the most complete sense. Few people realize what little advantage, in the matter of knots, the average tramp of today enjoys over their best performances, or even over the average performances of the crack ships, such as the Cutty Sark and the Falls of Garry of the sailing era. Then, the personal factor was everything; the daily run turned very largely on the judgment, foresight and resource of the commander; whereas now it turns almost entirely on the quality of the coal and the efficiency of the chief engineer, who, albeit a fine fellow and a good master of his craft, is essentially a sailor only in that he has "sea legs".

"He that will use all winds must shift his sail" and it was all in the time and the manner of the shifting. Other things being equal, she was the fastest ship which had the smarest captain. Hence there was an aura of dignity about the skipper of a crack sailer that owed nothing to plenitude of braid and buttons of brass. Obviously, then, the passing of the sailing ship is not regretted without proper cause, and the question naturally arises, Why did it go? It was not on account of its speed limitations, because transport time is of little importance with many cargoes, nor was it entirely because the introduction of steam and a greater cargo capacity, made it unremunerative and uncommercial. Rather, it was the fact that "The fortune is insecure that is at the mercy of wind and wave." Every sailor knows, and many have felt, the might of the underwriter's unseen hand. It is the underwriter who does more than any other to influence the trend of development in the merchant marine; he is, above all, responsible for the passing of the dear old windjammer. Propitiate him, and many a now deserted harbor will be reafforested with masts.

As to the why and wherefore of his propitiation, let us consider the well-found sailing ship as she might be today. Built probably of steel and with fine lines, she, like the Sunbeam, Valhalla and other present day sailers, would be fitted with an auxiliary engine, whereby she could "outfly the nimble sail and leave the lagging wind," and so never be becalmed nor need a tow to port. She would also have power for working her sails, steering gear and electric light plant, and, of course, she would be fitted with radiotelegraph apparatus. By radiotelegraphy, she could establish communication with other ships, and the shore, up to a distance of, approximately 300 miles by day, and 1,000 miles by night, and could, in any part of the world, check her chronometer by Greenwich time. The voyage of such a ship might be protracted for a month, during which time she might never be sighted, and yet there would be no cause for alarm, aboard or ashore. Should her wireless fail, and there need be no reason why it should, while she was overdue and becalmed, she would steam into the proximity of a trade route and speak, and perhaps get assistance from a passing ship. Should her auxiliary power fail during a spell of calm, she would report by wireless the cause of delay. In making port in a fog, she would have all the benefits of the wireless direction finder and the improvements in submarine signalling which have been developed for anti-submarine warfare; and, if she were a pampered ship, she would be provided with a compact, inexpensive and dependable wireless telephone installation, by means of which her captain could converse with any similarly favored colleague up to a distance of 200 miles.

Contrast this with the experience and practice of two generations ago, when often, her anchor once catted, the windjammer disappeared into utter oblivion for perhaps five months, during which her owners, underwriters and others, including the relatives of her crew, were the victims of waves of hope, anxiety and, perhaps, despair. That these were often begotten of rumors with no more foundation than that penumbra of spookery which clothed so many of the thoughts and acts of those, and their kind, who went down to the sea in ships, made their effect none the less real. Consignees were jumpy and the effect on insurance and cargo markets was unsettling to a degree. Dr. Johnson was not very wide of the mark when he wrote: "No man will be a sailor who has contrivance enough to get himself into a jail; for being in a ship is being in a jail with a chance of being drowned . . . A man in a jail has more room, better food, and commonly better company."

But nevertheless the sailing ship will probably come back. All the spas and hydros in the world cannot compete with her in giving that utter peace and detachment from those health wracking cares which, sooner or later, and with ever-increasing certainty, lay every landlubber by the heels. A modern liner is but an hotel afloat, and entirely lacks that poetic peace which moved Byron to say:—

> "This quiet sail is, as a noiseless wing,
> To waft me from distraction."

Those two lines point almost the only road to recovery for many an overwrought victim of our dog-eat-dog civilization. It was probably a similar inspiration which influenced the more boisterous Burns to sing

> "Then top the maintop, crowd the sail,
> Heave care owre side.
> And large, before enjoyment's gale,
> Let's tak' the tide."

A few weeks aboard a sailing ship, well found according to modern ideas, and well and plainly victualled (preferably in bare feet in favorable weather) would do worlds for the brain-weary, especially if, towards the end, manual labor or strenuous physical exercise were to form a part of the daily round. Fears as to safety would soon be overcome, and the demand for passages would probably become sufficient to warrant each of the big steamship companies maintaining one or more sailing ships, fitted with passenger accommodation. These craft, moreover, could be used as training ships.

Does it not seem, thereforefi that the essential disabilities of the sailing ship have gone, and that we have now only to await a realization of the fact, before we may celebrate its renaissance? With her will return, with his chanties, the old type of sailor to leaven our comfort-ridden community. He who, according to Wordsworth,

"By strength of heart . . . fights with roaring seas."

The Deputy Ministership of Marine and Fisheries.

Alex. Johnston, who resigned his position as Deputy Minister of Marine and Fisheries, in Ottawa, in Oct. 1920, to enter the British Empire Steel Corporation's service, presumably as Assistant to the President, R. M. Wolvin, has returned to his former position in the Department, having been reappointed Deputy Minister from March 1. H. E. A. Hawken, Assistant Deputy Minister, who acted as Deputy Minister after Mr. Johnston's resignation, has resumed his former duties.

The matter was referred to in the House of Commons March 8, when W. Duff, M.P. for Lunenburg, N.S., said:—"I would like to ask the Government whether the statement appearing in the newspapers that Alex. Johnston has returned to the public service is correct, and, if so, what his status will be in the Marine and Fisheries Department?" The Minister of Marine and Fisheries said:—"I desire to state that Mr. Johnston has been reinstated in his former position as Deputy Minister of Marine and Fisheries."

H.M.C.S. Aurora, which, with other ships recently given by the British Government to form the nucleus of a Canadian Navy, arrived at Esquimalt, B.C., recently, from Halifax, N.S., and was expected to go to Prince Rupert, B.C., to be drydocked, but it is reported to have been announced by the Director of the Naval Service, Capt. W. Hose, R.N.R., that the drydocking will not take place, and that the ships will leave Esquimalt, Apr. 13, on the return trip to the Atlantic coast.

Canada Steamship Lines, Ltd. has declared a quarterly dividend of 1¾%, on preference stock, payable Apr. 1, to shareholders of record March 15.

Drydock Estimates for 1921-1922.

The Public Works Department Estimates for the year ending Mar. 31, 1922, submitted to the House of Commons recently, contain the following items:—

Subsidies authorized by statute.

Collingwood drydock No. 1	$15,000.00
Collingwood dry No. 2	9,208.96
Montreal floating dock	105,000.00
Port Arthur drydock	37,741.50
Prince Rupert floating dock	76,970.88
	$243,921.34

Chargeable to Capital.

Esquimalt, B.C., new dry dock	$1,300,000

Working expenses, chargeable to collection of revenue.

Champlain graving dock	$47,400
Lorne graving dock	30,000
Esquimalt graving dock	23,000
	$100,400

Mail Subsidies and Steamship Subventions Estimates.

The estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items for steamship services between the points named:—

ATLANTIC OCEAN.

Canada and Newfoundland	$35,000.00
Canada and the West Indies or South America or both	340,666.66
Canada and South Africa	146,000.00

PACIFIC OCEAN.

Canada and Australia or New Zealand, or both, on the Pacific Ocean	130,509.00
Prince Rupert, B.C., and Queen Charlotte Islands	21,000.00
Victoria and San Francisco	3,000.00
Victoria, Vancouver, way ports, and Skagway	25,000.00
Victoria and west coast Vancouver Island	15,000.00
Vancouver and northern ports of British Columbia	24,800.00
Vancouver and ports on Howe Sound	5,000.00

LOCAL SERVICES.

Baddeck and Iona	8,825.00
Charlottetown, Pictou and New Glasgow	2,000.00
Charlottetown, Victoria and Holliday's wharf	2,500.00
Grand Manan and the mainland	15,000.00
Halifax, Canso and Guysboro	7,000.00
Halifax, LaHave and LaHave River ports	4,000.00
Halifax and Newfoundland, via Cape Breton ports	5,000.00
Halifax and Spry Bay and ports in Cape Breton	6,000.00
Halifax, South Cape Breton and Bras d'Or Lake ports	6,000.00
Halifax and west coast Cape Breton, calling at way ports	4,000.00
Mulgrave and Canso	13,500.00
Mulgrave and Guysboro, calling at intermediate ports	7,500.00
Newcastle, Neguac and Escuminac, calling at intermediate points on Miramichi River and Miramichi Bay	4,000.00
Pellee Island and mainland	8,000.00
Mulgrave, Arichat and Petit de Grat	9,000.00
Pictou, Montague, Murray Harbor, and Georgetown	6,000.00
Pictou, Mulgrave and Cheticamp	7,500.00
Pictou, New Glasgow and Antigonish County ports (schooner service)	1,500.00
Port Mulgrave, St. Peter's, Irish Cove and Marble Mountain, and other ports on Bras d'Or Lakes	6,500.00
Pictou, Souris, and the Magdalen Islands	20,000.00
Quebec, Natashquan and Harrington, and other ports on the North shore of the Gulf of St. Lawrence	50,000.00
Quebec, Montreal, and Paspebiac, and ports on south shore of Gulf of St. Lawrence	30,000.00
St. John and St. Andrews, N.B., calling at intermediate ports	4,000.00
St. John and Bridgetown	2,000.00
St. John and Digby	10,000.00
St. John, Digby, Annapolis and Granville, along west coast of Annapolis Basin	2,000.00
St. John and ports on Bay of Fundy and Minas Basin	5,000.00
St. John, Westport and Yarmouth and other way ports	10,000.00
Sydney and Bay St. Lawrence, calling at way ports	9,000.00
Sydney and Whycocomagh	4,000.00
Sydney and Bras d'Or Lake ports and ports on east and west coasts of Cape Breton	14,000.00
Supervision of subsidized steamship services, expenses in connection with	4,000.00
	$1,033,800.66

Lighthouse and Coast Service Estimates.

The estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items:—

Agencies, rents and contingencies	$215,000
Salaries and allowances to lightkeepers	650,000
Maintenance and repairs to lighthouses	800,000
Construction of lights and aids to navigation, including regulation of traffic in Detroit River and such other places as may be found necessary	400,000
Signal service	75,000
Administration of pilotage	250,000
Maintenance and repairs to wharves	10,000
Breaking ice in Thunder Bay, Lake Superior and other points deemed advisable for good of navigation	40,000
Pensions to pilots	9,000
Telephones at different points in connection with aids to navigation	500
Allowance to harbor master at Amherstburg for supervision of lights and buoys on St. Clair River and Lake Erie; and other services in connection with lighthouse service for season of 1921	600
Two motor patrol vessels for buoy and lighthouse service in British Columbia	15,000
	$2,465,100

Grain Shipments from Vancouver to Great Britain via Panama Canal.

A London, Eng., press dispatch of March 7 announced the arrival of the motor ship Buenos Aires, with "the first cargo of Canadian wheat ever shipped to Europe via the Pacific Ocean and the Panama Canal." The ship sailed from Vancouver, B.C., towards the end of December, and called at San Francisco, San Pedro and New York, where additional cargo was taken on.

The statement that this is the first cargo of Canadian wheat to be shipped from Vancouver to Great Britain by the Pacific and Panama Canal route, is incorrect, as on Dec. 3, 1917, the s.s. War Viceroy sailed from Vancouver, with a cargo of Canadian wheat, called at Portland, Ore., and Norfolk, Va., for additional cargo, and docked at London, Eng., Feb. 16, 1918. This voyage was carried out while the war was at its height, and navigation in general was conducted under grave risks, and, in spite of this, the ship was safely docked at London. The s.s. War Viceroy is a steel cargo steamship, built at Vancouver, B.C., by J. Coughlan & Sons, for the British Government, under orders from the Imperial Munitions Board. Full details of the trip and of the composition and arrangement of the cargo, with the results of tests carried out by the Trade and Commerce Department's Dominion Grain Research Laboratory, were published in Canadian Railway and Marine World, for Jan. 1919.

Naval Service Department Estimates.

The estimates submitted to the House of Commons recently for the year ending March 31, 1922, contain the following items:—

Naval Service, maintenance of Royal Canadian Navy	$2,500,000
Hydrographic Survey and maintenance and repairs of hydrographic steamships	315,000
Fisheries Protection Service and for repairs and maintenance of the fishery protection steamships	370,000
Radiotelegraph service and for the building and maintenance of wireless stations and general administration of radiotelegraphy throughout Canada	456,480
Tidal and Current Survey	30,000
Patrol of northern waters of Canada	15,000
Customs dues	500
Pay of temporary officers and clerks at headquarters, Halifax and Esquimalt dockyards	40,000
	$3,726,980

Shipbuilding and Ship Channel Estimates.

The estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items, under Public Works, chargeable to capital, Marine Department:—

River St. Lawrence Ship Channel, maintenance and operating dredging fleet	$528,000.00
Maintenance and improvements of Sorel Shipyard, shops and offices, as well as operating expenses	75,000.00
Government shipbuilding programme, for construction of vessels in accordance with Government programme	8,330,000.00
Icebreaker to be used in St. Lawrence, including maintenance of same (re-vote)	2,000,000.00
	$10,933,000.00

Marine Employes' Wages in the U.S. A New York press dispatch of March 14, stated that men employed on ferries, tugs and barges, etc., in New York harbor, controlled by railways, were being asked to take wage reductions ranging from 15 to 23%. It was stated that such reductions as may be decided upon will become effective Apr. 15 or May 1, the increase given by the U.S. War Labor Board in May, 1920, being wiped out.

The Marine and Fisheries Department's Salaries provided in the estimates for the year ending March 31, 1922, as submitted to the House of Commons recently, are $360,810. against $318,750 for the year ended March 31, 1921. The contingencies are $68.870 for 1921-1922, against $69,000 for the previous year.

Pollution of Harbor Waters.—Hon. A. K. Maclean, Halifax, N.S., has introduced a bill in the House of Commons to amend the Canada Shipping Act (Public Harbors). The purpose of the bill is to enable the Governor in council to increase existing penalties for the pollution of harbor waters by the discharge of waste oil from oil-burning steamships.

Ships Built in 1920 and Exported without being Registered in Canada.

	Sailing Wood Tonnage			Steam Wood Tonnage			Steam Steel Tonnage		
	No.	Gross	Net	No.	Gross	Net.	No.	Gross	Net
Nova Scotia	1	348	280	....	.....	.....	2	4,648	2,792
New Brunswick	....	.....	.....	....	.....	.....	....	.....	.....
Quebec	....	.....	.....	12	13,829	8,040	2	11,066	6,587
Ontario	....	.....	.....	....	.....	.....	3	3,950	2,238
British Columbia	....	.....	.....	....	.....	.....	2	11,471	7,057
Total	1	348	280	12	13,829	8,040	9	31,135	18,674

Trade and Supply Notes.

Canadian General Electric Co.'s report for 1920 states that the year was the most prosperous in its history. At its close $7,500,000 of uncompleted contracts were carried over. The net profits were $1,356,689.05, out of which were paid dividends of 7% on the preferred stock, and of 8%, and a bonus of 2%, on the common stock, leaving $342,574.80 to be carried to profit and loss acount, bringing it up to $778,672.28, which, wtih the serve of $5,000,000, makes a total surplus of $5,778,672.28. It was decided to give common stock holders a stock dividend of 20%. Senator Frederic Nichols, who organized the company 33 years ago, has retired from the Presidency and General Managership, has been elected Chairman of the Board, and has been given a bonus of 2,400 shares of common stock, which were in the treasury, A. E. Dyment, heretofore Vice President and Chairman of the Board, has been elected President, and S. Haas has been elected Vice President. J. J. Ashworth, heretofore a director and Assistant General Manager, has been appointed General Manager. J. A. Bremner, heretofore Comptroller, has been appointed Assistant General Manager.

Diamond State Fibre Co. of Canada, Toronto, has issued an illustrated and bound catalogue, containing a comprehensive summary of Diamond fibre and its different uses.

Independent Pneumatic Tool Co., Chicago, has removed its Pittsburg, Pa., office to 718 Bessemer Building, Sixth St. and Duquesne Way.

Ohio Brass Co., Mansfield, Ohio, has issued catalogue 18, of high tension insulators, trolley line materials, railway bonds and tools, third rail insulators and car equipment specialties, 6 x 9 in., 638 pages, bound in leather, profusely illustrated. The company has been appointed sole selling agent for an electric arc welding machine, especially intended for rail bonding and track work, which has been brought out by the Wilson Welder and Metals Co.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull. Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keitb, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Offices, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committtee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver.—C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

May 11.—Railway Accounting Officers' Association, Atlantic City, N.J.; E. R. Woodson, 1,116 Woodward Bldg., Washington, D.C.

May 23 to 26.—Master Boiler Makers' Association, St. Louis, Mo.; H. D. Vought, 95 Liberty St., New York.

May.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

June 8.—Railway Accounting Officers Association, Atlantic City, N.J.; E. R. Woodson, 1116 Woodward Building, Washington, D.C.

June 15 to 22.—American Railway Association, Division 5, Mechanical, Atlantic City, N.J.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 20.—American Association of Freight Agents; R. O. Wells, Illinois Central Rd., Chicago, Ill.

June 20.—American Train Dispatchers' Association, Kansas City, Mo.; C. L. Darling, Northern Pacific Ry., Spokane, Wash.

Aug. 24 to 26.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, Kansas City, Mo.

Sept. 20 to 22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry., Sterling, Ill.

Oct. 4 to 6.—Maintenance of Way Master Painters' Association, Buffalo, N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

CANADIAN PACIFIC RAILWAY CO.

NOTICE is hereby given that the Canadian Pacific Railway Company will apply to the Parliament of Canada at the present session thereof for an Act authorizing the company to issue bonds, debentures or other securities collateral to, or in lieu of, its consolidated debenture stock.

Dated at Montreal, the 16th day of February, 1921.

E. ALEXANDER,
Secretary.

Pringle, Thompson, Burgess & Cote,
Barristers, Ottawa Agents.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the
CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

It Pays

to carry an advertisement in the Canadian Railway and Marine World every issue of the year because you obtain proportionately better **Results**

The Strauss Bascule Bridge Co.

Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

DOMINION TOWING & WRECKING CO., LIMITED

Tug Strathmore
" Strathbell

Harbour Tug Service

Lighter Strathbuoy—Capacity, 700 tons.

Equipped for all kinds of Towing, Wrecking, Etc.
Sand and Gravel supplied for Concrete Work, Rock and Soil Filling for Cribwork.

Dock Telephone, South 184; Head Office, South 2383. JOHN BELL, General Manager, 509 Grain Exchange, Fort William, Ont.

The Canadian Bridge Co., Limited

Walkerville, Ontario

Locomotive
Turntables
Roofs
Steel Buildings

Manufacturers of
Railway and Highway
BRIDGES
Montreal Office in New Birks Building

Structural
Iron Work
of all
Descriptions

Largest manufacturers of white metals in the world

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Wire Solder
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NICKEL GENUINE BABBIT
FOR
STEAMSHIP WORK

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Lead Sheets
Lead Traps
and Bends

HOYT METAL COMPANY
MONTREAL TORONTO WINNIPEG

General Railway Signal Company of Canada, Limited
Consulting Railway Operating Engineers
Reports, Freight and Passenger Yards and Terminals, Single Track Capacity, Side Track Location, Interlocking and Block Signal Design and Construction.
Head Office - Lachine Quebec

Malleable Castings
High Grade Material
First Class Service
Galt Malleable Iron Co., Limited - GALT, ONT.

IMPERIAL BANK
OF CANADA

Capital Authorized.....$10,000,000
Capital Paid up..... 7,000,000
Reserve Fund..... 7,500,000

Head Office: Toronto.

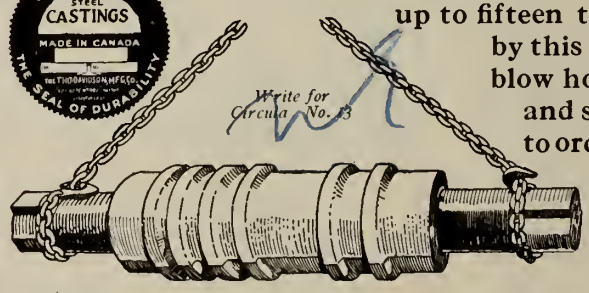
Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.
Sterling and New York Exchange bought and sold.
Savings Department: Interest allowed on deposits at best current rates.
Branches throughout the Dominion of Canada.

Conductors on C.N.R. in Quebec.—T. Vien, M.P. for Lotbiniere, Que., asked in the House of Commons, March 4:—"How many railway conductors are employed in the Government railways in the Province of Quebec, and what are their names?" The Minister of Railways replied: "The Canadian National Rys. employ 296 conductors in the Province of Quebec. It is not considered to be in the public interest to publish their names."

STEEL CASTINGS

DAVIDSON'S STEEL CASTINGS MADE IN CANADA THE SEAL OF DURABILITY

Write for Circular No. 13



Made by the Acid Electric process up to fifteen tons. Castings made by this process are free from blow holes, easy to machine, and superior in every way to ordinary Steel Castings.

Castings supplied for shipbuilding, cars, locomotives, all classes of machinery, etc.

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Steel Foundry Division: Lachine Canal Turcot

DOMINION CHUCKS

STEEL OR CAST-IRON BODY
BUILT FOR HEAVY DUTY

The Jaws Are Extra Strong

THEY are drop forgings, made of best quality steel, heat-treated and hardened. The threaded portion of jaws form a half nut for the setting-up screws. Have stood the test of heavy duty work in our own shops where accuracy was the only accepted standard.

DOMINION STEEL PRODUCTS CO.
LIMITED
Engineers • Manufacturers
BRANTFORD, CANADA

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ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.

Robert W. Hunt & Co., Limited

Consulting and Inspecting Engineers
Chemists and Metallurgists

Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.

Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.

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ENGINEERS—CONSTRUCTORS.
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—
Electrification of Steam Railroads.
OUR EXPERIENCE COVERS THIRTY-FIVE PLANTS
CHICAGO

ANGUS SINCLAIR, C. E.
Railway Contractor
OFFICE: EXCELSIOR LIFE BUILDING,
Adelaide and Toronto Sts., Toronto

DEPARTMENT OF RAILWAYS AND CANALS, CANADA.

WELLAND SHIP CANAL
Section No. 5

Notice to Contractors.

SEALED Tenders addressed to the undersigned and marked "Tender for Section No. 5, Welland Ship Canal," will be received at this office until 12 o'clock noon, on Tuesday, April 5, 1921. The bulk of the work under this contract will consist of dredging.

The dredges and other plant which are intended to be employed on this work shall have been duly registered in Canada at the time of the filing of this tender with the Department, or shall have been built in Canada after the filing of the tender.

Plans, specifications and form of contract to be entered into can be seen on or after this date at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, and at the office of the Engineer in Charge, Welland Ship Canal, St. Catharines, Ontario.

Copies of plans and specifications may be obtained from the Department on the payment of the sum of fifty dollars. To bona fide tenderers this amount will be refunded upon the return of the above in good condition.

An accepted bank cheque on a chartered bank of Canada for the sum of $170,000.00 made payable to the order of the Minister of Railways and Canals, must accompany each tender, $130,000.00 of which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted.

The cheque thus sent in, will be returned to the respective contractors whose tenders are not accepted.

The cheque of the successful tenderer will be held as security, or part security, for the due fulfilment of the contract to be entered into.

The lowest or any tender not necessarily accepted.

By order,
J. W. PUGSLEY,
Secretary.

Department of Railways and Canals,
Ottawa, March, 1921.

Roger Miller & Sons Limited

Engineers and Contractors

Docks Harbors Breakwaters
Canals Foundations Industrial Plants

Head Office: Lumsden Bldg., - TORONTO.

The most belting service for each dollar invested

KILL LAST AD.

Dominion Friction Surface Belting, properly installed, means greater power economy. Because its flexibility makes it suitable for use on cross curves and where idlers are encountered. Its strength and pulley gripping power make it the most dependable for main drives, counter-shafts, large motors and heavy machinery where the belts are large.

Dominion Friction Surface Belting

meets the diversity of conditions encountered in all industries. The Dominion Rubber System stakes its reputation on the unqualified success of Dominion Friction Surface Belting.

Our belting engineers, without cost to you, will specify the correct belt for each particular purpose, so that power waste will be reduced to a minimum in your plant.

Phone or Wire our Nearest Service Branch

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Our Dominion Hose, Packing and Industrial Rubber Goods are all the Same High Standard as Dominion Friction Surface Belting.

Dominion Rubber System Service Branches

Halifax	Toronto	Fort William	Edmonton
St. John	Hamilton	Winnipeg	Calgary
Quebec	London	Brandon	Lethbridge
Montreal	Kitchener	Regina	Vancouver
Ottawa	North Bay	Saskatoon	Victoria

Dominion Rubber System Products Include:

Belting

Transmission "Dominion," "Keewatin," "Para."

Conveyor: "Rockproof," "Canadian," "Hiheat"

Elevator: "Dominion," "Rockproof."

Agricultural: "Dominion," "Star."

Grain Elevator: "Metcalf Standard," "Grain King."

Hose

Air: "Kushion Kover," "4810 Airtite," "Star."

Steam: "Indestructible," "Rockproof," "Para."

Water: "Indestructible," "Para," "Kushion Kover," "Star."

Suction: "Para," "Star," "Trade."

Garden: "Canadian," "Dominion," "Star."

Packing

Sheet: "Join-Tite," "Star," "Importers."

Rod: "Cabestos," "Valve-Bestos," "Canadian."

Valves: "Montreal," "Commercial." "Canadian."

Miscellaneous

Mats, Matting and Flooring, Plumbers' Specialties, Rubber-Covered Rolls, Friction Tape, Splicing Compound, Dredging Sleeves, Hard Rubber Goods, Tubing, Rinex Soles, Catspaw Heels, Jar Rings, Moulded Goods.

A Typical Railway Installation, Floodlighting a 26 Track Classification Yard

Northern Electric
Davis Floodlights

Give daylight after dark and double your outdoor working hours with bright, steady light free from glare, actually flooding the scene on which it is projected. Portable, simple to adjust and operate, yet substantially built to withstand the rigors of exposure.

Northern Electric Company
LIMITED

Montreal Quebec Toronto London Regina Edmonton
Halifax Ottawa Hamilton Windsor Winnipeg Calgary Vancouver

Railways, Shipyards and Ships of the NEW Canada need more equipment and supplies than Old Canada ever bought.

The new Canada is an **industrial** nation. Old Canada was largely a nation of farmers, miners and wood-choppers.

We progressed, during the war-period, from producers of raw materials to fabricators of finished products.

We have created a large merchant marine which brings to our Atlantic and Pacific ports the products of the whole world, and carries out, to the world, our Canadian products—agricultural, forestry, mineral and industrial.

Transportation is the key to Industry; and the men who read CANADIAN RAILWAY AND MARINE WORLD represent the industrial buying-power, not only of the Railways, the Shipbuilding and Ship-operating companies of Canada, but, through them, the equally important interests of the Captains of Trade and Industry of the Dominion.

And the Government itself—owner of a fleet of 66 merchant ships, completed or on the ways—reads Canadian Railway and Marine World, and uses its advertising pages as a daily buying guide.

The new Canada is in a buying mood, and it has the money to buy with. A list of the equipment and supplies for railways, shipyards, ships, and industries would embrace a thousand important items and tens of thousands of incidentals.

Make your products known through our advertising pages; keep your story persistently before our audience; and be sure of the ultimate and satisfactory result.

CANADIAN RAILWAY AND MARINE WORLD

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Dominion Oxygen

Is Ready for Immediate Delivery Anywhere in Any Quantity

IN accordance with its published program of expansion, the Dominion Oxygen Company, Limited, announces the opening of still another Distributting Station at Welland.

This new link in the Dominion Oxygen Service chain, together with similar stations at Montreal, Hamilton, Windsor and Toronto, make it possible to supply highly pure oxygen in any desired quantity to any point.

Every order for Dominion Oxygen is filled on the day it is received, thus insuring to Canadian oxygen users a never-failing and prompt supply in high capacity cylinders built for economical and safe handling.

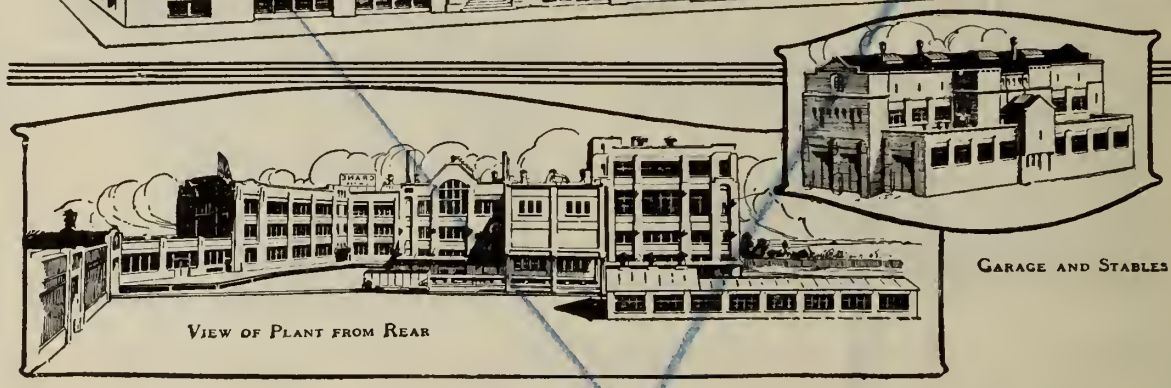
By maintaining the high standard of purity of its product and by developing still further the efficiency of its distributing organization, the Dominion Oxygen Company, Limited, will strive to continue to merit the generous patronage accorded it by Canadian oxygen users.

DOMINION OXYGEN COMPANY, LIMITED

Hillcrest Park, Toronto

Hamilton Montreal, Welland, Windsor

D-16



GARAGE AND STABLES

VIEW OF PLANT FROM REAR

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Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

The establishment of Works at Montreal and Branches (carrying complete stocks) in other principal Cities of Canada enables us to give "CRANE" service and quality throughout the Dominion.

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Why Don't You Save Too!

BOWSER
Battery Storage System
Fig. 109

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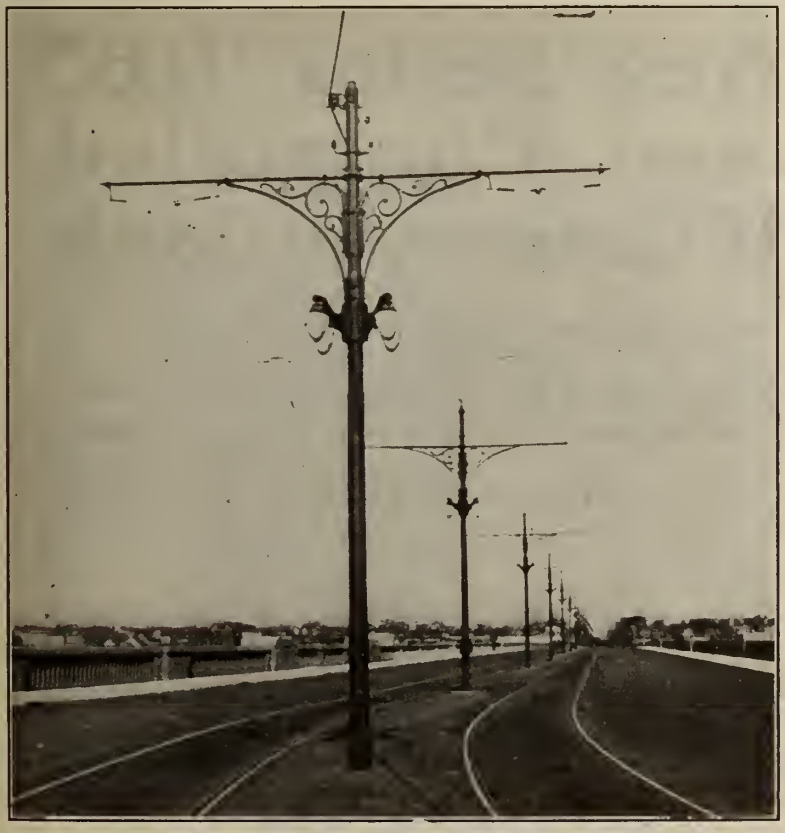

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in appearance, combined with
GREAT DURABILITY, STIFFNESS AND STRENGTH
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Is the Highest Class Jack in the World.

This new pattern No. 5361BB is particularly useful where **small head** and **high lifting capacity** are desired.

Send for latest Catalogue.

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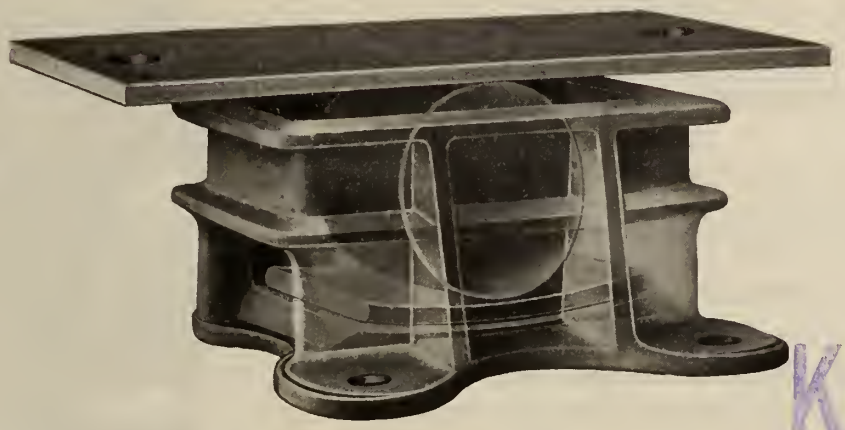

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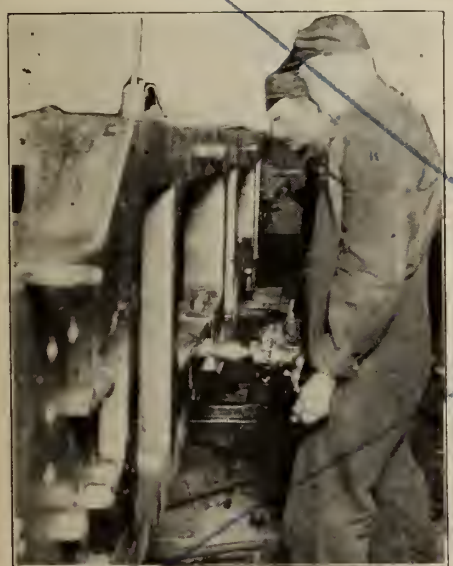

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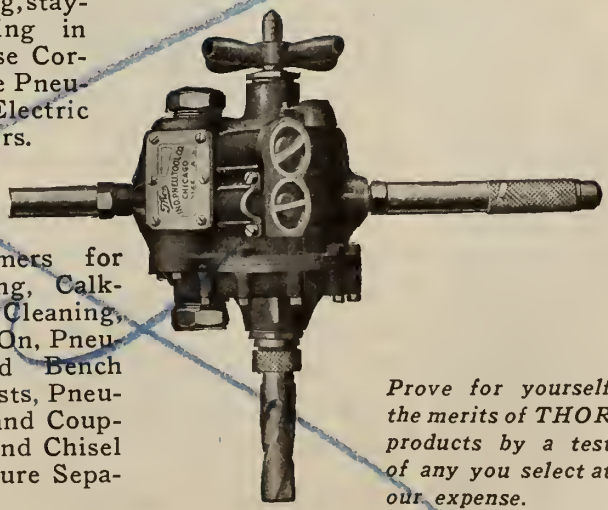

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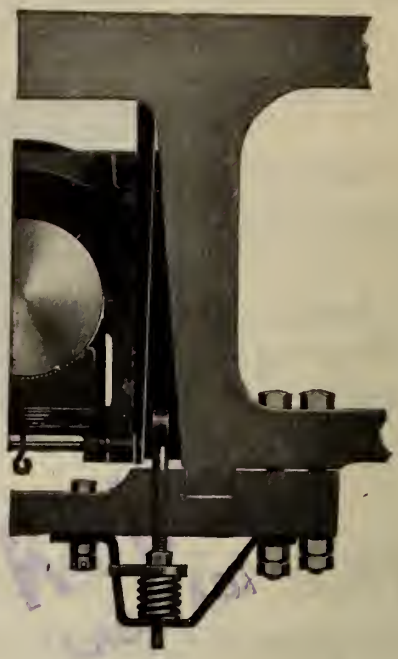
Don't make the adjustment of wedges on your connecting rod bearings dependent on hurried inspection at the roundhouse.

It only hastens the trip to the repair shop.

Franklin Automatic Wedges take up the slack on the road and a brass-destroying pound gets no chance to develop.



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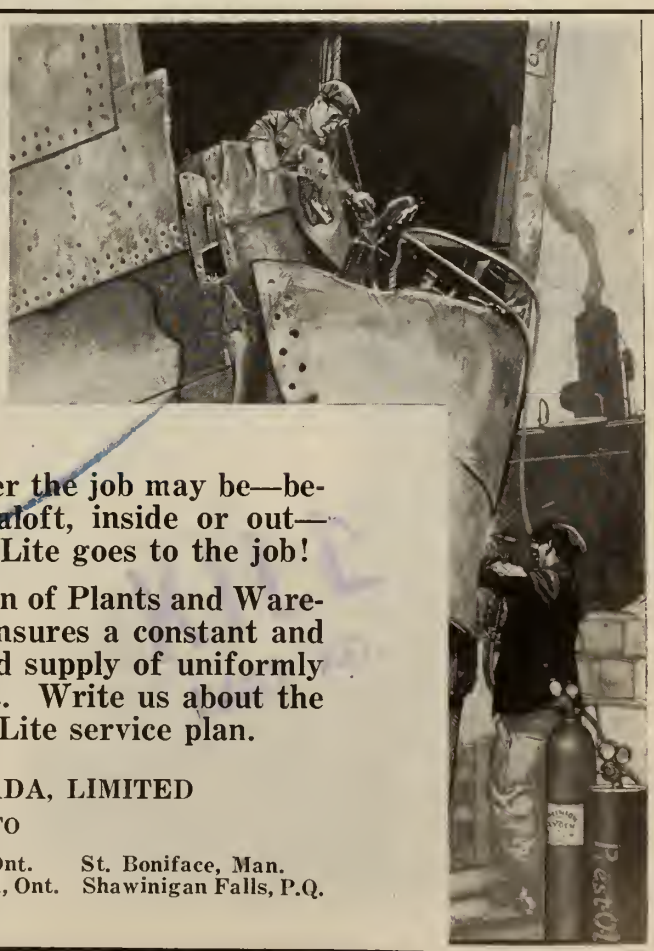

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Power and Light

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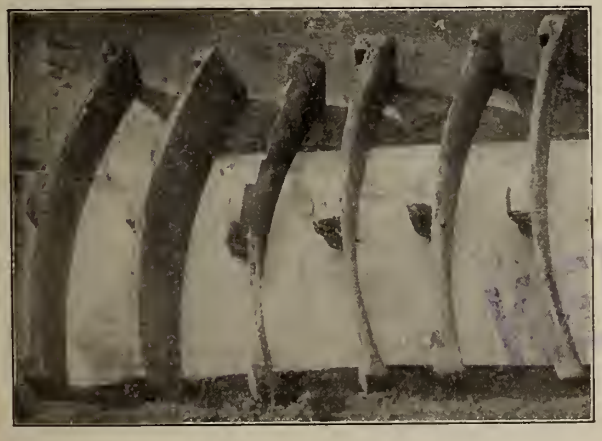

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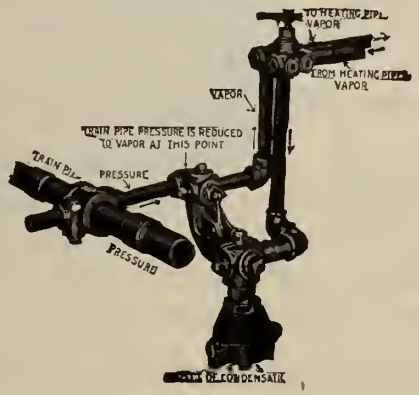

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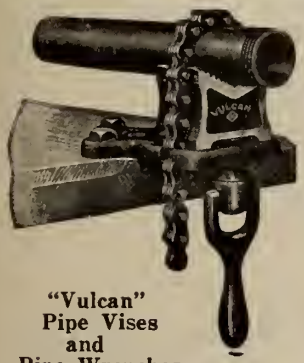

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In addition to the tools shown, our line includes Set Screws, Cap Screws, Machine Screws, High Speed and Carbon Drills, Files (extra large stock) and a complete line of machinists' tools (Starrett, Brown & Sharpe, etc.)

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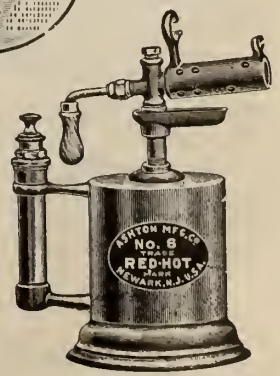

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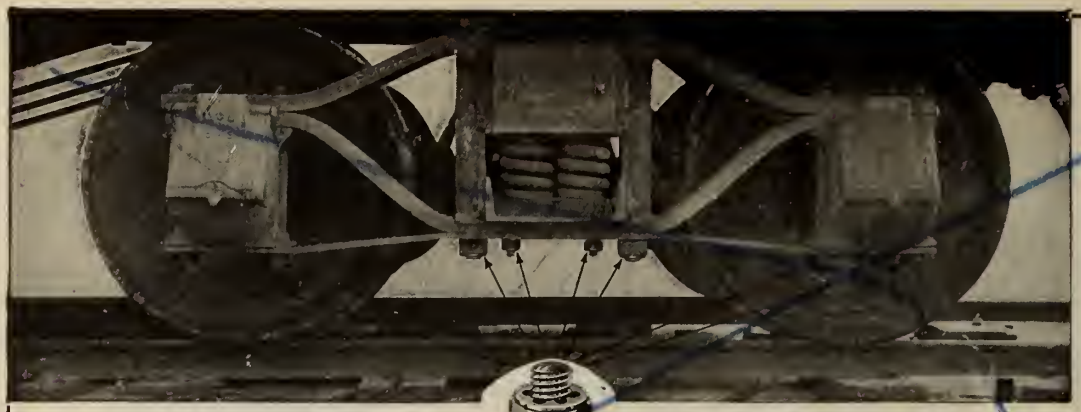

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Lagonda Arch Tube Cleaner

Lagonda Cleaner Removing Scale from Arch Tubes.

Lagonda Arch Tube Cleaners

Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

The Lagonda Arch Tube Cleaner will remove these scale deposits easily and quickly. They are built for all sizes of tubes and can be driven by either water, air or steam. Send for Catalogue W-1 describing the construction and operation of these Cleaners.

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'Tis well worth while, if it's made by Pyle

Type "K-2" 500 watt 32 volt Turbo-Generator

A complete line of

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Locomotive Cranes
Clam Shell and Orange Peel Buckets

insure satisfaction in difficult work Correct design, right materials and superior fabrication.

Catalogue No. 18 will give you information desired for size of crane necessary to handle your material.

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Piston Rod and Valve Stem Packing for Super Heat and Saturated Steam.
"Packing that Packs." Manufactured in Canada.

DUNTLEY-DAYTON
Pneumatic Tools. Tools that are guaranteed.
Ask for trials or tests and satisfy yourself.

THE "IMP" DROP-FORGED RIVET SET
Made in Canada from steel made in Canada.
Conduct Break-down test; satisfy yourself.

"CULVER" BALL BEARING JACKS
Once tried always used. Convince yourself—ask for trial. Apply and operate wherever Jacks can be used. Note results.

"INTERNATIONAL" PLASTIC METALLIC PACKING
All that its name implies. Good materials are only determined by results obtained in service. Ask about it. This is a Packing that overcomes the necessity for carrying many styles and sizes. "INTERNATIONAL" PLASTIC METALLIC conforms to all sizes and shapes of stuffing boxes.

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We carry in stock full line of Round House, Back Shop and Machine Shop Supplies.

We are Canadian Distributors for QUAKER CITY RUBBER CO. Their complete line of Mechanical Rubber Goods Carried in Stock. WE RESPECTFULLY SOLICIT YOUR VALUED INQUIRIES.

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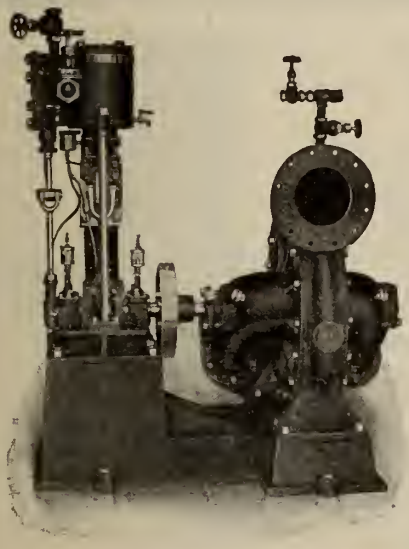

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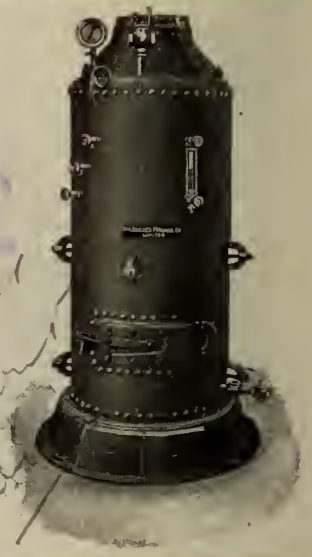

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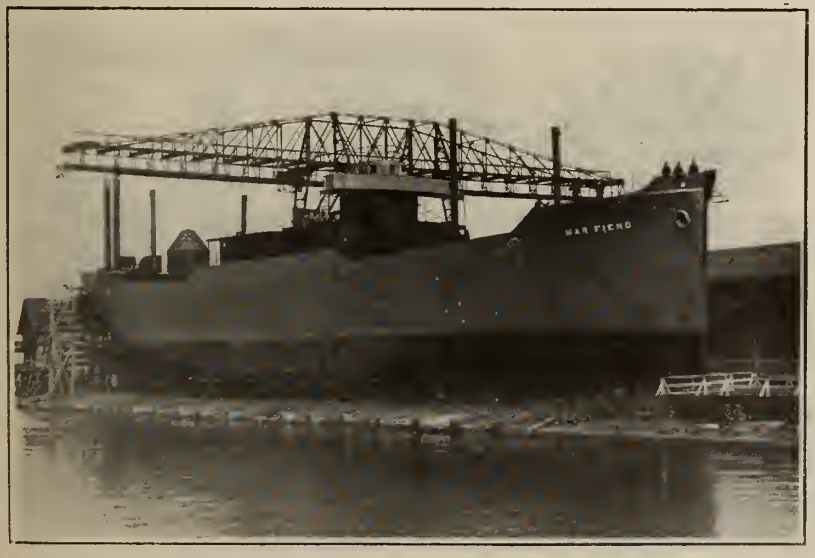

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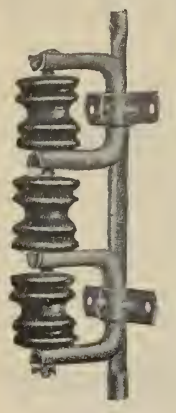

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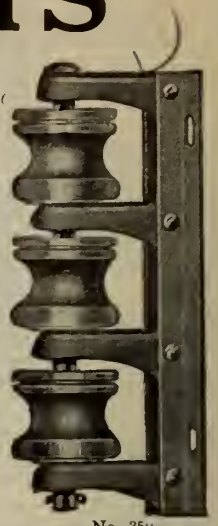

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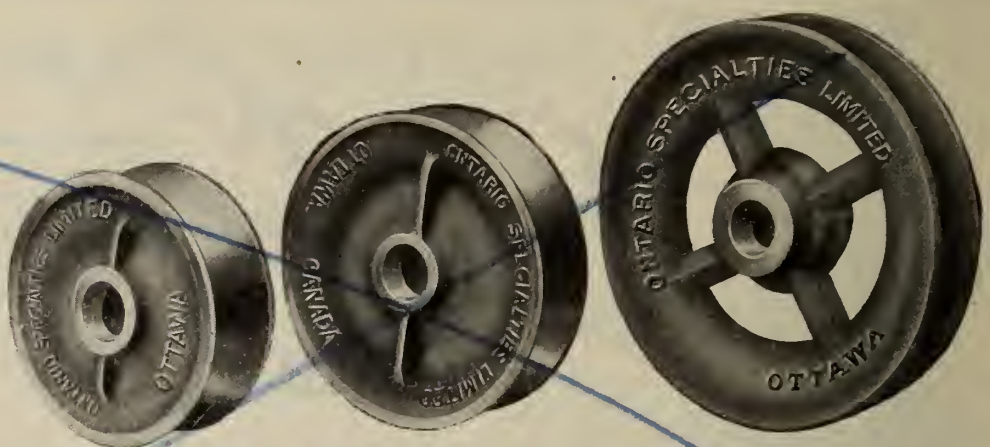

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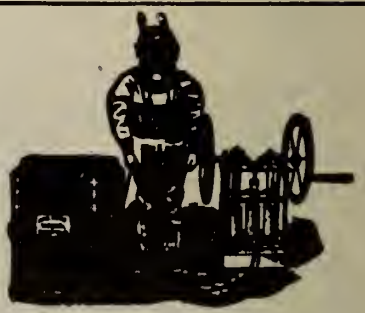

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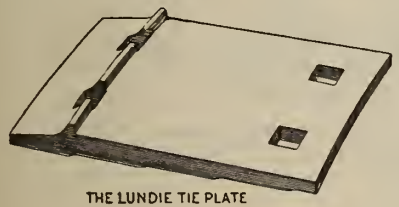

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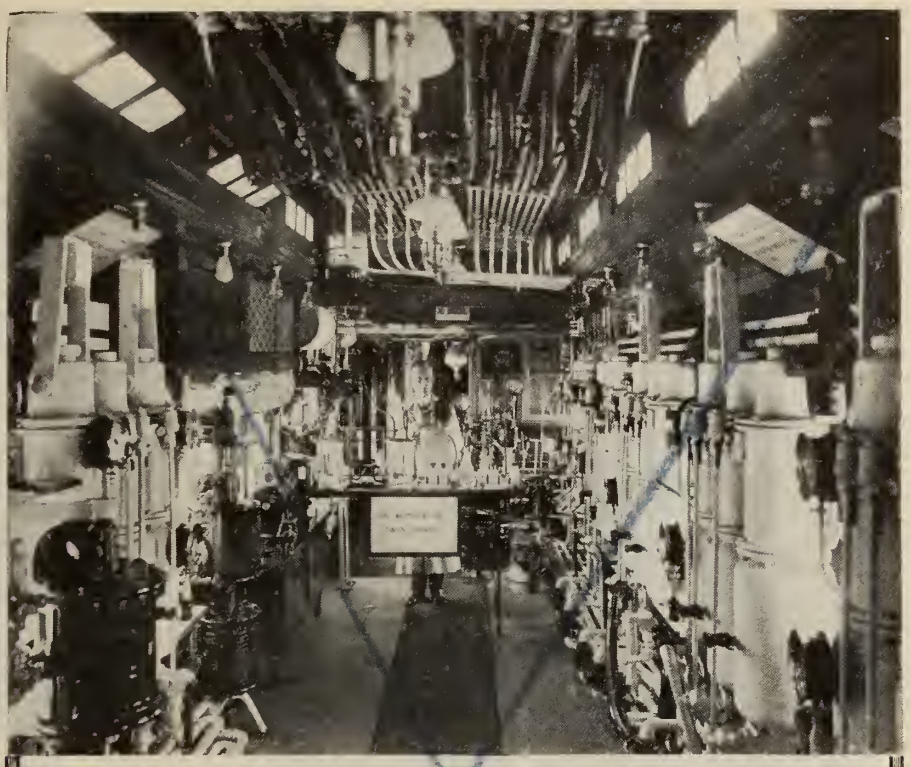

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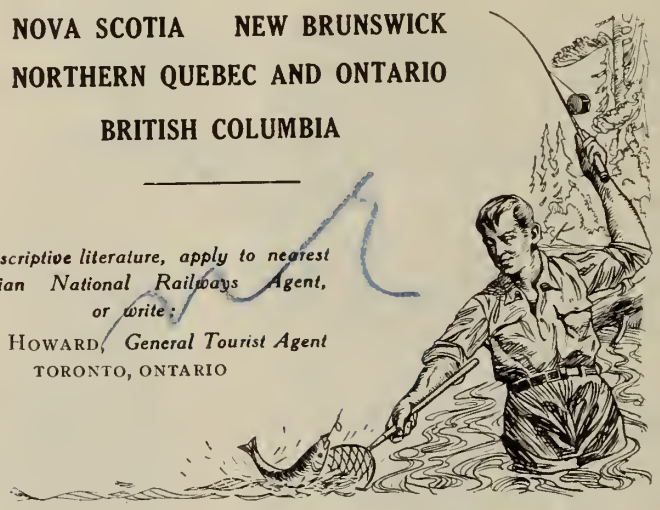

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Alphabetical List of Advertisers

A

Algoma Steel Corporation 121
American Manganese Bronze Co. 122
American Steel Foundries ....2 & 136
Arnold Co. 101
*Associated Business Papers Inc. 19
*Association of Manufacturers of Chilled Car Wheels 21

B

Babcock & Wilcox 119
Barrett Co. 15
Berry Bros. 116
Bertram, John, & Sons Co. 5
Bowser, S. F., Co. 108
Bradstreet Company 130
British Ministry of Munitions 10
Brown Hoisting Machinery Co... 3
Buffalo Brake Beam Co. 37
Butterfield & Co. 115

C

Canada Foundries & Forgings Ltd. 125
Canada Grip Nut Co. 128
Canada Iron Foundries, Ltd..... 116
Canada Machinery Corporation.... 34
Canada Steamship Lines, Ltd. 36
Canadian Bridge Co. 100
Canadian Bronze Co. 132
Canadian Chicago Bridge & Iron Co. 128
Canadian Consolidated Rubber Co. 102
Canadian Fairbanks-Morse Co..... 24
Canadian Gold Car Heating and Lighting Co. 133
Canadian Government Merchant Marine, Ltd. 6
Canadian Johns-Manville Co. 118
Canadian Mead-Morrison Co. 126
Canadian National Carbon Co..... 118
Canadian National Newspapers and Periodicals Association 25
Canadian National Railways 132
Canadian Pacific Railway ..... —
Canadian Pacific Ry. Colonization Department 130
Canadian Porcelain Co. 38
Canadian Railway and Marine World 104
Canadian Ramapo Iron Works Ltd. 116
Canadian Steel-Tire & Wheel Co. 39
Canadian Vickers, Ltd. 22
Canadian Westinghouse Co. 114
Carr, C. E. A., Co. 123
Carter White Lead Co. of Canada 133
*Chase, L. C., & Co. 40
Coghlin, B. J., Co. 1
Collingwood Shipbuilding Co. 107
Commercial Acetylene Supply Co. 33
Consolidated Steel Corp. 14
Corbet Foundry & Machine Co. 99
Crane Limited 106

D

Date, John 124
Davidson, The Thomas, Mfg. Co. 100
Davis Boring Tool Co. 11
Davis-Bournonville Co. 135
Dearborn Chemical Co. of Canada 13
Diamond Saw & Stamping Works . . .. —
Diamond State Fibre Co. of Canada 29
Dominion Brakeshoe Co. 115
Dominion Bridge Co. 113
Dominion Coal Co. 132
Dominion Foundries & Steel, Ltd. 108
Dominion Iron & Steel Co. 121
Dominion Oxygen Co. 105
Dominion Paint Works, Ltd. 23
Dominion Steel Products Co. 101
Dominion Towing & Wrecking Co. 99
Dominion Wire Rope Co. 28
Duner Co. 130

E

Engineering & Machine Works of Canada 122

F

Fairmont Gas Engine & Railway Motor Car Co. 126
Flannery Bolt Co. 35
Franklin Railway Supply Co. of Canada 112

G

Galena Signal Oil Co. 18
Galt Malleable Iron Co. 100
Gartshore, J. J. 130
General Railway Signal Co. of Canada 100
Grand Trunk Railway 114
Griffin & Brinkerhoff 132

H

Halifax Shipyards Ltd. 36
Hamilton Bridge Works Ltd. 117
Hart-Otis Car Co. 28
Holden Co. 111
Hopkins, F. H., & Co. 28
Hoyt Metal Co. 100
Hunt, Robert W., & Co. 101
Hunt-Spiller Mfg. Corporation ... 39

I

Imperial Bank of Canada 100
*Imp. Guar. & Accident Ins. Co. 130
Independent Pneumatic Tool Co. 111
Inglis, John, Co. 41
International Correspondence Schools 125
International Machinery & Supply Co. 120

J

Joliette Castings & Forgings Ltd. 123

K

Kalamazoo Railway Supply Co... 34
Kennedy, The William, & Sons, Ltd. 2
KeYoke Railway Equipment Co... 12
Kidston, A. G., & Co. 35
Krauser, Webb G. 17

L

Lewis, Rice, & Son 117
Lincoln Electric Co. 11
Lundie Engineering Corporation. 125
*Luther Grinder Mfg. Co. ..... —
Lyman Tube & Supply Co. ..... —

M

McAvity, T., & Sons 33
Marconi Wireless Telegraph Co... 120
Mason Regulator & Engineering Co. . . .. —
Metal & Thermit Corporation.... —
Midland Shipbuilding Co. 123
Miller, F. W., Heating Co. 130
Miller, Roger, & Son 101
Miner, W. H. 32
Montreal Locomotive Works, Ltd. 37

N

National Lock Washer Co. 8
National Pneumatic Co. 131
Nichols, G. P., & Bro. 125
Nicholson File Co. 29
Northern Crane Works Ltd. 132
Northern Electric Co. .....4 & 103
Norton, A. O., Ltd. 110
Nova Scotia Steel & Coal Co..... 32

O

Ohio Brass Co. 20
*Ontario Specialties, Ltd. 124
Orton & Steinbrenner Co. 120
Ottawa Car Mfg. Co. 38

P

Page-Hersey Tubes, Ltd. 109
Page & Jones 124
Peacock Bros. 9
Pedlar People, Ltd. 31
Piper, The Hiram L., Co. 124
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 113
Pyle-National Co. 119

Q

Q & C Co. 26

R

Rail Joint Co. of Canada 119
Railway & Power Engineering Corp. 27
Ramsay, A., & Son, Co. 130
Reid Newfoundland Co. 107
Robb Engineering Works 30
Robinson Co., E. A. 118

S

Safety Car Htg. & Ltg. Co..... 110
Sinclair, Angus 101
Slater, N., Co. 124
Smart-Turner Machine Co. 121
Standard Car Truck Co. 122
Standard Underground Cable Co. of Canada 132
Star Brass Works 30
Steel Co. of Canada .....13 and 140
Strauss Bascule Bridge Co. 99
Superheater Co. 16
Symington Co., The T. H. 31

T

Taylor & Arnold Engineering Co. 109
Templeton Kenly Co. 7
Tuco Products Corporation 115
Turnbull, Harvard, & Co. 41

U

Union Draft Gear Co. 17
Universal Draft Gear Attachment Co. 17

V

Vapor Car Heating Co. of Canada 117

W

Woolery Machine Co. 40

Y

*Yarrows, Ltd. . ..... —

*Alternate months.

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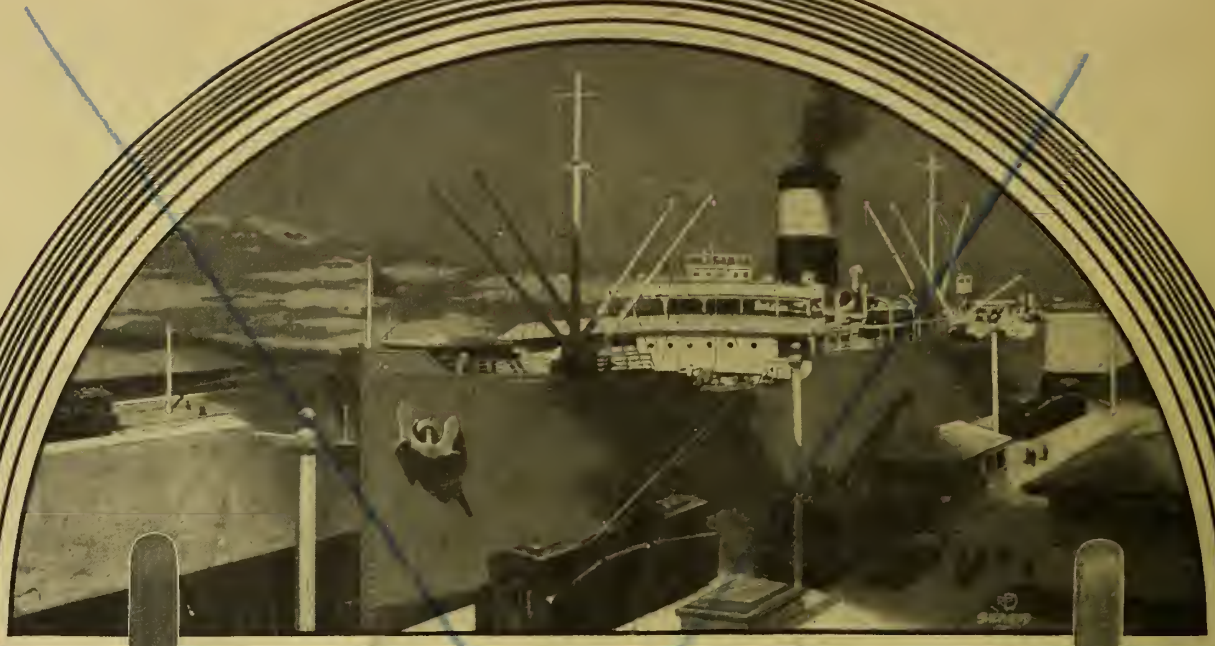

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Index to contents, 255.

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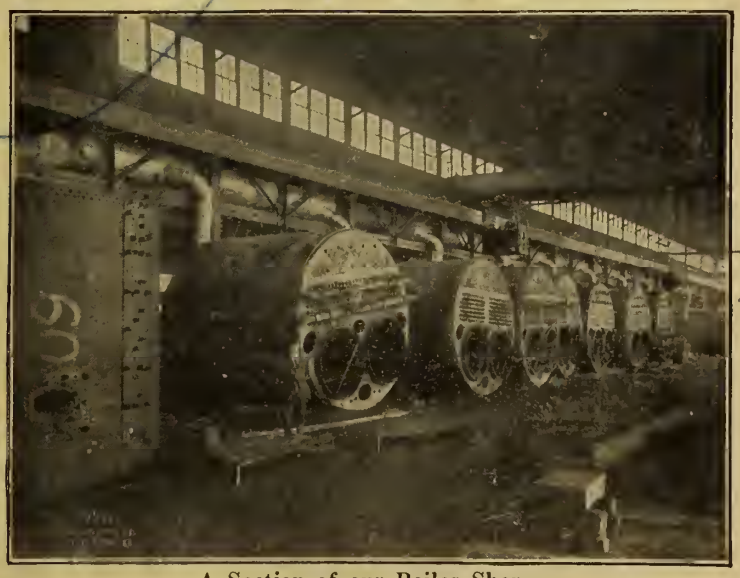

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Steam Railway and General, Page 233. Electric Railways, Page 265. Marine and Shipbuilding, Page 272.

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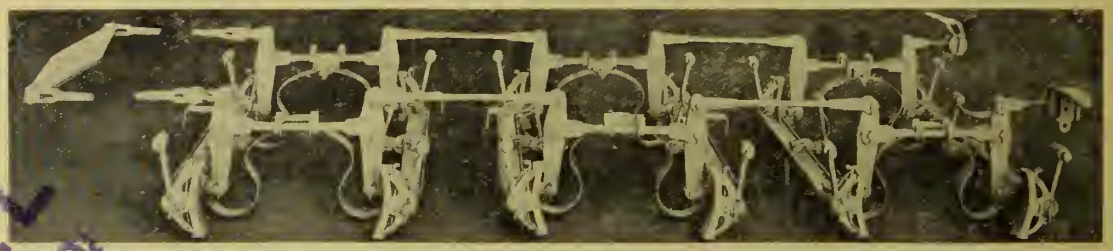

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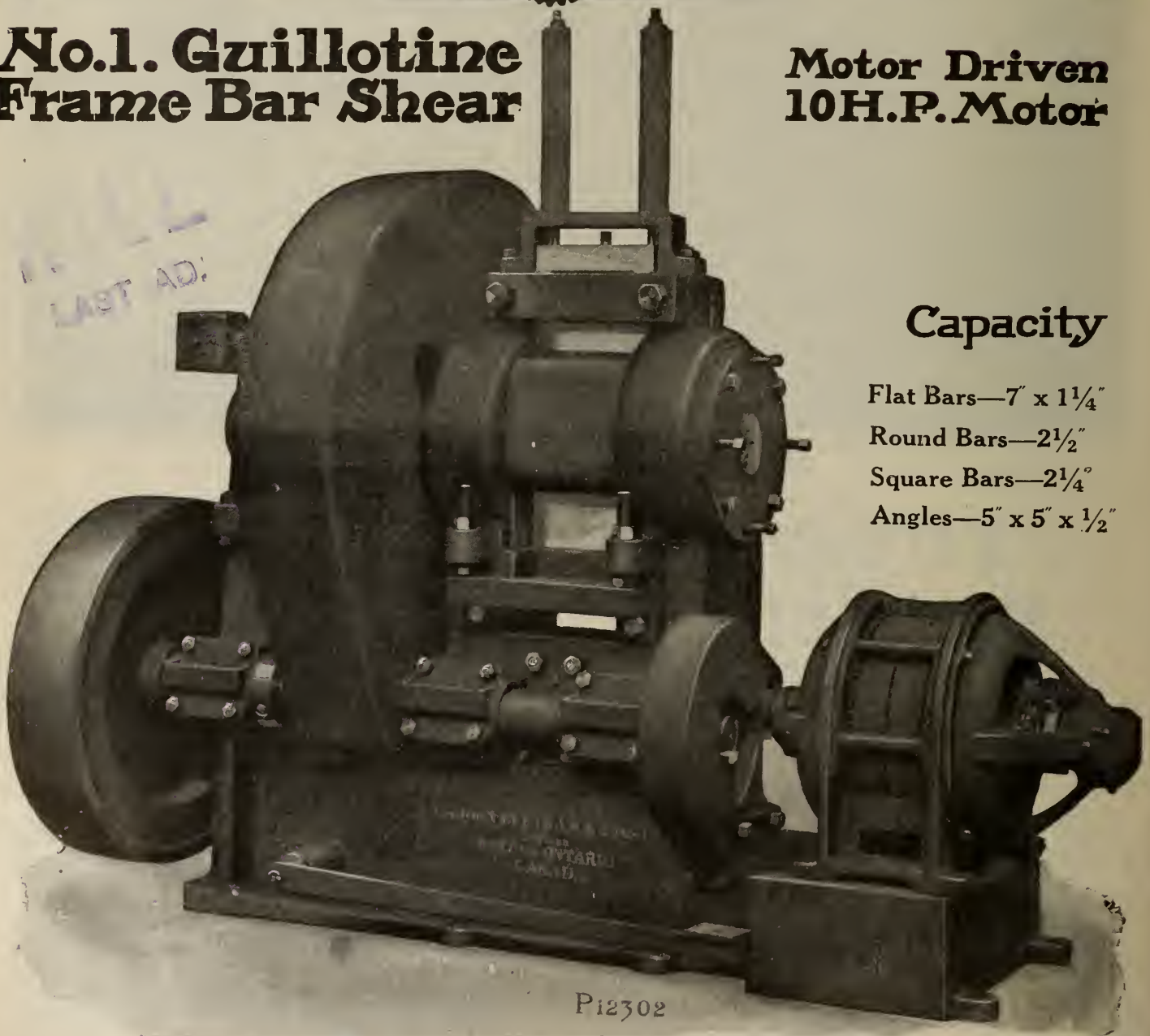

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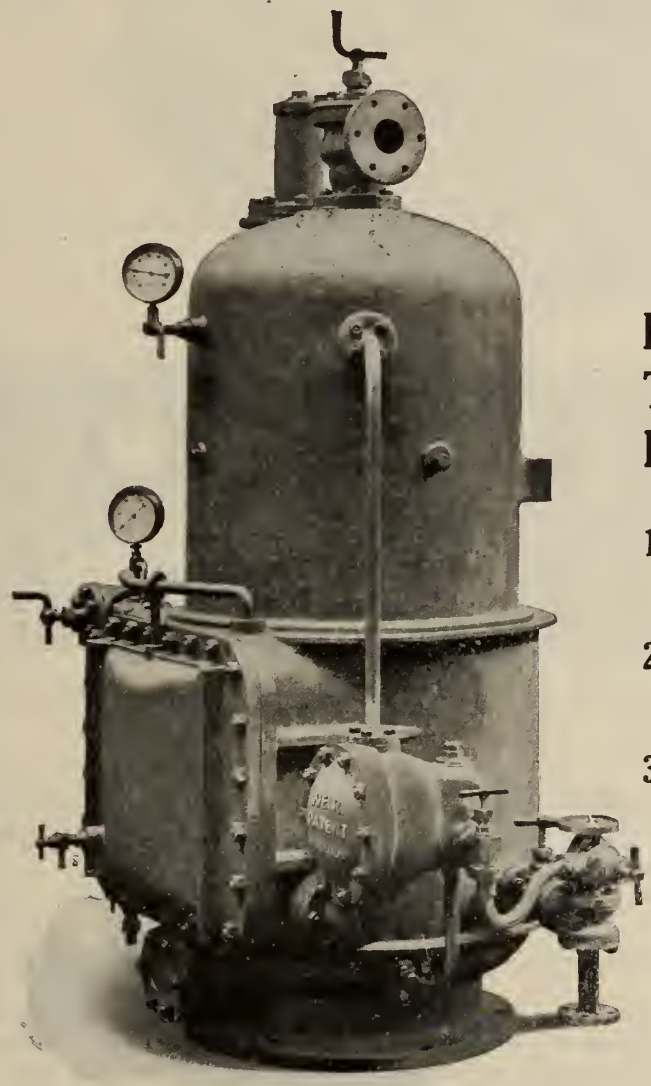

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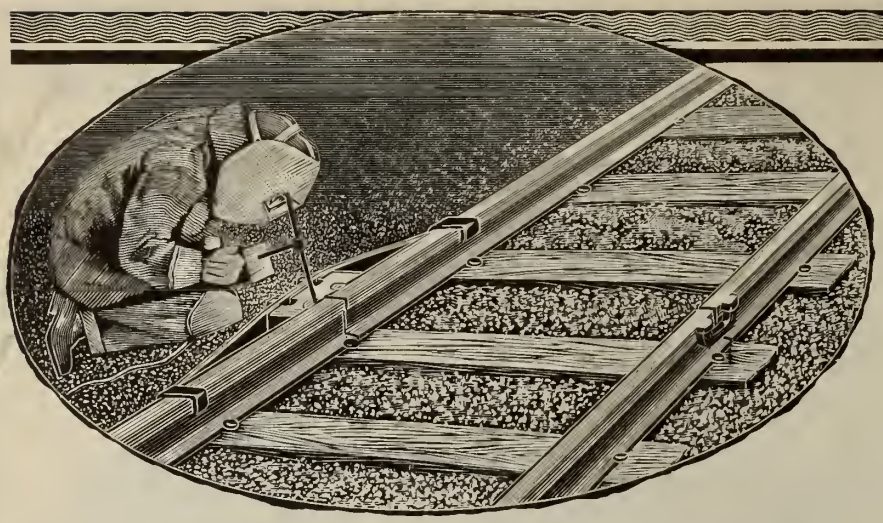

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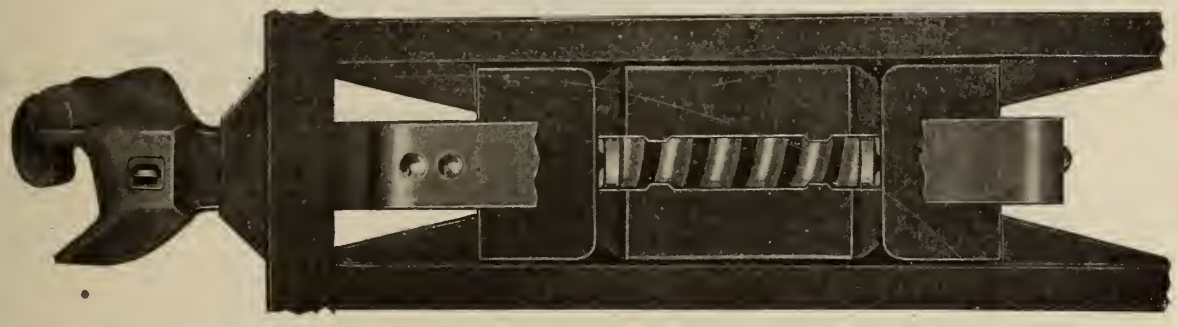

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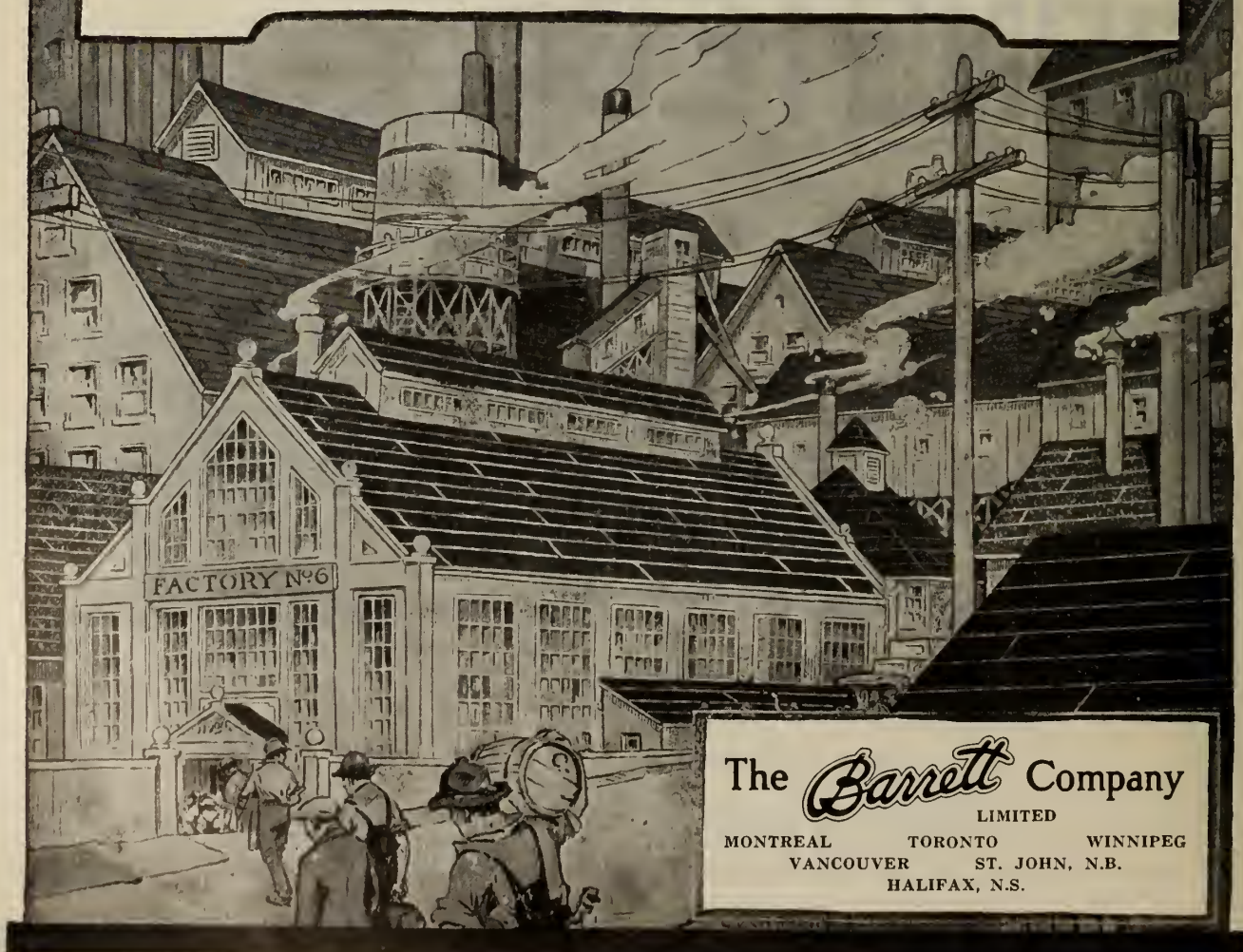

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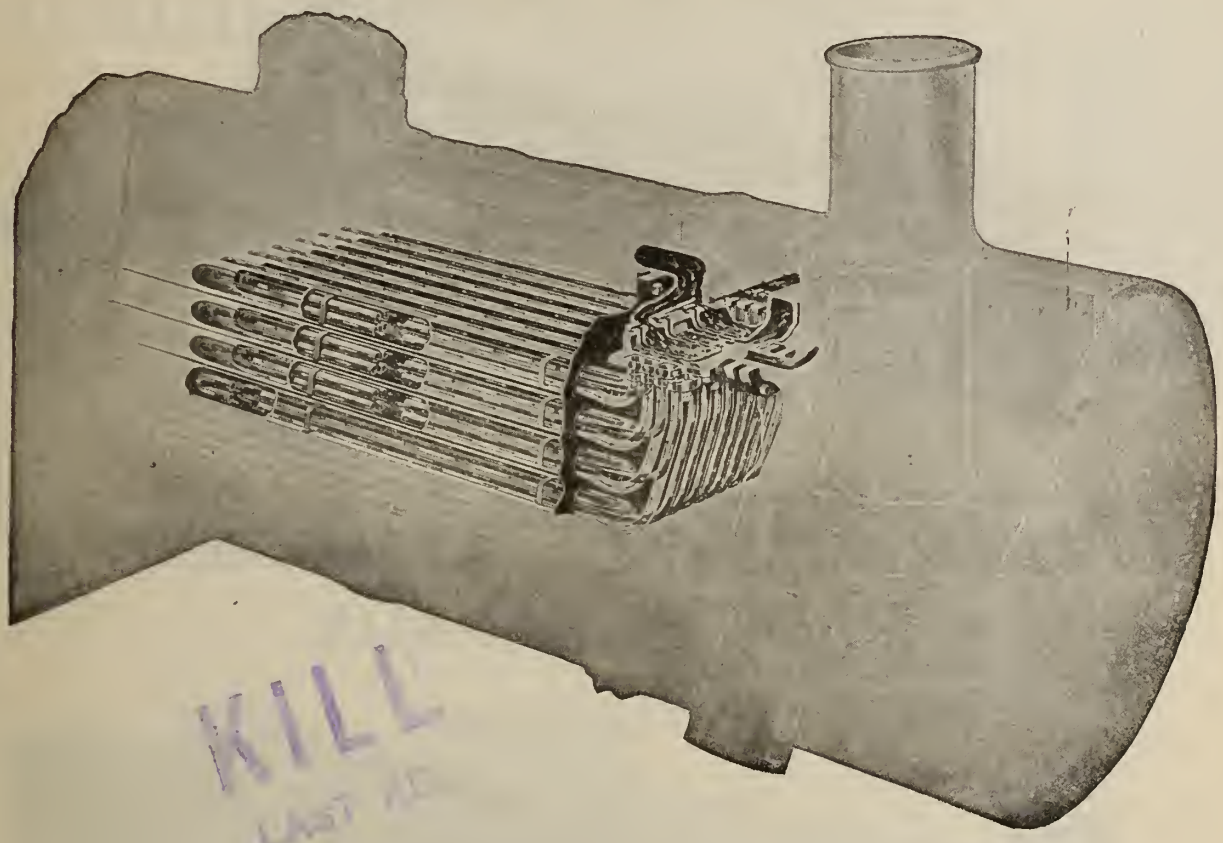

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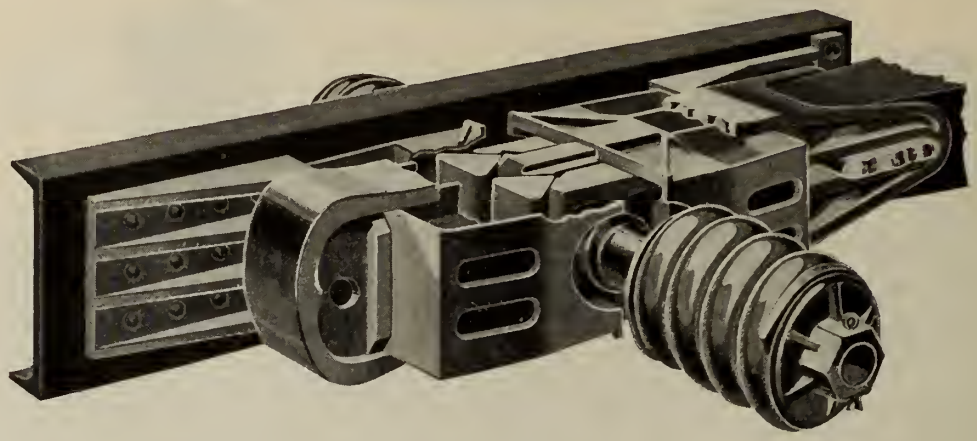

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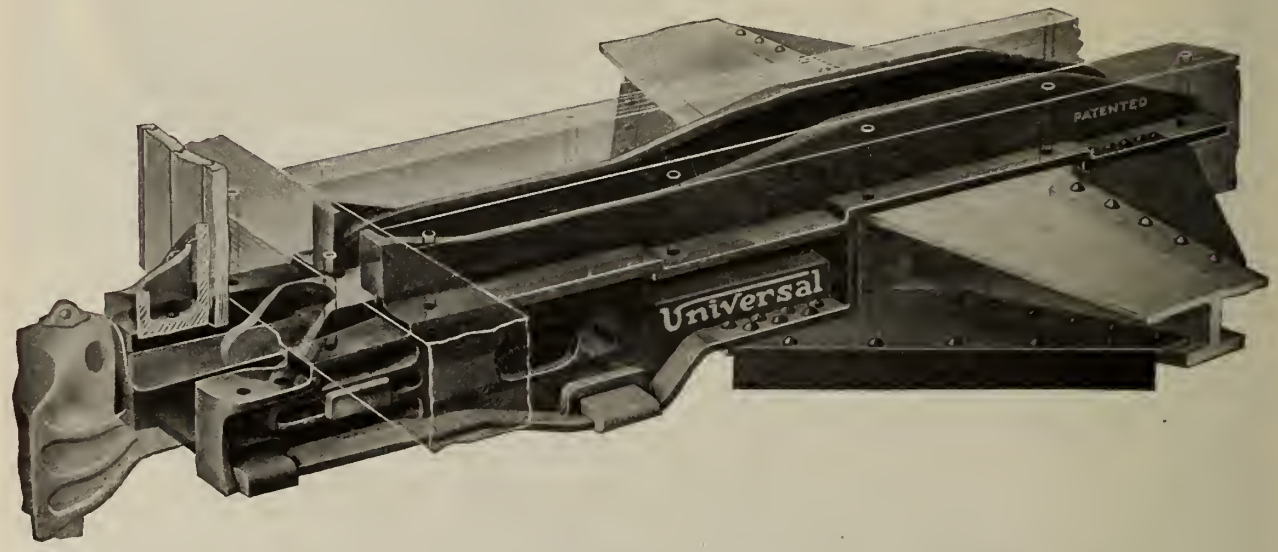

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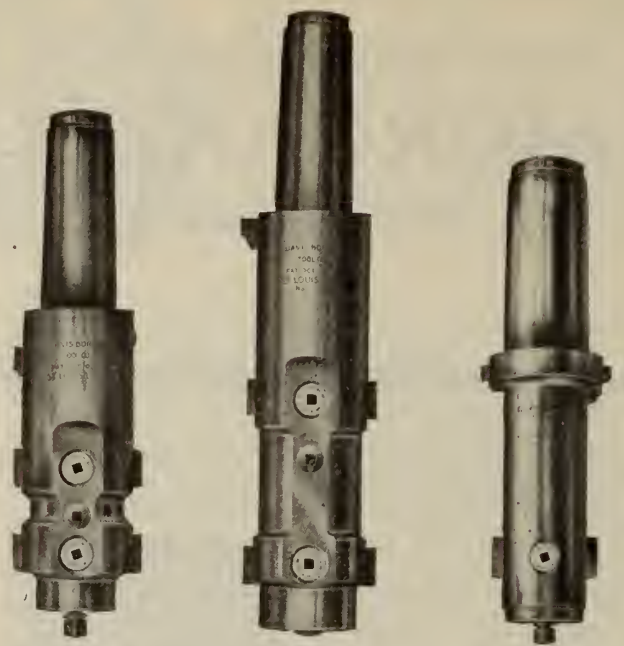

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DAVIS Expansion Car Wheel Boring Tools

A Universal Standard

The universal adoption of the Davis System of scientific car wheel boring and fitting, represents the evolution of correct wheel practice—the gradual advance from the methods previously employed, to the present high state of perfection.

The efficiency of boring all new wheels to fit standard gauges, while turning axles to corresponding standard sizes, and the economy of boring all wheels, on repair work, to fit the axle instead of needlessly turning down a good axle to fit the wheels, is very evident in the Davis System.

And, Davis Expansion Car Wheel Boring Tools form the basis of the entire System. Cutters are expanded to compensate for wear, by a practical micrometer adjustment, graduated in .001, which enables the operator to maintain a standard or bore odd sizes with extreme accuracy.

These efficient tools are the adopted M.C.B. Standard for correct wheel boring and fully 98% of all car wheels are bored with them. Made in three styles shown above, in a number of sizes, and can be applied to any make wheel borer.

Let us explain how the Davis System of wheel boring will help you—how it will increase production, improve the quality of your work and reduce your wheel boring costs at least 25%.

Write our Railroad Dept. Today for full Particulars.

DAVIS BORING TOOL CO.

Incorporated,

Forst Park Blvd., near Spring Ave.,

St. Louis, Mo., U.S.A.

Canadian Agents:

WILLIAMS & WILSON
Montreal, Quebec.

JNO. BERTRAM & SON,
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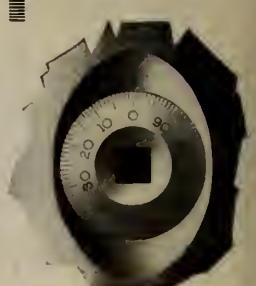

Micrometer Adjustment

Cab Tire Cable

The Cable De Luxe for Industrial Purposes

This advertisement illustrates:

A length of Northern Electric Cab Tire Cable
One Northern Electric No. 511 Marine Plug and Receptacle
One Northern Electric No. 300 Hand Portable

This combination is ideal for Industrial Portables. It is especially adapted for use in damp localities, or where gas or oil fumes abound, and where other types of cable would be subject to mechanical injury.

Because of its flexibility and durability, Cab Tire Cable is in a class by itself for industrial purposes, and the ever-increasing orders received from Machine Shops and Industrial Plants all over Canada prove its merit and popularity.

Our nearest house will give your inquiries immediate attention.

Northern Electric Company
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MONTREAL QUEBEC TORONTO LONDON REGINA EDMONTON
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What class of news do you read in your newspaper?

After the general news of the day if you find any items respecting transportation work you will read them carefully, but how many columns of type are there that you pass over without reading at all because you are not interested?

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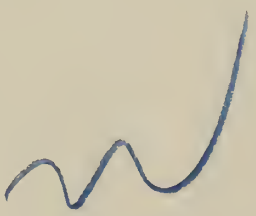
Just sign the coupon printed below and place it in the post.

The $2 can be sent with it or later, whichever you prefer.



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70 Bond Street, Toronto, Canada.

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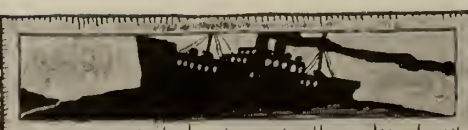

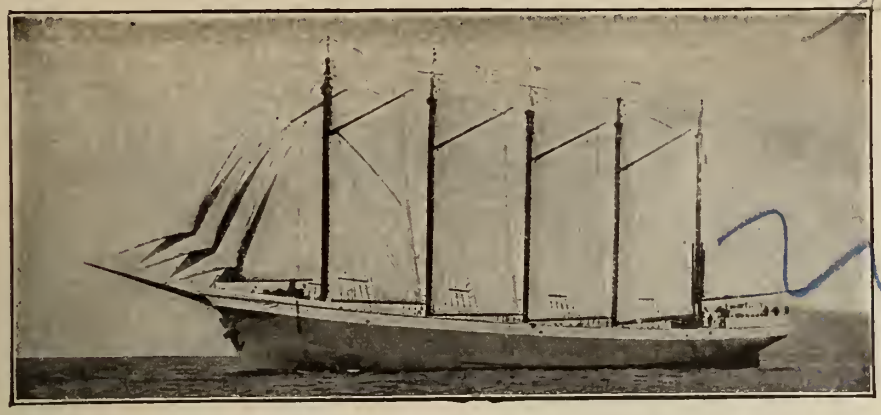

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THE DOMINION WIRE ROPE CO., LIMITED

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The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

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Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL

"Industrial Works" Cranes

Increase Profits by Reducing Handling Costs

"Ransome"

Made in Canada

Mixers

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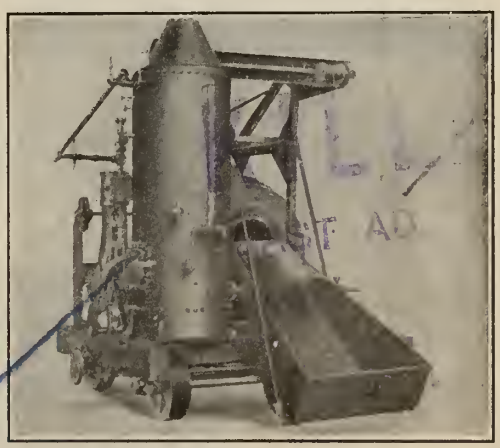

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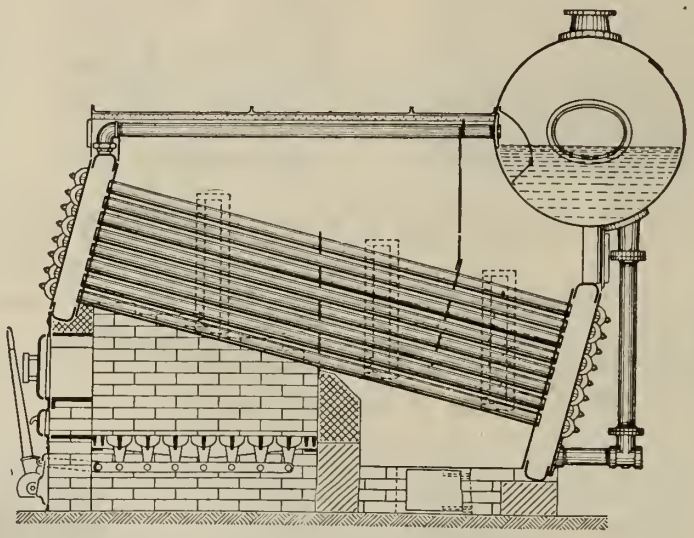
The Victory Heating Boiler



Is a water tube boiler designed for heating, and is the safest boiler that can be used.

It has a steel case lined with asbestos and firebrick and requires no brick setting.

It may be shipped knocked down and taken into a building through ordinary doors.

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MANUFACTURED IN CANADA

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ROLLING ROCKER SIDE BEARINGS

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EFFICIENT FRICTION DRAFT GEARS

W. H. MINER
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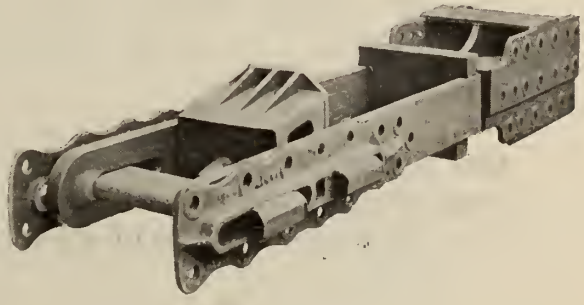
THESE DEVICES ARE VERY EXTENSIVELY USED

Symington Railway Specialties

Made in Canada

Symington Malleable Iron Journal Box equipped with Malleable Iron Torsion Spring Lid.

Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



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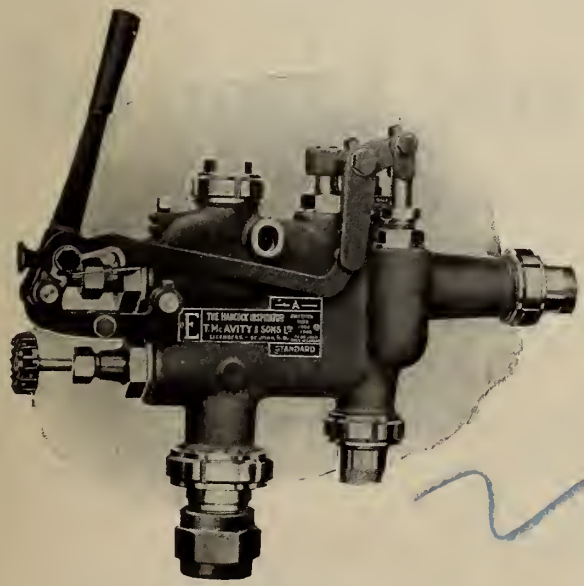
New York **Baltimore** **Chicago**



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Also can supply forgings of all shapes and sizes made of ordinary or "Harmet" fluid compressed open-hearth steel, and satisfying the most severe specifications.

Our forges are modern in every respect—designed and installed after close study of the latest developments in all countries. Moreover, we produce the highest grades of steel by the most approved methods.

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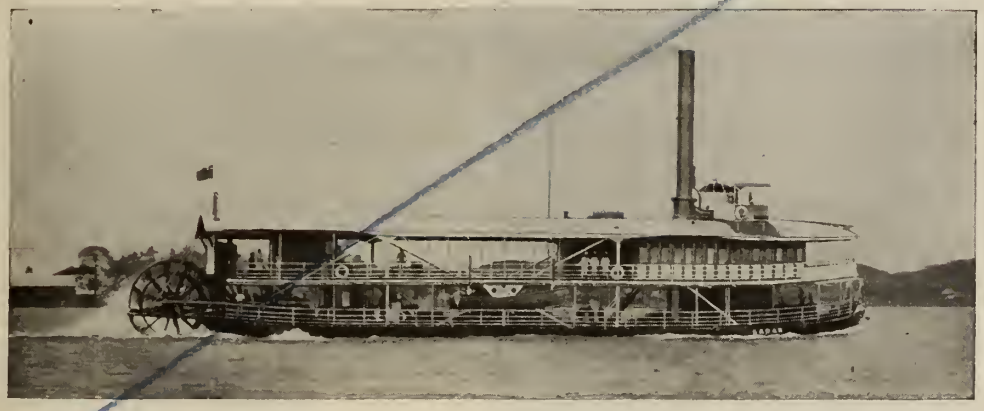

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Commercial Acetylene Supply Company, Inc.

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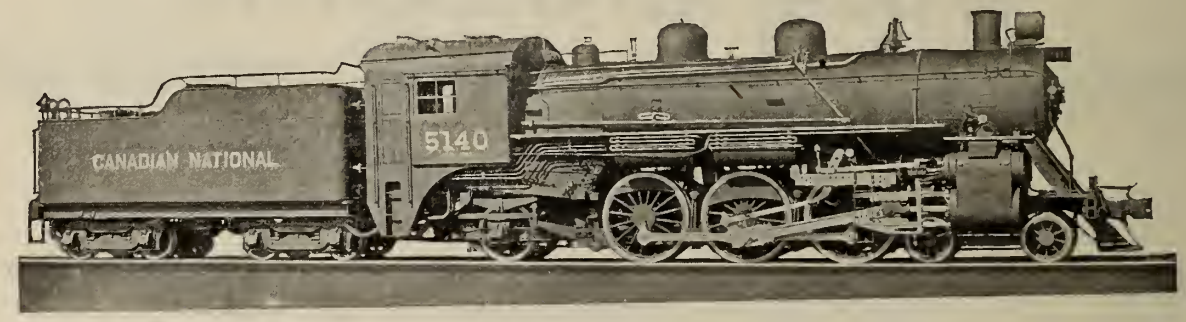

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Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

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Cut Machining Costs

by installing a C.M.C. Shaper.

It is massive and powerful enough to carry the heaviest cuts.

All adjustments are made from the working side of the Shaper while it is in operation. No loss of time or leaving of work to make changes. The operator's attention is concentrated on the job all the time.

It is Canadian made and is equal to the best on the market.

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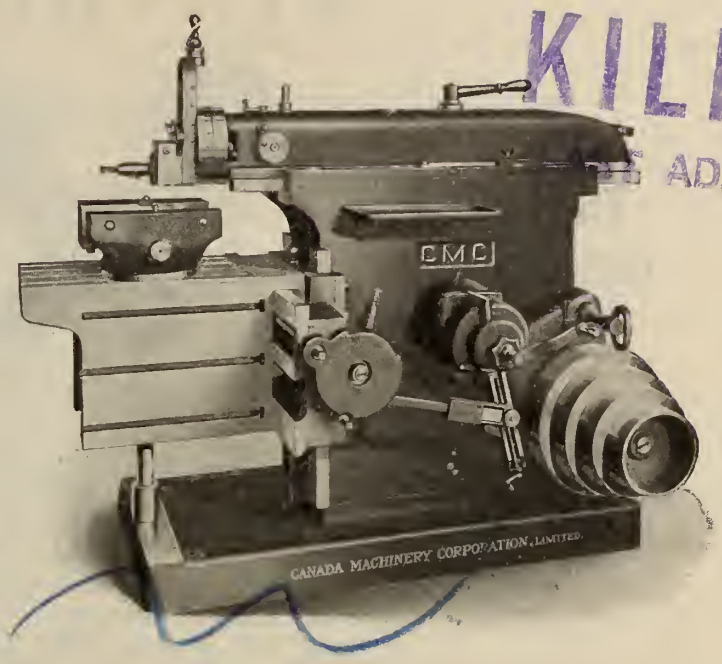

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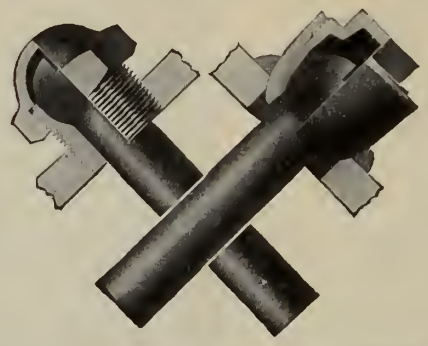
"TATE" THREADED CONNECTION



"F. B. C." WELDED CONNECTION

Our latest achievement, the "F. B. C." FLEXIBLE STAYBOLT, is as great an improvement over the present type of Tate bolt, as the Tate was over the ordinary rigid staybolt.

The Principal Improvements are

Non-Leakable Sleeves - Lower Cost of Application

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Three "F. B. C." sleeves replace seventeen types of threaded sleeves, thus reducing number of styles of sleeves to be carried in stock.

Specify "F. B. C." Flexible Staybolts for New Equipment and Order Them for Repairs.

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Manufactured and sold in Canada by CANADIAN AL LIS-CHALMERS, Limited, General Offices, Toronto, Ont.

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FOR 12 OF THE PRINCIPAL PARTS OF A LOCOMOTIVE

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2 Cylinder Packing
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9 Pedestal Shoes
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USE HUNT-SPILLER GUN IRON PISTON BULL RINGS

The application of the proper material to these parts not only increases the service from both bushings and packing, but consequently results in more dependable service on the road—greater mileage between renewals and greater efficiency in operation of your locomotives.

It will pay you big dividends to specify HUNT-SPILLER on your next requisition for these parts.

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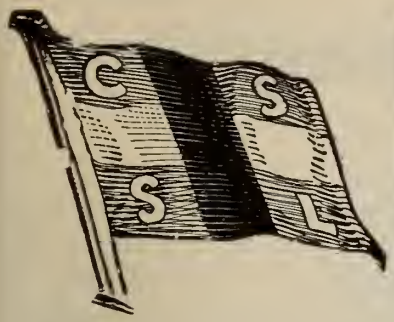

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Service now in effect.

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Summer schedule to Niagara in effect May 21st. Daily service to Niagara-on-the-Lake, Queenston and Lewiston, connecting at Lewiston with New York Central and Gorge Railways; and at Queenston with Trolley Line for Niagara Falls, Buffalo and United States points.

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Commencing June 11th, boats leave Toronto for 1,000 Islands, Montreal, Quebec and the Saguenay River.

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CHAMPION COLD WEATHER ENGINE

FOR RAILWAY MOTOR CARS

Runs in 60 Below Zero Weather

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5 and 7½ H.P. Single Cylinder PATENTED, SELF-ADJUSTING SLIDING BASE.

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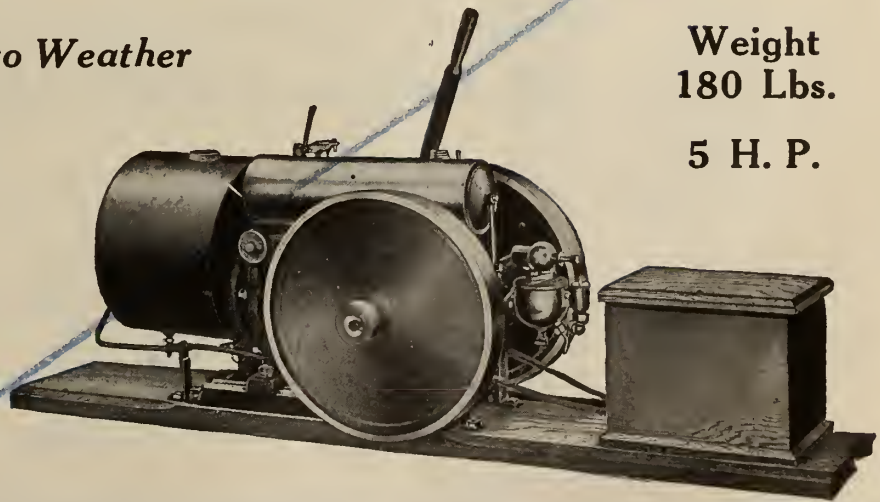
10 and 15 H.P. Twin Cylinder with Belt and Roller Chain Transmission.



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Four Mead-Morrison Coaling Towers—built in capacities of 300 tons an hour each.

We supply complete equipment, including coal bridges, coal crushers, cable railways, conveyors.

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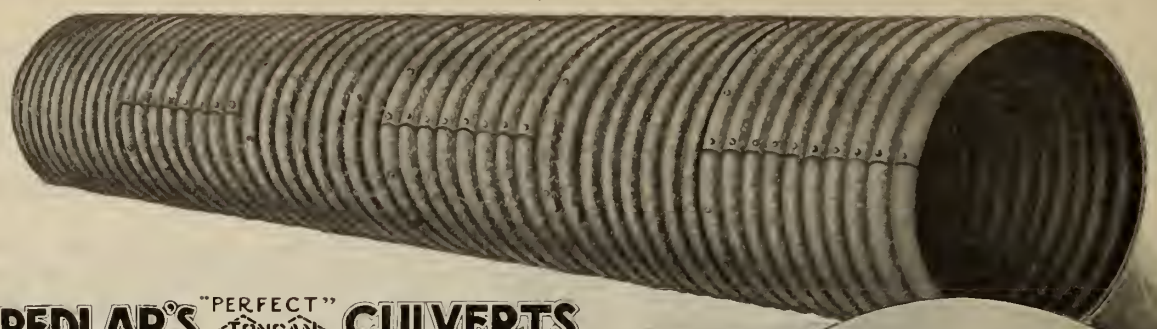

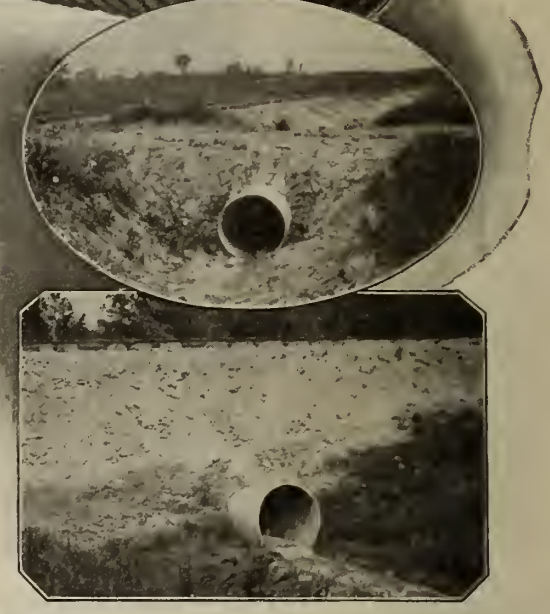

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Long Service, Without Maintenance Cost

WHEN you build a road you naturally figure on keeping down as far as possible the cost of maintenance. In doing this you cannot pay too great an attention to the type and capacity of your culverts. You need Culverts that will be large enough to carry off water when Spring floods are at their height; culverts that cannot cause wash-outs by breaking under the internal stresses of frost or ice; culverts that will maintain their shape and position under the stress of the heaviest live or dead loads to which they can be subjected. All these requirements are fully met by the selection of Pedlar's "Perfect" Culverts — the strongest, most durable and convenient culverts made.

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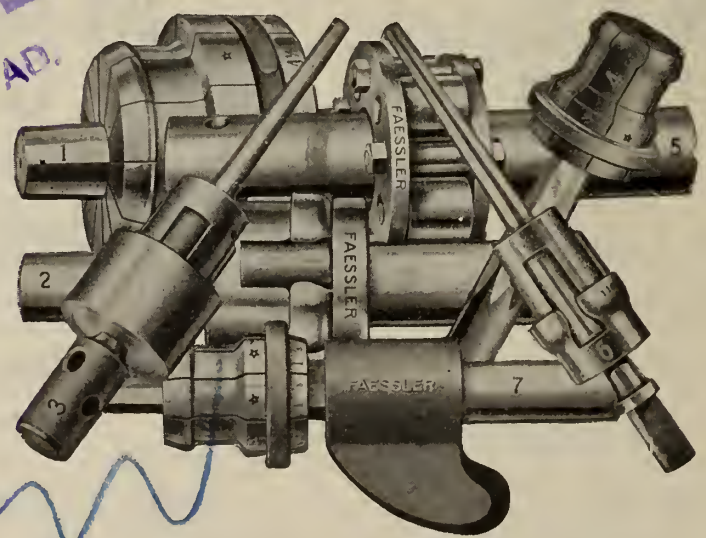

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PLANT FITTED WITH MODERN APPLIANCES FOR QUICK WORK

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EQUIPPED TO
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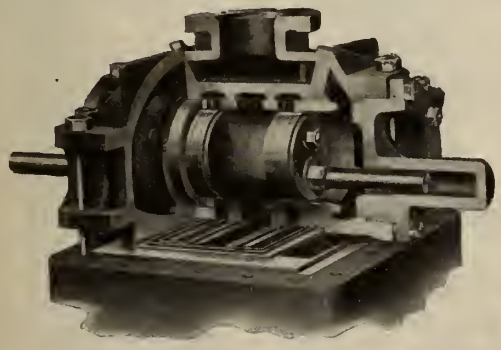

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There are two ways of converting your power.

You can use new cylinders—but this is expensive.

Universal Valve chests provide piston valves without cylinder change.

They come ready to apply and bolt on top of the old slide valve seats.

They save the cost of new cylinders, the cost to machine and apply them—and reduce the delay to expensive power.

Universal Valve Chests make modernizing inexpensive and quick.

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Fig. 41, Long Distance Self-measuring Pump, may be connected to a rectangular tank in basement or cylindrical underground tank.

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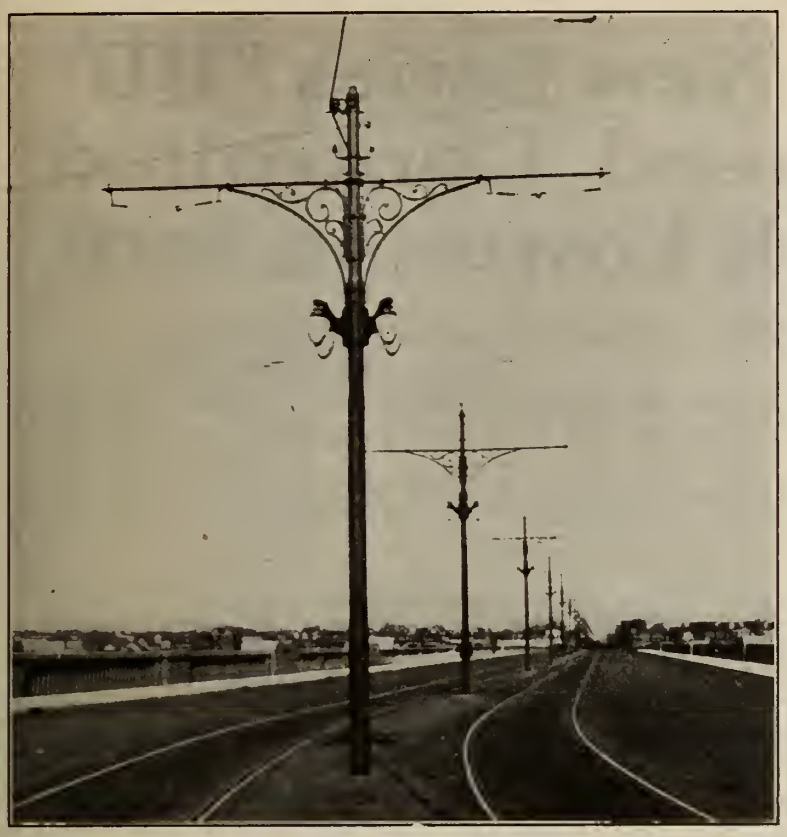

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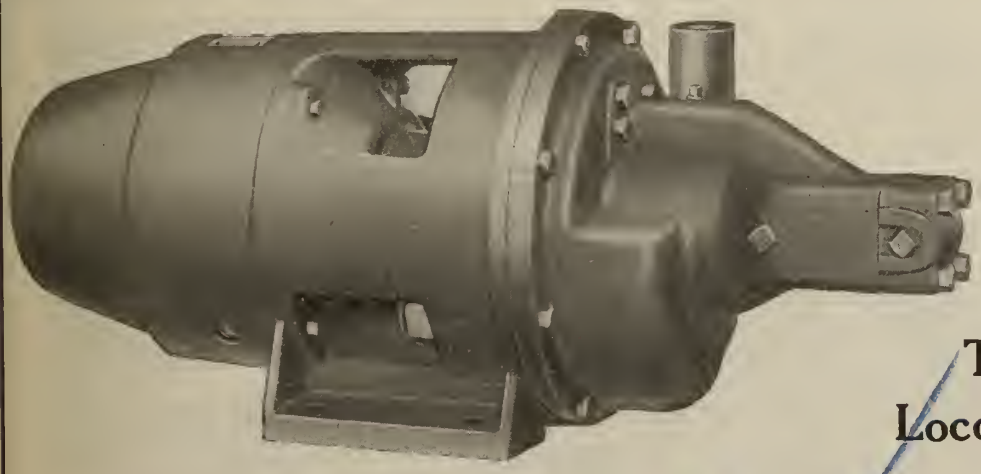

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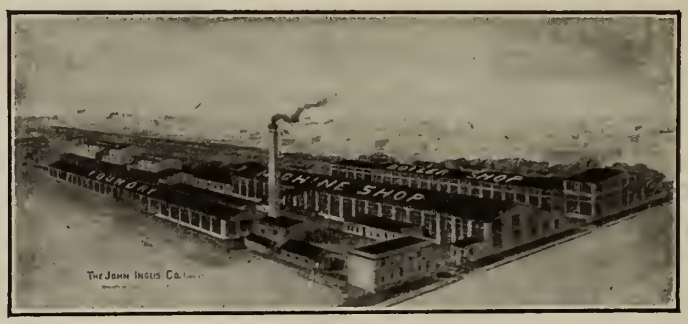

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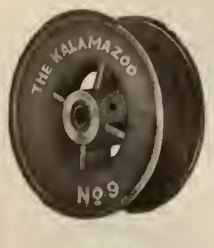

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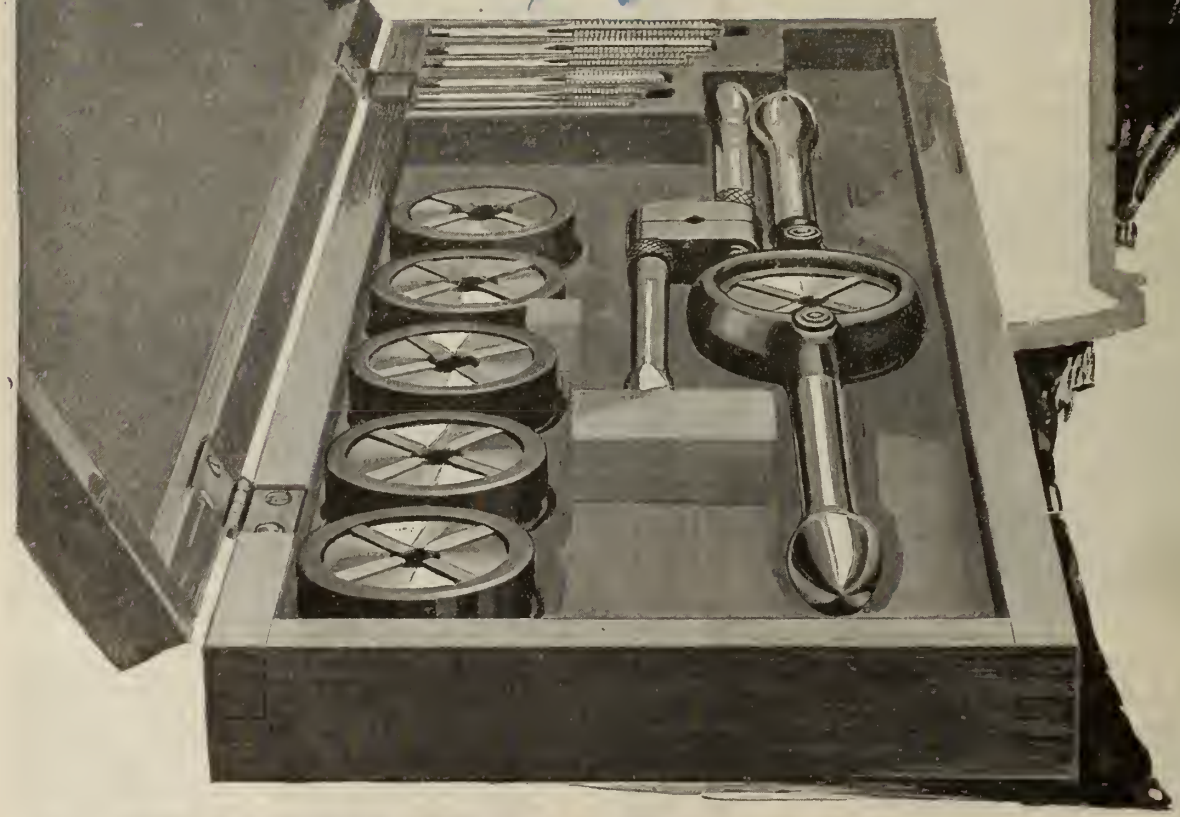


PRATT & WHITNEY.

Canadian Railway and Marine World

May, 1921

Medium Pacific Type Locomotives, Canadian National Railways.

The Canadian National Railways programme for motive power for delivery in 1920 and 1921 provided for the following additions:—32 Pacific type locomotives, designated as medium, of 38,100 lb. tractive power, from Montreal Locomotive Works, 20 to be equipped with Walschaert valve gear, and the other 12 with Young valve gear, both groups being otherwise identical with the exception of differences in coal and water capacity of tanks; 10 Pacific type locomotives, designated as heavy, of 39,700 lb. tractive power, from Montreal Locomotive Works; 25 Santa Fe locomotives, of 64,500 lb. tractive power, from Montreal Locomotive Works; 15 mikado locomotives, of 53,100 lb. tractive power, from Canadian Locomotive Co., and 30 six-wheel switching locomotives from Canadian Locomotive Co.

The several types of locomotives ordered followed Canadian National standards of design closely, with the exception of such modifications and minor changes as were demonstrated by previous experience to be desirable. The power for passenger service embodies all the features characteristic of late design, and the mikados and Santa Fes are representative of modern freight hauling units of high tractive power. While there are no details of design which may be said to be radical departures from the accepted principles of modern practice, every detail has been carefully studied, and worked out in such a way as to give the maximum in efficiency in the class of service for which each locomotive is intended.

Canadian Railway and Marine World, for Sept. 1920 contained specifications of the heavy and medium Pacific type locomotives referred to above, with an illustration of one of the medium Pacific type locomotives, equipped with the Walschaert valve gear. A more detailed description of the 20 locomotives of this class will now be given, and the same description will apply to the 12 equipped with the Young valve gear, with the minor exception mentioned.

These medium Pacific type locomotives have a total weight of 260,000 lb., the weight on drivers being 164,600 lb. The tractive power is 38,100 lb., and the factor of adhesion is therefore 4.32. Cylinder diameter is 23½ in.; cylinder stroke, 28 in.; driving wheel diam., 69 in., and boiler pressure 200 lb.

The boiler is of the straight top, radial stayed, type, the dimensions and details of construction of which are shown in the accompanying plans. In design, all details were planned with factors affecting maintenance constantly in view. Boiler h.p. in percent. of cylinder h.p. is 90%. The tube length is 20½ ft.; there are 182 tubes of 2 in. diam., and 28 flues of 5⅜ in. diam.; the flues being electric welded into the back sheet. All boilers are equipped with the standard C.N.R. syphon valve, shown in the plan, between dome and sandbox, to facilitate boiler washing, and for blowing off. The mud ring is of cast steel ends, and mild steel sides, and double riveted to sheets with ⅞ in. rivets. A feature of the crown sheet staying is that the button-head crown bolts have parallel threads, where they screw through the crown sheet, instead of tapered as is the usual practice. Another notable feature in crown sheet construction is the alternation of successive groups of four transverse rows of crown bolts, i.e., four rows of button-head crown bolts are succeeded by four rows of bolts with plain heads, and so on alternately. This arrangement is being adopted as standard C.N.R. practice, and the point worthy of note is, that in case of a burnt crown sheet, the possibility of boiler explosion is guarded against, by the sheet giving first at a point where stayed with plain head bolts, and pulling down over some of these bolts, but held on either side by the button head bolts, the pressure being relieved through the bolt holes. Lagging specifications call for 2 in. overall thickness of 41.W Johns-Manville asbestos fire felt.

The boiler-feed apparatus consists of a Hancock type H-N-L non-lifting injector on the left, and a Hancock type E.A. lifting injector on the right, both equipped with 3,500 gal. tubes, and includes the C.N.R. standard top check, in combination with bell stand.

The firebox is 108 by 75¼ in., and is equipped with American Arch Co. brick arch, supported on four arch tubes of 3 in. diam. These locomotives are hand fired, are equipped with the latest style Franklin butterfly door, and all fireboxes are equipped with the O'Connor fire door flange. The grates, 9 in. centers, 32 in. long over shoulders, are supported on a center carrier of strong rigid design, and notched side bearers, and are operated by Franklin power grate shakers.

The superheater used is the Hungerford-Cameron standard type, the return bends being welded around the pipe joints.

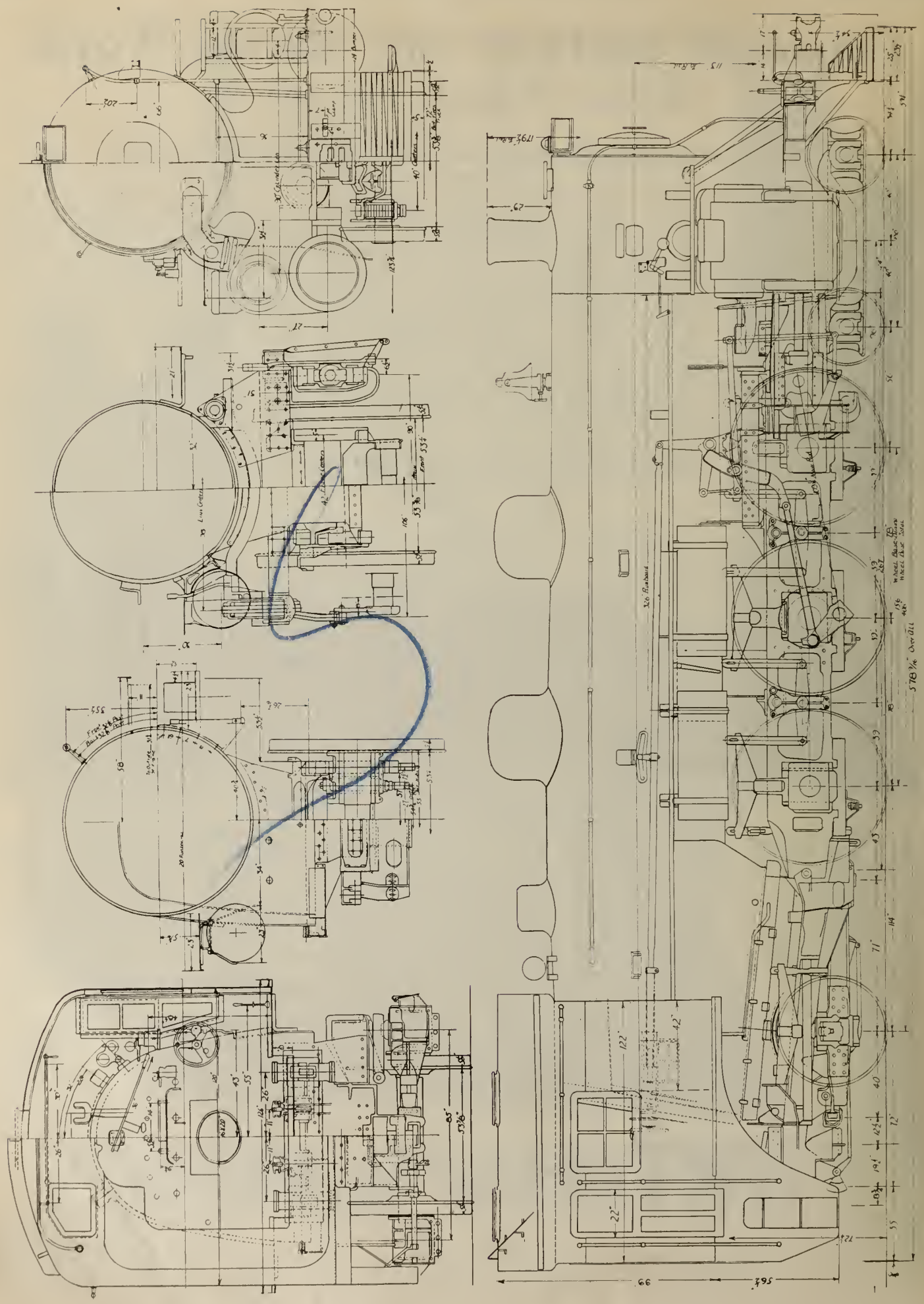
The ash pans are of the C.N.R. standard hopper type, the location of the door hinges being such that the doors close of their own weight. The sections of the ash pan coping are hinged, to facilitate the work of cleaning fires, etc., at terminals. An attachment worthy of note consists of a 1¼ in. pipe, from the delivery pipe of the non-lifting injector on the left side, to the ash pans, with valve operated from the cab, with a branch extending into each hopper. Such an arrangement is specially valuable, owing to the ability to direct hot water into the pans, to thaw them out, when the locomotive arrives at terminal, in freezing weather, with pans partly filled.

Medium Pacific Type Locomotive, Canadian National Railways.

The front end is fitted up with the C.N.R. standard draft appliances, the exhaust pipe is secured to saddle with 1 in. studs, and all joints surfaced to a surface plate. The exhaust tip is 5 7/16 in. diam.

The frames, made of thoroughly annealed Vanadium cast steel, selected as affording the maximum in strength and resistance to the effects of vibration, have single forward sections. Driving box shoes are of bronze, and the pedestal binders, of extra heavy section, are of mild steel. The frames are 5 in. wide, the minimum depth of top rail between pedestals is 5½ in., minimum depth of bottom rail between pedestals 4 in., and depth of section at top of pedestals 6½ in.

The driving springs are of carbon steel, the equalizers of mild steel; the hangers, of 2-piece type, are of mild steel also, and all pins and bushings are case-hardened. The engine truck is cross equalized, and forms one system of equalization, while the three pairs of



Elevation and Sections, Medium Pacific Type Locomotives, Canadian National Railways.

drivers are equalized with the trailing truck. The equalization places 46,900 lb. on the leading truck, 164,600 lb. on drivers, and 48,500 lb. on the trailing truck.

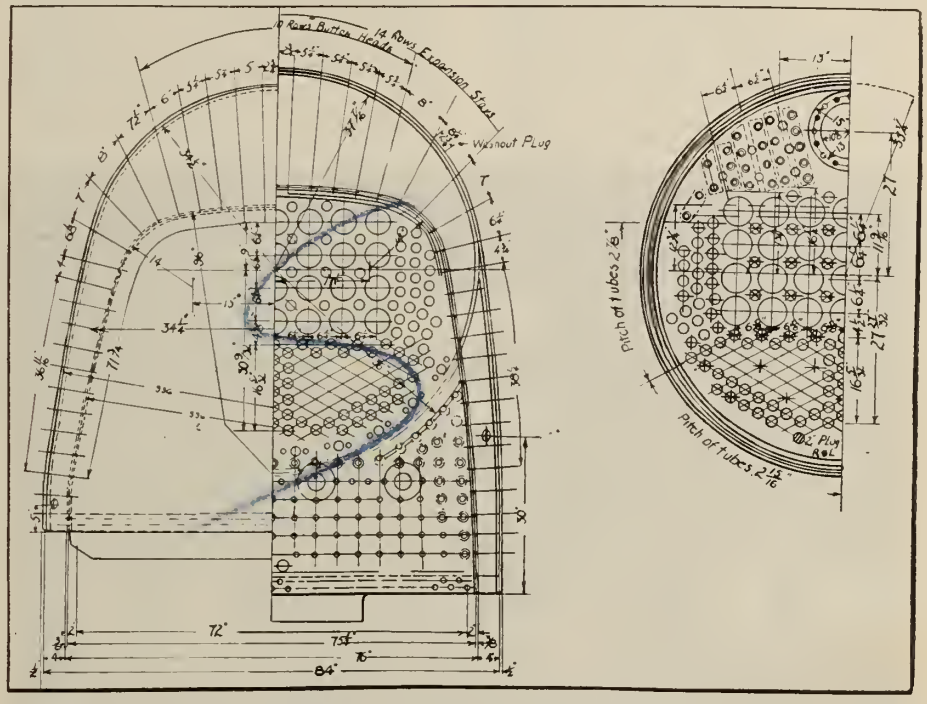
Wheels, Boxes, Rods, etc.—The driving wheel centers, 62 in. diam., are of cast steel; the driving boxes are of cast steel with bronze bearings, the main driving boxes being of the Cole long type. Franklin adjustable driving box wedges are used with all driving boxes. Brass hub liners are used, and Franklin hard grease cellars are applied throughout. All rods are of hammered open hearth steel. The main rod big ends follow closely the specifications for the U. S. Railroad Administration standard Pacific type locomotives. The crossheads are of the C.N.R. standard alligator type, with removable side plates, and having the top and bottom brass gibs in two pieces, a dividing strip between at center, and a lip at each end. The crosshead keys are of chrome Vanadium steel, and have a taper of ½ in. in 12. The crosshead guides, and piston rods, are of such length that the piston may be pushed out clear of front cylinder head studs, without disconnecting piston rod from crosshead. The engine truck is of the American Locomotive Co. constant resistance 4-wheel type, equipped with Preston hub liners. The wheels are 34¼ in. diam., and have spoked steel centers, 28 in. diam. The trailing truck is of the standard radial type, having 48 in. diam. wheels, with 41 in. cast steel centers.

Steam distribution is provided for by Walschaert valve gear of modern design, a feature of the application being that union link connection is provided for by a Ripken-Kingan main rod arm, in place of the usual crosshead connection. Maximum cutoff is 85%. The diameter of the piston valves used is 14 in., and the prescribed valve setting provides for front and back lead of 3/16 in. at 25% cutoff, and 1/16 in. in full gear forward, with an exhaust clearance of ⅛ in. C. N.R. standard relief valves are applied.

Lubrication of main valves and cylinders, and steam end of air compressor, is by means of a Detroit no. 42 five-feed hydrostatic lubricator. A feature is that auxiliary oil cups, adopted as C.N.R. standard practice, are provided in the outside steam pipes above cylinders, for use in case the main lubricator becomes inoperative. Rods are equipped with C. N.R. standard grease cups and plugs, and Henry grease cups, and guides are equipped with Hancock guide bar cups.

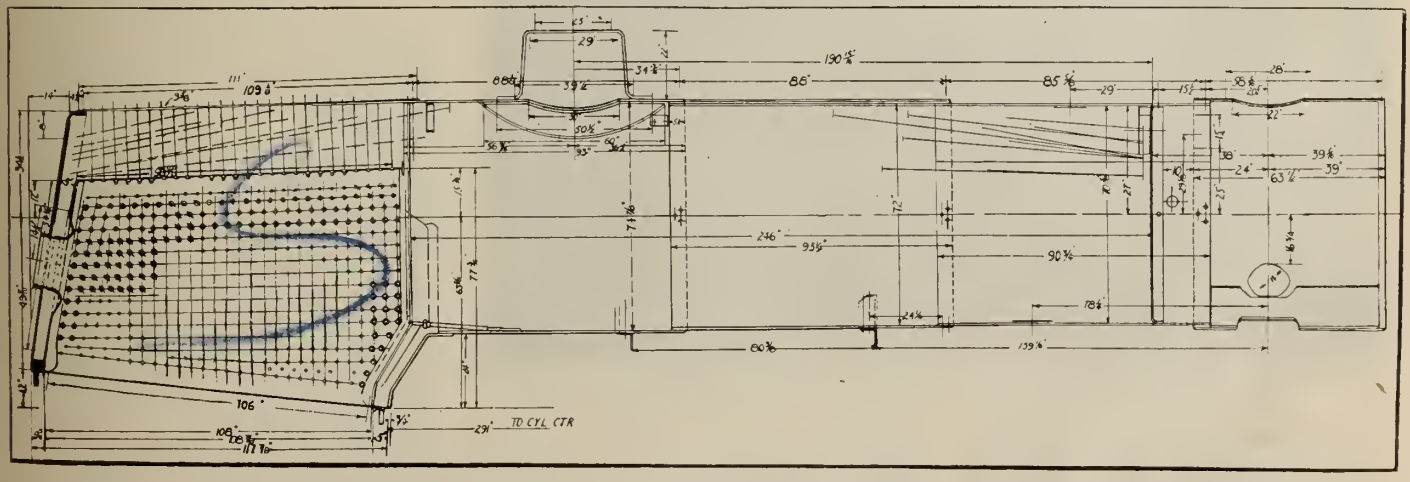
The air brakes are Westinghouse no. 6 E.T., with 8½ in. cross compound compressor, and S-5 governor. The pump is on the left side; the three main reservoirs, one on left and two on right, below running boards, have a total capacity of 74,000 cu. in., with 110 ft. of 1¼ in. radiating pipe connecting them and the compressor. The crossover pipe from the first to second reservoir is brought over the boiler. The radiation feature was established to overcome condensation and consequent freezing conditions in low temperatures, and results have fully justified the continuance of this arrangement. The tender brake gear has been revised, so that the bottom truck brake rod passes through cast steel bolster, cored for this purpose, instead of passing underneath as heretofore. This change, with the safety bars which are used instead of safety chains, precludes the possibility of brake beams falling. A system of installing piping on locomotives by the use of cast brackets secured to the running board, has been adopted by the C.N.R. as standard practice, and makes a job which is characterized by simplicity in piping arrangement and rigidity, and good appearance.

The cab, of vestibule type, is of steel construction, wood lined, with asbestos insulation between wood and steel. The front windows have double glass, and the side windows are fitted for double glass. A Hancock cold water sprinkler is provided, ample lockers are installed in both sides, and a case for flags, fusees, etc., is provided at back of cab, overhead. No effort has been spared to make the cab interiors convenient in every way.



Half Sections, through front and back Tube Sheets, Medium Pacific Type Locomotives, Canadian National Railways.

Other features.—The sand box is fitted with Hanlon sanders, in conjunction with hand sanding attachment. World type safety valves are used, mounted on an auxiliary dome, just head of cab. The lighting equipment is Pyle-National type K2, and the use of a separate number lamp case, with the sides oblique, adopted as C.N.R. standard, makes for greater safety in operation, through the easier and more certain identification of locomotive numbers. Water level indication is given by standard C.N.R. try cocks and water glass fittings, the water glass being equipped with the special guard used by the C.N.R. The back head of boiler is also provided with standard crown sheet marker. King metallic piston rod



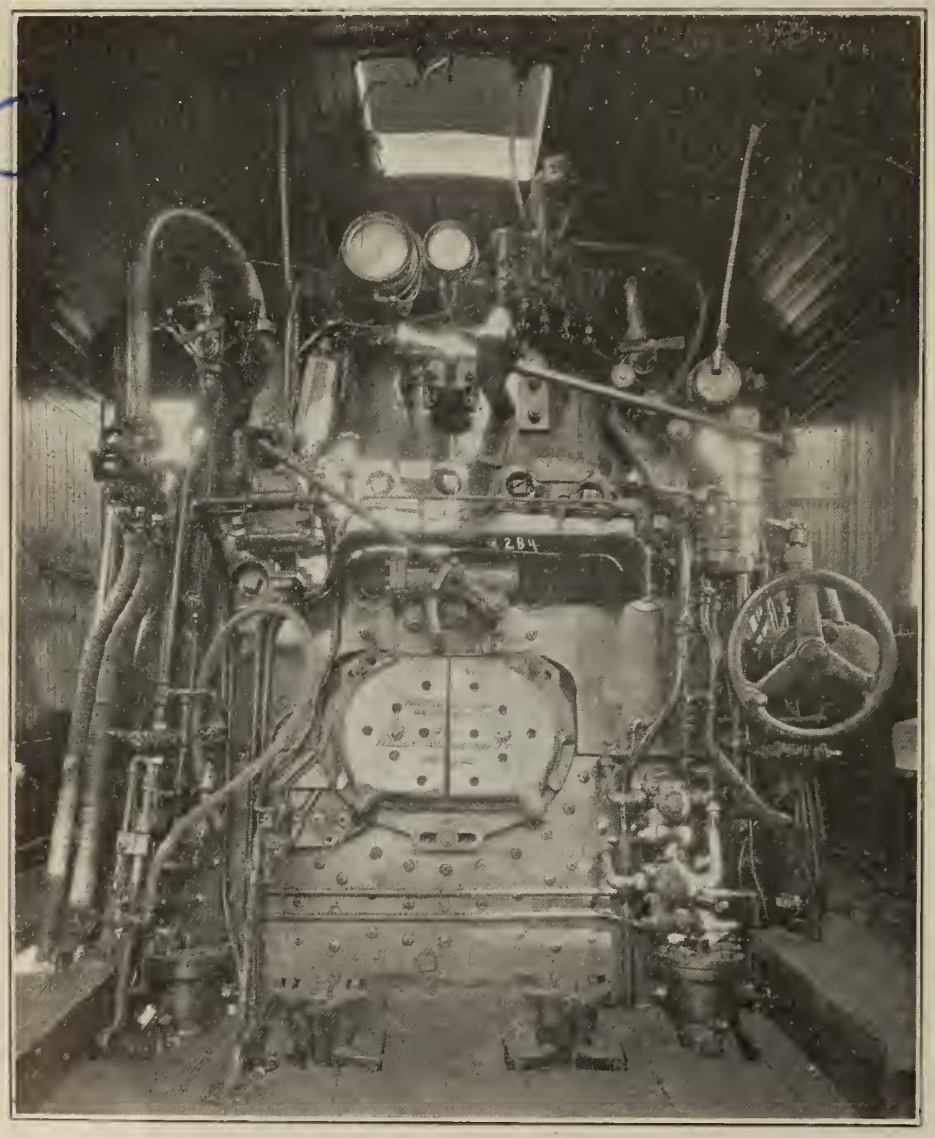
Boiler, Medium Pacific Type Locomotives, Canadian National Railways.

and valve stem packing, and Vapor steam heat equipment, with Gold reducing valves on some locomotives, and Leslie on others, are used.

The Franklin radial buffer, and unit safety bar, are used between engine and tender, and between engine and tender, on the steam heat line, Barco flexible joints are used. The small ladder, used in connection with oiling the motion work, as shown at back end of guide bars in the illustration of the locomotive, is notable. The front buffer beam is of cast steel, and the front coupler of the Sharon pocket type.

The tender is of the water bottom type, with design modified somewhat to permit of the application of the Locomotive Stoker Co.'s horizontal coal pusher, and has a water capacity of 6,500 imp. gals. and coal capacity of 10 tons. The frame is all metal, with steel sills, and built up bolsters. Trucks are of pedestal type, with flat side bearings, spaced 40 in. centers on front truck, and 50 in. centers on rear truck. Cardwell friction draft gear is applied to the rear of the tender. Truck equalization is by semi-elliptic and helical springs. The wheels, of 34¼ in. diam., have cast steel centers; journals are 6 x 11 in., replacing the 5½ x 10 standard used formerly with similar axle loads, and McCord journal boxes and M.C.B. Canadian Bronze Co. brasses are used. The outside sills are provided with strong hooks, for hanging car replacers; tool boxes are applied below frame between trucks, convenient hand railing is provided on top of tender, and the rear ladder extends 18 in. above the coping.

The locomotives were built by the Montreal Locomotive Works according to specifications furnished by the C.N.R., and approved by S. J. Hungerford, Vice President, Operation and Maintenance. Twelve locomotives are in service on the Western Lines, three on the Ontario District, and five in the Maritime Provinces, and all have given highly satisfactory service and are meeting expectations in every way.



Back Head, Medium Pacific Type Locomotive, Canadian National Railways.

The chief details of these locomotives are as follows:—

Weight, total	260,000 lb.
Weight on drivers	164,600 lb.
Wheel base, drivers	13 ft.
Wheel base, engine and tender	66 ft. 4¾ in.
Cylinders, diam. and stroke	23½ x 28 in.
Driving wheel diam.	69 in.
Driving wheel centers	62 in.
Driving journals, main	10½ x 21 in.
Driving journals, other	10 x 13 in.
Trailing truck wheels, diam.	48 in.
Trailing truck journals	9 x 14 in.
Engine truck wheels, diam.	34¼ in.
Engine truck journals	6½ x 12 in.
Boiler, type	Straight top, radial stay
Boiler pressure	200 lb.
Boiler, diam., inside first ring	70⅝ in.
Firebox, length and width	108 x 75¼ in.
Tubes, no. and diam.	182—2 in.; 28—5¾ in.
Tube length	20 ft. 6 in.
Heating surface, tubes	1,945 sq. ft.
Heating surface, flues	804 sq. ft.
Heating surface, firebox	188 sq. ft.
Heating surface, arch tubes	27 sq. ft.
Heating surface, total	2,964 sq. ft.
Superheating surface	677 sq. ft.
Grate area	56.4 sq. ft.
Tractive power	38,100 lb.
Factor of adhesion	4.32
Tender frame	C.N.R. standard, 10 and 13 in. channels
Tender wheel diam.	34¼ in.
Tender truck journals	6 x 11 in.
Tank, type	Water bottom
Water capacity	6,500 imp. gal.
Coal capacity	10 tons

Intercolonial Railway Employes' Superannuation.

C. A. Gauvreau, Temiscouata, Que., asked in the House of Commons recently:—"Is the Railways Department aware that the old superannuated employes of the I.R.C. have never received any increase in the rate of their pension, neither before the war, nor during the .period of stress when the cost of living was soaring to an excessive level; that the present rate of pension is a minimum of $15 a month and does not exceed $52.50 as a maximum in the case of the oldest employes; that all the employes were willing to pay a higher due to the general funds so that such older employes may be given a pension that would enable them to live fittingly? Is the Railways Department or the National Railways Commission willing to acceed to the fair demand of those old employes and grant them a pension such as will protect them from want in their old age?" The Minister of Railways replied:—"A revision of the present plan of superannuation is contemplated and under consideration by the mangement. It is the intention to submit any such proposals to consideration of employes before adoption."

Grand Trunk Railway Employes' Pensions.

E. W. Tobin, Richmond and Wolfe, Que., asked the following questions in the House of Commons recently, which were answered by the Minister of Railways:—

Q. "Has the arbitrator representing the Government, in connection with the arbitration to determine the value of the G.T.R. System, received instructions to take into consideration, or make any allowance for the pensions due by the G. T.R. Co. to the employes of that system prior to the general strike of employes in 1910?" A. "The solicitor representing the Government has received instructions to bring before the Board of Arbitrators the matter of the striking employes of 1910."

Q. "Has the Government decided to re-establish for the said employes the pensions from which they were deprived at the time of the strike?" A. "The Government cannot consider this matter until it takes possession of the road after the arbitrators' decision."

Geo. Pepall, Assistant Foreign Freight Agent, Canadian National-Grand Trunk Railways, Toronto, writes: "I have been a subscriber to Canadian Railway and Marine World for a number of years, and have noted its development with pleasure. You certainly have a most instructive and interesting publication."

Canadian Pacific Railway Company's Annual Report.

Following is the directors' 40th annual report, issued over the signature of E. W. Beatty, K.C., President:—The accounts for the year ended Dec. 31, 1920, show the following results:—

Gross earnings		$ 216,641,349.30
Working expenses (including all taxes . .		183,488,304.70
Net earnings .		$33,153,044.60
Deduct fixed charges		10,775,408.99
Surplus . .		$22,377,635.61
Contribution to pension fund		500,000.00
		$21,877,635.61
From this there has been charged a half-yearly dividend on preference stock of 2%, paid Oct. 1, 1920 . .	$1,613,638.42	
Andthree quarterly dividends on ordinary stock of 1¾% each, paid June 30, Oct. 1 and Dec. 1, 1920	13,650,000.00	
		15,263,638.42
		$6,613,997.19
From this there has declared a second half-yearly dividend on preference stock of 2%, payable April 1, 1921 . .	$1,613,638.42	
And a fourth quarterly dividend on ordinary stock of 1¾%, payable April 1, 1921	4,550,000.00	
		6,163,638.42
Leaving net surplus for the year		$450,358.77

In addition to the above dividends on ordinary stock, 3% was paid from special income.

Special Income for Year Ended Dec. 31, 1920.

Balance, Dec. 31, 1919	$17,363,844.27
Less dividend paid April 1, 1920..	1,950,000.00
	$15,413,844.27
Net revenue from investments and available resources	2,436,717.25
Interest on deposits, and interest and dividends on other securities less exchange . .	2,057,327.93
Net earnings ocean and coastal steamship lines . .	2,741,146.12
Net earnings commercial telegraph and news department, rentals and miscellaneous . .	3,731,256.51
	$26,380,292.08
Less payments to shareholders in dividends in 1920	5,850,000.00
	$20,530,292.08
From this a dividend has been declared payable April 1, 1921.....	$1,950,000.00

The working expenses for the year, including all taxes, were 84.70% of the gross earnings, and the net earnings 15.30%, compared with 81.39% and 18.61% respectively in 1919.

The gross earnings of your transportation system during 1920 exceeded those of 1919 by $39,712,289, and the net earnings $220,008. This large addition of $39,492,281 in working expenses is due to the enforced application in Canada of the Chicago Wage Award, which added approximately $12,000,000 to the pay rolls for the year; the increase in the cost of fuel and materials and the charging of the year's Dominion taxes into operating expenses, where they properly belong. The heavy and rapid movement of freight during October and November and the first half of December under the tariffs prescribed by the Board of Railway Commissioners and effective on Sept. 13 enabled your company to absorb these expenses and earn its usual charges, dividends and a modest surplus. While, for the reasons mentioned, the net earnings are not commensurate with the volume of business transacted, still in the opinion of your directors the year's operations must be regarded as satisfactory and compare most favorably with those of any other system on the American continent.

The sales of agricultural land in the year were 468,390 acres for $9,592,706.95, an average of $20.48 an acre. Included in this area were 47,848 acres of irrigated land which brought $50.43 an acre, so that the average price of the balance was $17.07 an acre.

During the year your directors disposed of $8,000,000 4% consolidated debenture stock to the British Government, pursuant to arrangements previously made at the time of the deposit of $40,000,000 of the stock with the British Treasurer in 1917. The balance of the stock deposited, namely, $32,000,000, has been returned to the company and is available for sale or other disposition as circumstances warrant.

Your directors during the year issued $12,000,000 of equipment trust notes for acquiring necessary additions to rolling stock.

Your approval was obtained in 1919 and 1920 to the construction, as conditions warranted, of branch line mileage in Western Canada, amounting in the aggregate to 822 miles, and during 1920 100 miles of track of this authorized mileage were laid. While extensive new construction is not under the present conditions advisable, your directors are of the opinion that a moderate amount of construction should be proceeded with during the coming year, in order that the full value of the lines already under construction should be realized, and that the settlers in the districts to be served should obtain the railway facilities so necessary to their prosperity. The branch lines approved heretofore are in good territory and well located to become revenue producing. Your approval will be asked to the construction of an extension of the Suffield Southwesterly Branch from Lomond, a distance not exceeding 30 miles, and for the issuance and sale of a sufficient amount of 4% consolidated debenture stock to meet the expenditure. Four steamships for Atlantic and Pacific service contracted for previously are being built for the company, viz., Empress of Canada, Montrose, Montcalm, Montclare, and the Koenig Friedrich August has been bought. An additional ship for British Columbia Coast Service, required because of the loss of the Princess Sophia and Princess Irene, and the sale of the Princess May and Princess Margaret, is under construction. The estimated cost of these six ships is $31,175,000, of which $18,733,138 was paid up to Dec. 31, 1920. The estimated capital requirements on this account for the year, and including the amount required for the completion of the payments on the Koenig Friedrich August brought the amount to approximately $12,200,000. Your approval will be asked to the issuance and sale of a sufficient amount of consolidated debenture stock to meet the expenditure for these ships. During the year, the s.s. Sardinian, built in 1875, was sold.

In anticipation of your confirmation your directors authorized capital appropriations, in addition to those approved at the last annual meeting, aggregating, for the year 1920, $3,246,318, and, subject to your approval, have authorized expenditures on capital account during the present year of $4,316,236. Of this amount the principal items are:—

Replacement and enlargement of structures in permanent form	$509,624
Additional stations, locomotive houses, freight sheds and shops and extensions to existing buildings	398,158
Tie plates, rail anchors, ballasting, ditching and miscellaneous betterments . . .	35,700
Replacement of rail in main and branch line tracks with heavier section	1,000,000
Additional terminal and side track accommodation . .	377,292
Extension work on Chateau Frontenac hotel . .	853,000
Lining of Connaught tunnel	400,000
Improvements in connection with telegraph service .	55,033
Mechanical department, machinery at various shops . .	30,950

The balance of the amount is required for miscellaneous works to improve facilities over the whole system and effect proper economies.

In view of the importance to the company in its personnel, and the value to Canada in the development of its resources and industry through the increase in the number of trained technical men, your directors authorized a subscription to McGill University endowment of $250,000, and to the University of Montreal of $50,000, payable in annual instalments. Contributions of $10,000 to the Salvation Army and $5,000 to the Y.M.C.A. were also authorized. The value of the work of the Salvation Army and the Y.M.C.A. to the company and its employes is of direct and indirect importance.

At the request of the Alberta Government, and in order to ensure proper railway service in the districts served by the Edmonton, Dunvegan & British Columbia and Central Canada Ry. Companies, your directors have entered into an agreement with these companies, their stockholders, the Union Bank of Canada, and the Province of Alberta, for the operation, for five years from July 21, 1920, of the properties of the Edmonton, Dunvegan & British Columbia and Central Canada Railway Companies. The remuneration is the payment to your company of 15% of the revenues in excess of working expenses, payable out of the profits after payment of fixed charges, and an agreement giving your company an option to purchase the capital stock on the terms set out in the agreement, at any time during the period of five years. The agreement provides that the necessary capital for improvements and betterments to the lines shall be loaned by the Government to the companies to be operated, and it is estimated that $2,500,000 will be required for this purpose, of which $1,000,000 has already been provided. The value of the arrangement to your company is that it enables an accurate appreciation to be obtained of the probable development of the country, and the present and prospective value of the properties as traffic contributors to your company's system. The arrangement is likewise equally desirable from the standpoint of the people of Alberta in that it enables the benefit of a proper railway organization to be obtained and proper railway economies to be effected under the direction of your company's officers, and at the same time permits the development of the north country to be aided to the fullest extent, and gives to present and incoming settlers the railway facilities so essential to their success.

In order to ensure the development of that portion of the Province of Quebec situated south and east of Lake Timiskaming, your directors have entered into an agreement with the province for the construction by your subsidiary, the Interprovincial & James Bay Ry. Co., of a railway extending from Kipawa to Des Quinze River, with a branch to Ville Marie, 76 miles in all. Subsidies of $8,000 a mile in cash for 66 miles, and 4,000 acres of land per mile of the entire railway, have been voted, which will, of course, substantially reduce the cost of construction to the company. A productive agricultural area of large extent and valuable timber lands will be opened and served through the construction of this railway.

The preference stock deposited with the British Treasury was returned to the owners on Oct. 1, 1920, and the common stock on Dec. 31, 1920.

The position of the holdings of common stock as of March 1, 1921, was as follows:—

	Shares	Percentages
United Kingdom	1,242,837	47.80
Canada	460,838	17.73
United States	626,510	24.10
France	79,123	3.04
Other holdings	190,692	7.33
	2,600,000	

During the last six and a half years the company has expended on capital account, $88,000,000; and during the same period the proceeds of the sale of capital issues amounted to $26,282,000, exclusive of the recent equipment issue of $12,000,000, the proceeds of which have not yet been received in full, because of the non-completion of the rolling stock under contract for construction. In consequence of these large expenditures, the demands upon the company's cash reserves have been extensive, while the surpluses from railway operations during the past three years, for reasons with which the shareholders are entirely familiar, have been merely nominal. The capital requirements for 1921, exclusive of payments on steamships and the continuance of branch line construction, will be very moderate. No extensive works are contemplated in the east, save the commencement of the Interprovincial & James Bay Ry., referred to previously, and the continuance of the work on the extensions to the Chateau Frontenac, which it is expected will involve the expenditure of $853,000 during this year.

The amount of unissued consolidated debenture stock for the issuance of which your authority has already been given, is $36,000,000, and the amount issued and undisposed of is $32,000,000, a total of $68,000,000. The capitalization of the company is conservative and even low, and this has been accomplished largely through the utilization of surpluses in betterments and improvements which would normally have been paid for out of the proceeds of capital issues. While capital expenditures for the immediate future will be curtailed and the resumption of works requiring large amounts of money will be deferred until a decided improvement in business conditions furnishes warrant for incurring them, your directors consider that it will be desirable that a portion of the cash reserves expended on capital account should be restored within a short time and, to this end, in order to implement and extend the company's powers to issue forms of securities other than those it is already empowered to issue and which are more appropriate to present market conditions, have made application for an amendment to the company's charter permitting the issuance of bonds, debentures or other securities, collateral to or in lieu of any consolidated debenture stock which the company is or may hereafter be empowered to issue and for the same amount, such securities to be payable in such currency, at such times and places, and bearing such interest as your directors may think proper. As mentioned in the notice to shareholders, the annual general meeting will be made special, for the purpose of authorizing, if approved, the issuance of such securities.

The company's note certificates issued in 1914 for $52,000,000 will fall due on March 2, 1924. Your directors are glad to be able to advise the shareholders that ample provision has been made for the retirement of the notes at maturity.

Your directors desire to express their appreciation of the loyal and efficient services of the company's officers and men, which have permitted it to perform its functions as a common carrier with credit to itself and satisfaction to the public, and have resulted in returns from the year's operations which, under the difficult conditions existing, cannot but be regarded as highly gratifying to the shareholders.

The undermentioned directors will retire from office at the approaching annual meeting. They are eligible for re-election:—E. W. Beatty, K.C., Hon. F. L. Beique, K.C., C. R. Hosmer, Hon. W. J. Shaughnessy, K.C.

Receipts and Expenditures, Calendar Year 1920.

RECEIPTS.

Cash in hand, Dec. 31, 1919		$53,519,420.78
Surplus revenue	$21,877,635.61	
Special income	10,966,447.81	
		32,844,083.42
Land Department:		
Lands and townsites:		
Proceeds of sales and interest, less cancellations	12,867,526.96	
Less sales expenses and irrigation	4,706,321.08	
	8,161,205.88	
Deferred payments on previous year's sales.	3,383,543.88	
	11,544,749.76	
Amount remaining in deferred payments on the sales of the year	7,692,372.99	
		3,852,376.77
Amount received from sale of government and other securities		3,801,113.75
Amount on account of consolidated debenture stock, sold to Imperial Government		7,658,578.54
Amount applied in reduction of cost of mining and other properties		38,682.69
Increase in current liabilities, rentals of leased lines and coupons on mortgage bonds, equipment obligations and reserves and appropriations		22,929,153.78
		$124,643,409.73

EXPENDITURES.

Dividends on preference stock		$3,227,276.84
Dividends on ordinary stock		26,000,000.00
Construction of Branch lines		4,248,213.28
Additions and improvements, main line and branches		6,702,262.68
Expenditure on leased and acquired lines		1,852,004.60
Rolling stock equipment		4,461,152.98
Shops and machinery		1,485,737.30
Lake and river steamers		74,910.00
Ocean and coastal steamships—		
Payments on steamships acquired and under construction	14,255,914.25	
Less paid from steamship replacement fund	454,441.42	
		13,801,472.83
Deposited with trustee, special investment fund		7,021,866.59
Securities acquired—		
Lake Erie & Northern Ry. 1st mortgage bonds	11,000.00	
Alberta Stock Yards preferred stock	129,000.00	
Trustee securities	3,294,244.81	
		3,434,244.81
Payment of equipment obligations		1,440,000.00
Increase in working assets and advances to controlled properties and insurance premiums		20,803,326.58
		94,552,468.49
Cash in hand, Dec. 31, 1920		30,090,941.24
		$124,643,409.73

Construction of Branch Lines.

Interprovincial & James Bay Ry.	$35,441.37
Archive, Wymark Branch	103,788.51
Bassano East (Milden Southwest) Branch	622,244.40
Langdon North (Acme-Drumheller) Branch	1,439,547.15
Lanigan Northeast Branch	714,049.28
Leader Southeast Branch	454,029.75
Moose Jaw Southwest (Consul Southast Branch	350,122.63
Rosetown Southeast	311,265.96
Swift Current Northwest Branch	9,586.46
Weyburn West (Altawan West) Branch	124,214.15
Surveys	83,919.62
	$4,248,213.28

Earnings for Calendar Year 1920.

Passengers	$49,125,738.88
Freight	145,303,399.70
Mails	1,498,231.14
Sleeping cars, express and miscellaneous	20,713,979.58
Total	$216,641,349.30

Working Expenses for Calendar Year 1920.

Transportation expenses	$86,608,611.54
Maintenance of way and structures	32,573,927.27
Maintenance of equipment	46,350,792.61
Traffic expenses	4,999,345.21
Parlor and sleeping car expenses	2,492,640.78
Expenses of lake and river steamships	1,492,991.54
General expenses (including all taxes)	8,969,995.75
Total	$183,488,304.70

Description of Freight Forwarded, years ended Dec. 31.

	1919	1920
Flour, barrels	12,787,020	9,644,410
Grain, bushels	121,059,921	172,536,485
Live stock, head	2,603,571	1,947,976
Lumber, feet	3,143,431,200	3,565,175,867
Firewood, cords	279,925	272,546
Manufactured articles, tons	7,854,163	9,330,111
All other articles, tons	7,589,275	9,625,065

Freight Traffic, years ended Dec. 31.

	1919	1920
Tons carried	25,102,821	30,160,134
Tons carried one mile	11,121,322,012	13,994,508,975
Earnings per ton per mile	1.00c.	1.04c.

Passenger Traffic, years ended Dec. 31.

	1919	1920
Passengers carried	15,815,982	16,925,049
Passengers carried one mile	1,776,740,850	1,732,050,259
Earnings per passenger per mile	2.60c.	2.84c.

Train Traffic Statistics, years ended Dec. 31.

Earnings of Lake and River Steamers and of Kettle Valley Ry. not included in this Statement.

	1920	1919
TRAIN MILEAGE.		
Passenger trains	20,538,038	20,411,110
Freight trains	24,335,581	19,994,867
Mixed trains	1,846,046	1,943,410
Total trains	46,719,665	42,349,387
CAR MILEAGE.		
Passenger.		
Coaches and p.d. and s. cars	105,591,004	110,759,727
Combination cars	2,416,844	2,400,909
Baggage, mail and express cars	48,243,553	46,196,600
Total passenger cars	156,251,401	159,357,236
Freight.		
Loaded	591,151,172	494,862,169
Empty	209,037,450	170,620,412
Caboose	27,945,171	23,988,547
Total freight cars	828,133,793	689,471,128
Passenger cars per traffic train mile	6.98	7.13
Freight cars per traffic train mile	31.63	31.43
PASSENGER TRAFFIC.		
Passengers carried (earning revenue)	16,759,555	15,671,752
Passengers carried (earning revenue) one mile	1,718,084,609	1,763,604,596

Passengers carried (earning revenue) one mile per mile of road	132,223	135,727
Average journey per passenger, miles	102.45	112.53
Average amount received passenger	$2.89	$2.91
Average amount received per passenger mile, car	2.82	2.59
Average number of passengers per train mile	76.75	78.89
Average number of passengers per car mile	15.91	15.58
Revenue from passengers per passenger car mile, cts.	44.88	40.32
Total passenger train earnings per train mile	$2.81	$2.59
Total passenger train earnings per mile of road	$4,844.78	$4.463.87
FREIGHT TRAFFIC.		
Tons of revenue freight carried one mile	13,856,607,551	10,926,848,494
Tons of non-revenue freight carried one mile	1,830,407,240	1,378,437,805
Total tons (all classes) freight carried one mile	15,687,014,791	12,305,286,299
Tons of revenue freight carried one mile per mile of road	1,066,401	840,928
Tons of non-revenue freight carried one mile per mile of road	140,868	106,084
Tons (all classes) freight carried one mile per mile of road	1,207,269	947,012
Average amount received per ton per mile of revenue freight, cts.	1.038	1.003
Average no. of tons of revenue freight per train mile	529.25	498.07
Average no. of tons of non-revenue freight per train mile	69.91	62.83
Average no. of tons of (all classes) freight per train mile	599.16	560.90
Average no. of tons of revenue freight per loaded car mile	23.44	22.08
Average no. of tons of non-revenue freight per loaded car mile	3.10	2.79
Average no. of tons of (all classes) freight per loaded car mile	26.54	24.87
Freight train earnings per loaded car mile, cts.	24.34	22.15
Freight train earnings per train mile	$5.50	$5.00
Freight train earnings per mile of road	$11,072.83	$8,434.11

Mileage of Company's Lines.

Included in C.P.R. Traffic Returns	13,402.2
Other lines worked	539.7
Lines under construction	356.9
	14,698.8
Minneapolis, St. Paul & Sault Ste. Marie Ry.	4,242.1
Duluth, South Shore & Atlantic Ry.	620.7
Mineral Range Rd.	101.1
	4,963.9
Total mileage	19,662.7

Chilled Iron Car Wheels.

At the St. Louis Car Foremen's Association's meeting, in St. Louis, Mo., recently, Geo. W. Lyndon, President, Association of Manufacturers of Chilled Car Wheels, said: — I would like to say something to you about the special characteristics of the chilled iron wheel, so little known, and still performing such a wonderful function in the transportation of the world's commerce. I think I may say that the chilled iron wheel is the standard vehicle of transportation for rail borne traffic. I wonder if we all appreciate what a marvelous piece of mechanism the chilled iron wheel is. I used to hear from one of the men well versed in chilled iron wheel manufacture, the statement that very few people recognized the importance of the car wheel; they described is at a large round piece of iron with a hole in it. But at the present time we have studied the manufacture of the car wheel and we know something more about it than we used to. We must first remembed that the manufacturer, in order to produce what is commonly known as the chilled iron wheel, is limited to certain elements in his mixture. He may have, if you please, first in mind the carbon content of the wheel; this carbon content is one of the essential features of the chilled iron car wheel. The manufacturer is limited in other elements, he must have a low percentage of sulphur, he must have a low percentage of phosphorous; he is limited in the manipulation of his mixture as far as the elements are concerned in the silicon and manganese, but he strives to produce a wheel that has about 3½% carbon content. The carbon is what makes the chilled iron wheel so serviceable and so adequate for the purpose for which it is intended.

I do not know whether all of you know how the wheel is poured. A 750 lb. wheel is poured in about 12 seconds. In order to pour this wheel, the mould has to be prepared, and one part of the mould is what is termed the "chiller." This is nothing but a piece of iron, with which the molten iron comes in contact when it is poured into the mould, and the chiller produces chilled iron, by sudden and almost instantaneous cooling, and the name implies exactly what it is—chilled iron.

When we take a mixture from the cupola that has a carbon content of 3½%, we pour the molten metal into the mould, and as soon as it strikes the iron chiller we are producing what we call a white metal, which is harder than tempered steel, and this metal is composed of the whole or full content of combined carbon. Three and a half per cent. of the combined carbon content is right next to the tread, and gives the wearing or running surface. This depth of chill is from ½ to ¾ of an inch. Not so with the balance of the wheel. As soon as the wheel is poured against the cold iron chiller, there is, of course, a sudden cooling. The rest of the mould is provided with dry sand cores, and tempered sand, consequently the cooling will not be so rapid as when poured against the cold iron chiller. The result is that instead of having 3½% of combined carbon in the balance of the wheel, this is separated into graphitic carbon, through the slow cooling process, which makes a tough structure for the plates and the hub of the wheel. Consequently, where we have a 3½% combined carbon content in the tread of the wheel, we have about six-tenths of 1% combined carbon content in the balance of the wheel, and 2.9% graphitic carbon for the plates and the hub.

The chilled iron wheel has been, for 70 years, the leader in the transportation world, so far as the carrying of the contents of the cars is concerned. It has never been superceded by any other material. There are other materials that have been provided, but I may say safely that 95% of the freight moved in this country today is moved on chilled iron wheels, and we may safely say that we have a volume of wheels running that will astound you when I mention the number. The American Railroad Association at its last meeting gave us two new standard patterns; these two with those previously given us by that Association, make four standard patterns for wheels carrying the commerce of the country—a 650 lb. wheel for 30 ton cars, a 700 lb. wheel for 40 ton cars, a 750 lb. wheel for 50 ton cars, and an 850 lb. wheel for 70 ton cars.

Our Association was formed in 1909, and the trend of our work has been toward uniformizing, or standardizing, the car wheel pattern, and we have now succeeded in establishing four standard patterns. Previous to our organization, we had as many patterns as there were car wheel manufacturers throughout the country, including some of the railways which manufactured their own car wheels. I presume I can say without any question of doubt that 10 or 12 years ago there were hundreds of patterns extant in the production of chilled iron car wheels; today we have four standard patterns, and you can see what this means to the car wheel industry. The men who are working on the Pacific coast are working on the same general line patterns as those on the Atlantic coast and from Canada to the Gulf of Mexico. Today the chilled iron wheel stands out pre-eminently and without a peer.

I wonder if you realize the severity of the service of the chilled iron wheel. After having passed through this process of manufacture, the wheel is sent to the pits, and cooled gradually, and in the course of four or five days it is removed from the pits, the wheel is bored for fit, pressed on its axle and sent on its way. It will traverse any part of the country, and it is guaranteed for a certain service, and that is all the machine work necessary on this wonderful piece of mechanism. Now, when the wheel goes into service, we may say that the average mileage of the freight car is about 10,000 miles a year. We know that a 33 ft. freight car wheel will make about 611 revolutions in a mile; so that every car wheel under every freight car that makes 10,000 miles a year will make 6,100,000 revolutions in a year, and there are about 160 rail joint contacts that it has to travel in a mile. And when I say offhand, without consulting by notes, which I left at some place, that there are about 1,600,000 rail joints that the wheel itself has to go over in a year in performing the function of carrying commerce, you can see the tremendous importance of the wheel and the wonderful work that it performs, all tending toward introducing to you the severity of the service.

The American Railroad Association claims to control about 2,600,000 cars. I think the Official Railway Equipment Register lists will measure up about 2,818,000 cars; all the users are not members of the American Railroad Association. If 95% of these wheels are chilled iron wheels, and I do not think there is any question about it, we must have under the freight cars alone about 20,000,000 car wheels; and if we add the wheels

that are owned by private car lines, under locomotive tenders, passenger cars, street car lines, etc., 25,000,000 wheels running today is a reasonable estimate. I wonder if you ever tried to visualize what 25,000,000 chilled iron wheels mean in volume? If you could pile them one on top of the other, you would make a pile 2,762 miles high; and if you could sit on top of the pile in St. Louis and should happen to tip over, without hurting yourself, you would land in California. If you could put these wheels edge to edge on a single track, you would make a line of track covered with car wheels that would be about 14,200 miles long, or over half the circumference of the earth. It shows you what a wonderful development there has been in the car wheel industry throughout the country. If you took these car wheels out of service you could not move much freight. But supposing that you could take them out and you wanted to ship them, it would represent about 8,750,000 tons of metal. And if you wanted to move them by a single train, or by several trains, and would use cars of 50 tons capacity, the train would extend from St. Louis to Boston and would take 2,912 mikado locomotives to pull them, each locomotive pulling 4,000 tons.

We recognize no limit to the carrying capacity of the chilled iron wheel. That may make some of you think that we are boasting, but when I say that I mean it, by reason of the fact that we have the chilled iron wheel in service where four or five times the railway requirements of the carrying capacity of the wheel is demanded, and still the chilled iron wheel stands up, I refer to crane service, and transfer service, where we are carrying on the chilled iron wheel at least 100,000 lb. a wheel. In the American Railroad Association standards there is a requirement of from 20,000 to 25,000 lb. a wheel, so you see what I mean when I say that the carrying capacity of the chilled iron wheel has not been reached. We can carry any load that the steel rail supports and, in fact, we can carry a heavier load than the steel rail carries at present.

We have gone into fields that are beyond the recommendations of the American Railroad Association, we have put wheels under cars that are much heavier than the maximum car wheel recommended by that Association. The 850 lb. wheel, which carries the 70 ton car, is a maximum wheel in weight, as recommended by the American Railroad Association. Nevertheless we have wheels in use that weigh 950 lb. In the ore service in the west, on the Verde Tunnel & Smelter Rd. they are carrying 75 to 95 tons of ore down a 4% grade, and they have found that the chilled iron wheel will do work in that character of service that other kinds of wheels will not do.

Representing as I do, about 50 foundries, scattered from ocean to ocean and from Canada to the Gulf of Mexico, I believe that I can say, without any fear of contradiction, that the chilled iron wheel today is one of the most important parts of the car structure and is the standard of freight traffic and without it the nation's commerce would be paralyzed.

The address was followed by moving pictures showing the manufacture of car wheels.

Birthdays of Transportation Men in May.

Many happy returns of the day to:

J. F. Aitchison, Auditor of Disbursements, G.T.R., Montreal, born at Edinburgh, Scotland, May 28,.1880.

Jas. Bain, Superintendent, Bridgewater Division, Maritime District, Canadian National Rys., Bridegwater N.S., born at Pictou, N.S., May 24, 1860.

B. A. Bourgeois, Assistant to Comptroller and Treasurer, Canadian Government Railways, Moncton, N.B., born there May 24, 1869.

B. T. Chappell, General Superintendent, Prairie District, Western Lines, Canadian National Rys. and Grand Trunk Pacific Ry., Saskatoon, Sask., born at Charlottetown, P.E.I., May 1, 1878.

N. R. DesBrisay, District Passenger Agent, C.P.R., St. John, N.B., born at Minneapolis, Minn., May 18, 1888.

A. E. Duff, ex-District Passenger Agent, G.T.R., Toronto, now of Winnipeg, born at Sherbrooke, Que., May 1, 1872.

G. C. Dunn, Assistant to Chief Engineer, Eastern Lines, Canadian National Rys., Toronto, born at Quebec, May 13, 1862.

C. S. Gzowski, Jr., Assistant to Vice President, Construction, Canadian National Rys. and Grand Trunk Pacific Ry., Toronto, horn there, May 1, 1876.

G. H. Hedge, Works Manager, Canadian National Rys., Winnipeg, born at Neath, Wales, May 26, 1865.

G. A. Hoag, Superintendent of Transportation, Ontario District, Canadian National Rys., Toronto, born at Walters Falls, Ont., May 31, 1866.

J. Irwin, Superintendent, Edmonton Division, Western District, Canadian National Rys., Edmonton, Alta., born at Clinton, Ont., May 28, 1866.

H. E. Kane, Port Agent, Canadian Government Merchant Marine, St. John, N.B., born there, May 20, 1895.

J. N. Murphy, Roadmaster, C.P.R., Brandon, Man., born at Mooretown, Ont., May 10, 1879.

Sir Augustus M. Nanton, President, Winnipeg Electric Ry., and director, C.P.R., Winnipeg, born at Toronto, May 7, 1860.

A. V. Redmond, District Engineer, Central District, Canadian National Rys., Winnipeg, born at Kingston, Ont., May 16, 1879.

A. C. Shaw, Passenger Department, C.P.R., Montreal, born at Detroit, Mich., May 12, 1865.

W. H. Snell, General Passenger Agent, C.P.R., Montreal, born at Palmyra, Neb., May 23, 1872.

W. Stapleton, District Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Saskatoon, Sask., born at Bristol, Eng., May 20, 1884.

R. B. Teakle, Manager, Canadian Government Merchant Marine, Montreal, born at Quebec, Que., May 19, 1877.

E. E. Tedford, Marine Superintendent, Canadian Government Merchant Marine, Montreal, born at Yarmouth, N.S., May 21, 1870.

J. H. Walsh, General Manager, Quebec Central Ry., Sherbrooke, Que., born at Quebec, May 12, 1860.

H. K. Wicksteed, B.A.Sc., C.E., Consulting Engineer, Canadian National Rys., Toronto, born at Quebec, May 25, 1855.

C. L. Wilson, Assistant Manager, Toronto & York Radial Ry., Toronto, born at Boston, Mass., May 23, 1871.

A. O. Wolff, Resident Engineer, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Copenhagen, Denmark, May 14, 1887.

J. M. Woodman, General Superintendent, New Brunswick District, C.P.R., St. John, N.B., born at St. Marys, Ont., May 15, 1866.

C. H. Worby, Assistant Superintendent, Sleeping, Dining and Parlor Cars and News Service, Western Lines, Canadian National Rys., Winnipeg, born at London, Ont., May 18, 1883.

Lettering and Marking of Freight Equipment Cars.

The American Railway Association's Mechanical Division has issued the following circular:—It is again necessary to impress upon all owners of cars operating in interchange the importance of preserving the identity of such cars by maintaining distinct initials and numbers, in order to avoid the numerous errors result from indistinct marks. Also, in many cases, one or more figures of the car number or portions of the initials have been omitted when making repairs; in other cases, incorrect numbers or initials have been applied in restencilling the car.

It is urged that all railways and private car owners proceed at once to restencil or brighten the initials and numbers on cars requiring such attention, in order that the desired improvement may be accomplished as early as possible.

Charge for restencilling cars to preserve identity may be made against the owners, except as otherwise provided in the Rules of Interchange. See item 190, rule 101 and rule 102.

Under rule 17, section A, it is permissible to substitute the standard of the Association for lettering and marking cars in lieu of the standard of the car owner, except that the reporting marks assigned by the Transportation Division to be placed between horizontal bars will not be used unless they have been adopted by the car owner.

With reference to the proposition of marking freight equipment cars to show load limit, in lieu of nominal capacity, it has been decided that no action will be taken at this time to require load limit marking on cars. Therefore, it will be proper to stencil new cars, as well as existing cars, in accordance with the present standards of the Association as shown on A. R. A. sheet 26, which provide for nominal capacity markings.

Railway Electrification in South Africa. Electrification of two sections of the South African Government Railways, as the first step in a programme of electrification for certain important parts of the system, has been decided upon by the Railway Administration. These two sections are the suburban line from Cape Town to Simonstown, 22½ miles, and the main line from Durban to Pieter Maritzburg, 45 miles, the latter being the initial part of the electrification of the heavy grade main line from Durban to Glencoe, 249 miles. Multiple unit trains are to be used on the suburban line, and electric locomotives on the main line. The estimated capital investment is $2,245,830 and $2,400,000 for the two sections respectively (at present rate of exchange). Merz & McLellan, London, Eng., are the consulting engineers.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry. — A press report states that Lac la Bichie, Alta., will be the construction base for work on this line during the summer, for which the Alberta Legislature has appropriated $2,000,000 to be advanced to the company (the directors of which are members of the Alberta Government), from time to time as required, by the Lieutenant Governor in council. The line is completed from Carbondale, the junction with the Edmonton, Dunvegan & British Columbia Ry. to Lac la Biche, 113.2 miles, over which freight and passenger trains are being operated. The line has been graded and track laid to the Clearwater River, 160 miles from Lac la Biche, and traffic is being moved over it by the contractors under special conditions. The uncompleted section of the grading to Fort McMurray is about 20 miles. The route from Lac la Biche to the present end of track is through a low lying country, and the track is not in good shape, owing to lack of drainage and ballast. The principal bridge on this section, over the Christner River, has been washed out every season since the line was put through, and a new bridge is being built. The rehabilitation of this section of the line and its completion into Fort McMurray has been let to the Northern Construction Co., which has assembled large quantities of plan and material in preparation for the work. Two stalls are reported to have been added to the Lac la Biche locomotive house; two steam shovels are in the yard; ties have been distributed along the track, and ballast pits have been located.

The original route between the end of track and Fort McMurray has been abandoned owing to the difficult gradients and the character of the soil through which it was located, and a new route has been laid out along Deep Creek to the Clearwater River flat and then on to Fort McMurray. (Feb., pg. 82.)

Calgary & Fernie Ry. Co. has applied to the Dominion Parliament for an extension of time within which to build its projected railway, from Calgary, Alta., through Kananaskis Pass to the head waters of Elk River, B.C., thence along the Elk River valley to Fernie, B.C. (July, 1919, pg. 351.)

Canadian Western Ry. Co. has applied to the Dominion Parliament for an extension of time within which to build its projected railways from near Coutts, Alta., on the International Boundary, northerly and westerly to Cardston, thence northwesterly through Pincher Creek to C.P.R. Crowsnest Pass line, thence along the north fork of the Old Man River to the southerly end of the Livingstone Mountains, and thence northeasterly to Calgary, with a line branching off from near the Livingstone Mountains to the Elk River, thence southerly along the Elk River valley to a junction with the Canadian Pacific and the Great Northern Rys. at Michel, B.C. (Sept. 1919, pg. 491.)

Calgary South Western Ry. Co.—The Alberta Legislature has extended for two years the time within which the company may build its projected railway from Calgary to the Sheep Creek coal fields district. The company is reported to have cleared some right of way. P. Burns, Calgary, is the principal promoter. (Sept. 1919, pg. 536.)

Central Ry. Co. of Canada has applied to the Dominion Parliament for an extension of time within which it may complete its works. C. R. Dobbin, Montreal, is secretary. The company proposed to build a railway from Montreal to the Georgian Bay, and started work near Hawkesbury, Ont. Differences developed between the company and its contractors, and legal actions were taken. The company's affairs have been before the courts frequently during the past few years. In 1919 the Dominion Parliament authorized the company, or the purchaser thereof, in the proceedings pending, in the Exchequer Court, to finish the uncompleted portions of the railway between Rockland and Hawkesbury, between South Indian and Hawkesbury, and Glen Robertson, and between St. Andrews and St. Agathe, within five years. (July, 1919, pg. 381.)

Edmonton & Mackenzie River Ry. Co. —The Dominion Parliament is being asked to incorporate a company with this title to build a railway from Fort McMurray on the Athabasca River, the projected terminus of the Alberta & Great Waterways Ry., to the junction of the Jackfish and Peace Rivers, and thence to the Great Slave Lake at the mouth of Hay River. The airline distance between Fort McMurray and the mouth of Hay River is said to be 350 miles. The principal features of the construction of such a line would be the bridges across the Athabasca and Peace Rivers. The promoters of the enterprise are stated to be in Edmonton, and to be interested in oil development in the north.

English River Pulpwood & Limit Ry. We are officially advised that it will not be necessary to locate the railway from Kenora, Ont., to the English River lumber limits in the near future, as E. W. Backus, who secured the limits from the Ontario Government, has first to build his pulp mill and develop the water power. (Feb., pg. 82.)

Esquimalt & Nanaimo Ry.—Victoria, B.C., City Council has invited tenders for the steel work on the Johnson St. bridge. The substructure is being built under the direction of F. M. Preston, City Engineer, who has asked for authority to build a derrick scow, at a cost of about $6,000 in preference to hiring one. The steel work for the bridge includes a bascule span, for the construction and erection of which the Strauss Bascule Bridge Co., Chicago, Ill., are consulting engineers. (Mar., pg. 142.)

Essex Terminal Ry. Co.—The Dominion Parliament has granted an extension of time for two years for the commencement, and of five years for the completion of the authorized line from the Detroit River, near Ojibway, to Pelton, Ont. (Jan., pg. 16.)

The Fernie & Elk River Ry. Co. has been incorporated by the British Columbia Legislature to build a railway from Sparwood, in the Crowsnest area, along the Elk River valley to the British Columbia-Alberta boundary near Kananaskis Pass. This projected line corresponds with the B.C. section of the line proposed to be built by the Calgary & Fernie Ry. Co., which is applying to the Dominion Parliament for an extension of time for construction. It was stated when the bill was before the B.C. Legislature that the line as projected by the company would run into Alberta. The bill was opposed by the B.C. Premier, as well as by the leader of the opposition, and was amended so as to bring it within the terms of the B.C. Railway Act.

Flinflon Mining District. — The New York mining syndicate, which was negotiating for the purchase of the Flinflon mine in Northern Manitoba, did not complete the purchase on April 1, when its option expired. It was reported in Winnipeg, April 2, that the Manitoba Government would ask the syndicate to pay the cost of the surveys made for the construction of a railway from near Pas, to the property, which the syndicate had agreed to do in the event of the option to purchase not being taken advantage of. The company is said to have expended $200,000 upon the development work on the property. The low price of copper and the highness of the money market are the reasons assigned for the failure of the syndicate to take up the option.

At the same time it was stated that the Mining Corporation of Canada, which is said to have held a quarter interest in the New York Syndicate, had started negotiations for the property. On April 11 it was reported that the Mining Corporation of Canada had bought the property, and that British capital had been secured to work it. J. P. Watson, Vice President of the Mining Corporation of Canada, is reported to have said in Toronto, April 12, that the Winnipeg dispatches of that date had anticipated events, and that the purchase had not been consummated. The Winnipeg dispatch referred to was a reported interview with J. E. Hammel, the majority owner of the property, who had just returned from Prince Albert, Sask., where he had been in consultation with other owners. The Treasurer of Manitoba is reported to have stated, April 13, that the Manitoba Government was prepared to construct the projected railway to the property on the same conditions as had been provided for in the negotiations with the New York syndicate, viz., that an accepted cheque for $1,000,000 be deposited with the Government as a guarantee that the mine would be worked. (April, pg. 186.)

Fort Smith Ry. Co.-Slave Lake Ry. Co. The bills to incorporate companies with these titles came before the House of Commons Railway Committee April 15. Both companies propose to build a railway to connect Smiths Landing on Slave River, with Fort Smith. The committee suggested that the promoters get together and come to an arrangement, so that the incorporation of one company only will be necessary. (April, pg. 198.)

High River, Saskatchewan & Hudson Bay Ry. Co. has applied to the Dominion Parliament to extend the time within which it may build its projected railway, authorized in 1919, from a point in any of the townships, 17 to 29, Range 1, west 4th Meridian, Alberta, northeasterly to the Saskatchewan-Manitoba boundary in Tps. 52 to 56, thence northeasterly to Pas, Man. (Sept., 1919, pg. 491.)

Kettle Valley Ry. — A press report states that it is expected construction will be started this summer on a line from Okanagan Falls, B.C., to the British Columbia demonstration farm below Fairview, B.C., 16.5 miles.

Another report says that track is expected to be laid at an early date on the branch from South Penticton to Dog

Lake, about 2 miles, the grading of which was completed in 1920. (March, pg. 142.)

Lacombe & North Western Ry.—The Alberta Government has given consideration to a project for the extension of the Lacombe & North Western Ry., which it owns. The Premier is reported to have informed the Legislature that during 1920 grading was gone on with on an extension northerly for about five miles from Rimbey to reach some gravel pits and secure ballast. This piece of line would form part of the route of the extension suggested to Edmonton, but the cost of construction is at present so high, and the commitments of the Government in regard to the railways to the north are so heavy, that the utmost caution has to be exercised. The Government engineers made a reconnaissance survey between Rimbey and Edmonton and fairly well established the route to follow in the event of the building of the line being undertaken. The total length of a railway from Lacombe to Edmonton would be about 125 miles. (Jan. 1920, pg. 18.)

Luscar Collieries Limited has been authorized by the Alberta Legislature to build about 7 miles of railway from the Canadian National Rys. in the Mountain Forest Reserve to the Mountain Park Coal Co.'s railway near Leyland. The colliery is owned by a Scotch company.

The Northern Light Rys. Co. applied to the Ontario Legislature at its recent session for authority to build the following lines in addition to those authorized to be built by the statutes of 1920, chap. 152, sec. 2, and described in Canadian Railway and Marine World for April, 1920, pg. 194:—From Swastika station on the Timiskaming & Northern Ontario Ry., westerly and southwesterly to Fort Matachewan, Powell Tp., and branches from this or any of the previously authorized lines, and to connect the same with the T. & N.O.R. or any other railway that may be built; and to build light narrow gauge railways to be operated by any motive power from Little Current to Manitowaning, and from Little Current to Gore Bay, both on Manitoulin Island, the lines authorized on Manitoulin Island to be started before Mar. 1, 1922, and completed within two years thereafter, and unless so started and completed the power to build the lines to be at an end as to any part then uncompleted.

A press report states that the Canadian Light Railway Construction Co., Toronto, is prepared to proceed with construction work on its railway building programme in Northern Ontario. It is stated that the first piece of line to be put under construction will be from Swastika, on the T. & N.O. Ry., to West Tree. (Sept., 1920, pg. 489.)

Quebec Central Ry.—The location plans for an extension from Scotts, on the main line, to a junction with the Canadian National Rys. at Diamond Jct., authorized by the Quebec Legislature, have been approved by the Board of Railway Commissioners, the Q.C.R. having passed under Dominion jurisdiction by the Railway Act of 1919. This extension will be 19½ miles, and will give the Q.C.R. a direct line to Quebec City, running over the Canadian National Railways and the Quebec Bridge, a distance of approximately 9½ miles from Diamond Jct., to Champlain St. station. The Q.C.R. has asked the Canadian National Rys. to give it running rights and terminal facilities at Champlain St. station, in preference to the Palais or Parent Square terminals, in another section of Quebec, which are six miles further from the bridge. The Scotts to Diamond Jct. extension generally follows the Chaudiere River valley, passing through the old settled and partially cultivated sections of Dorchester and Levis Counties, giving station accommodation to the thriving villages of St. Lambert and Breakeyville. There are no bridges or trestles on the lines, all the larger culverts are built of concrete, and some smaller ones of cedar. The maximum grade is 1%, compensated, with maximum curve 5 degrees, and 85 lb. rails are being used. The contractors are J. T. & J. F. Davis, who commenced work last summer and continued throughout the winter. All the clearing and concrete work has been completed, 70% of the grading is finished, and 2½ miles of track laid. The work is proceeding favorably and it is expected the grading will be finished by June 30. In the meantime track laying, ballasting, fencing, building of stations and other construction work is being proceeded with, and it is expected the line will be fully completed and ready for operation not later than the end of August. In all probability this extension, with track and terminal facilities over the Canadian National Rys., will comprise the Q.C.R.'s main line to Quebec, and the through Boston, Portland and New York trains will be operated over it, the present line from Scotts to Levis being operated as a branch. (Mar., pg. 143.)

St. John & Quebec Ry. has applied to the Dominion Parliament to extend to 1923 the time within which it may build the Centreville-Andover section of its line, in New Brunswick. The line is in operation between Centerville and the junction with the C.P.R. at Westfield, N.B., over which line access is gained to St. John. (June, 1920, pg. 298.)

Timiskaming & Northern Ontario Ry. The supplementary estimates for the year ending Oct. 31, 1921, passed by the Ontario Legislature recently contain the following items:—

Engineering, surveys and investigations	$10,836.25
Grading, widening cuts and fills, etc.	10,000.00
Replacing timber bridges and culverts	48,177.94
Additional weight of rail and improved fastenings	22,000.00
Additional track material	89,304.38
Right of way fencing	5,199.48
Snow fences	5,000.00
Road crossings and signs	3,000.00
Roadway buildings	2,353.68
Water stations	17,362.25
Fuel stations	60,000.00
Shops and locomotive houses	78,800.33
Stations and office buildings and miscellaneous structures	128,724.86
Yard tracks and industrial sidings	81,047.63
Sidings and spur tracks	50,670.18
Roadway machines and tools	11,094.40
Shop machinery	57,523.99
Locomotives	269,500.00
Freight cars	310,000.00
Passenger cars	2,706.84
Work equipment	14,338.02
Land, New Liskeard	6,321.29
Additional telephone circuits between North Bay and New Liskeard	742.64
Renewing telegraph and telephone line equipment	3,006.80
Five metallic circuits, Swastika to Kirkwood Lake	502.34
Telephone line, Cobalt to Porquis Junction	24,272.91
Replacing iron wire, Cobalt and Englehart yards, with copper wire	1,000.00
Phantom telephone circuit, Cobalt to Porquis Jct., and new switchboard, Porquis Jct.	3,311.35
Miscellaneous	100,000.00

The estimates for the fiscal year ending Oct. 31, 1922, also passed at the recent session, contained the following items:—

8 miles 90 lb. rails	$15,000
Surveys	25,000

The Premier of Ontario was reported to have stated recently that the clearing of right of way for some 25 miles from Cochrane north would be gone on with, to relieve employment, but we are advised that he was probably misquoted. This is apparently borne out by a statement made by him in the Legislature recently to the effect that the Government had not determined when the projected extension to the Kettle Falls of the Abitibi River would be gone on with. He also referred to a possibility that electric power will be developed at the Kettle Falls by the Hydro Electric Power Commission of Ontario, and used for the electrical operation of the T. & N.O. Ry.

We are advised that the suggested extension northerly from Cochrane is being investigated and that nothing has been settled as to the route or when construction will be started. The Government has authorized a continuation of surveys for the location of an extension of the railway from Cochrane and a survey party, in charge of W. R. Maher, will commence work immediately. The ultimate objective of this extension is Moose Factory at the Mouth of Moose River, but it is not the present intention to make a location through to James Bay. For the present the Commission's attention will be confined to an extension through the clay belt of Northern Ontario, which extends for about 60 miles north from Cochrane. (April, pg. 198.)

Cambie Station, C.P.R. — The C.P.R. has changed the name of Bowie station, on the main transcontinental line, 36.4 miles west of Revelstoke, B.C., to Cambie, in honor of A. J. Cambie, who had charge of the building of the portion of the C.P.R. from Burrard Inlet into the interior of B.C. for the Dominion Government under the Onderdonk contract, who afterwards entered the C.P.R. Co.'s service and continued in it until about a year ago, when he was placed on the pension list, and who at 85 years of age is enjoying good health and is frequently called into consultation by the Pacific District management. There was formerly a station named Cambie, on the loop near Glacier, B.C., which was abandoned consequent on the building of the Connaught tunnel.

False Arrest by Ticket Agent.—Duncan McKay, a Prescott, Ont., mechanic, has been given $100 damages against J. G. Carruthers, G.T.R. ticket agent at Prescott, for false arrest. McKay bought a ticket at Prescott for Detroit, paying for it with a cheque. The ticket agent asked a bank about the cheque, and through an error in the name, was told there was no account, whereupon he had McKay arrested at Kingston. McKay had an account in the bank with sufficent funds to meet the cheque. The judge held that the ticket agent set the criminal law in operation without reasonable cause.

Abattoir Lease.—The C.P.R. is reported to have leased from the Montreal Abattoirs Limited the abattoir on Frontenac St., Montreal, adjoining the company's stockyards, and will, it is said, operate it as a slaughtering and cooling plant.

The Dominion Iron & Steel Co. is reported to have ordered its railway employes who went on strike late in 1920 to vacate its houses in Sydney, N.S., which they have been allowed to occupy during the winter. About 30 families are stated to be affected.

Mainly About Railway People Throughout Canada.

W. G. **Annable**, who has been appointed Assistant Passenger Traffic Manager, Ocean Traffic, C.P.R., Montreal, was born at Ottawa, Ont., March 3, 1875, and entered C.P.R. service in 1891, since when he has been, to Jan. 1901, junior to chief clerk, City Passenger office, Ottawa, Ont.; Jan. 1901 to Nov. 1905, in General Passenger Department, Montreal, in charge of steamship reservations on the Pacific for through passengers from Europe, and also on the Atlantic for through passengers from the Orient, also Chinese business in detail for the company, and the recording of such passengers through Canada in bond to other countries; Nov. 1905 to Dec. 1908, General Baggage Agent, Montreal; Dec. 1908 to Jan. 1916, General Passenger Agent, Atlantic Steamship Lines, Montreal; Jan. 1916 to March 1921, General Passenger Agent, Canadian Pacific Ocean Services, Montreal; March to Apr. 1921, General Passenger Agent, Ocean Traffic, C.P.R., Montreal.

G. A. **Begy**, customs appraiser, St. Catharines, Ont., who died there Apr. 18, was formerly a general railway and canal contractor, and carried out work on the C.P.R. and G.T.R., building bridge abutments on the St. Lawrence River, and canal locks at Iroquois and Morrisburg.

Henry Blackwell Beaumont, who has been appointed General Agent, Passenger Department, Ocean Traffic, C.P.R., Toronto, was born there, Aug. 3, 1887, and entered steamship service in June 1904, since when he has been, to June 1909, clerk; June 1909 to July 1911, private secretary; July 11, 1919 to Jan. 1913, chief passenger clerk; Jan. 1913 to July 1917, City Passenger Agent, Allan Line Steamship Co., Montreal; July to Oct., 1917, City Passenger Agent, Canadian Pacific Ocean Services Ltd., Montreal; Oct. 1917 to June 1919, chief passenger clerk, same company, London, Eng.; June 1919 to Jan. 1920, Assistant to Passenger Manager, same company, London, Eng.; Jan. 1920 to March 1921, General Agent, Passenger Department, Canadian Pacific Ocean Services, Montreal; March to Apr. 1921, General Agent, Passenger Department, Ocean Traffic, C. P.R., Montreal.

A. A. H. Boissevain, who died in Holland recently, and who founded a banking firm in New York, bearing his name, took a prominent part in early C.P.R. financing and was a large shareholder. Boissevain, on the C.P.R. Winnipeg-Napinka Branch, 182.7 miles southwest of Winnipeg, was named after him.

Sir George McL. Brown is European General Manager, C.P.R., not General European Traffic Manager, as mentioned in Canadian Railway and Marine World for April.

A. B. **Calder**, of the C.P.R. executive staff, who arrived in England early in April, was summoned to Buckingham Palace by the Prince of Wales, who is reported to have told him that he was looking forward to returning to Canada, and to visit his ranch at High River, Alta.

E. S. **Carter** is reported to have been appointed Secretary, New Brunswick Board of Public Utilities Commissioners, at Fredericton, succeeding F. P. Robinson, who is stated to have been removed for cause.

W. C. **Casey**, whose appointment as General Agent, Passenger Department, Ocean Traffic, C.P.R., Winnipeg, was announced in our last issue, was born at Moncton, N.B., Dec. 12, 1882, and entered transportation service, Aug. 1901, since when he has been, to Apr. 1902, ticket clerk, Intercolonial Ry., Moncton, N.B.; Apr. 1902 to Apr. 1903, ticket clerk, C.P.R., Halifax, N.S.; Apr. 1903 to Apr. 1910, Travelling Passenger Agent, C.P.R., St. John, N.B.; Apr. 1910 to Dec. 1913, chief clerk to General Passenger Agent, Atlantic Steamship Lines, C.P.R., Montreal; Dec. 1913 to Feb. 1919, General Agent, Passenger Department, Atlantic Steamship Lines, C.P.R., Winnipeg; Feb. 1919 to March 1921, General Agent, Passenger Department, Canadian Pacific Ocean Services, Winnipeg.

L. C. **Charlesworth**, heretofore Deputy Minister of Public Works for Alberta, at Edmonton, has been appointed Deputy Minister of Railways and Telephones for the province, succeeding N. L. Harvey, who resigned to take a position with Western Coals Ltd., Edmonton. Hugh M. Baker, heretofore Secretary to the Premier, has been appointed assistant to Mr. Charlesworth, and J. D. Robertson, heretofore Engineer of Highways, has been appointed Deputy Minister of Public Works.

C. R. **Dalrymple**, head of Jas. Dalrmple & Sons, wholesale produce, Montreal, who died there April 25, aged 46, was brother of J. E. Dalrymple, Vice President, Traffic, G.T.R.

J. E. Dalrymple, Vice President, Traffic, G.T.R., received a communication from the British Admiralty recently, stating that the Lords Commissioners had had under review the reports of services rendered by the G.T.R. in sea transport during the war, and desired to record their thanks and appreciation of the railway's work, particularly in connection with the rapid turn-round of ships at Montreal, and the preparation of ships for the various services.

William A. Duff, who has been appointed Engineer of Standards, Canadian National-Grand Trunk Pacific Rys., Toronto, was born at Hamilton, Ont., Apr. 20, 1877, and graduated from the University of Toronto in applied science in 1901. He has been, from 1901 to 1902, draftsman and Assistant Resident Engineer, Vancouver, Victoria & Eastern Ry., in British Columbia; 1902 to 1903, Assistant Engineer, G.T.R., Hamilton, Ont.; 1903 to 1905, draftsman, Kenwood Bridge Co., Chicago, Ill.; 1905 to 1907, draftsman, Canadian Bridge Co., Walkerville, Ont.; 1907 to 1908, chief draftsman, Bridge Department, National Transcontinental Ry., Ottawa, Ont.; 1908 to 1913, Assistant Bridge Engineer, National Transcontinental Ry., Ottawa, Ont.; 1913 to Oct. 1, 1916, Engineer of Bridges, Canadian Government Railways, Moncton, N.B.; Oct. 1, 1916 to Jan. 1, 1919, Assistant Chief Engineer, Canadian Government Rys., Moncton; Jan. 1, 1919 to Apr. 1, 1921, Assistant Chief Engineer, Eastern Lines, Canadian National Rys., Moncton.

Capt. H. **Eastman**, Vice President and Managing Director, Quebec & Chibougamau Ry., returned to Quebec from England, Apr. 12.

Robert S. Elworthy, whose appointment as General Agent, Passenger Department, Ocean Traffic, C.P.R., Chicago, Ill., was announced in our last issue, was born in London, Eng., Sept. 10, 1877, and entered transportation service, July 21, 1891, since when he has been, to Apr. 1, 1904, clerk, and Assistant Ticket Agent, C.P.R., Chicago, Ill.; Apr. 1 to Dec. 31, 1904, City Passenger Agent, C.P.R., St. Louis, Mo.; Jan. 1, 1905 to Mar. 31, 1909, chief clerk, Passenger Department, C.P.R., Chicago, Ill.; Apr. 1, 1909 to Nov. 1, 1910, General Travelling Agent, Minneapolis, St. Paul & Sault Ste. Marie Ry., Minneapolis, Minn.; Nov. 1, 1910 to Apr. 30, 1912, City Ticket Agent, same road, Minneapolis, Minn.; May 1, 1912, to Oct. 31, 1913, City Ticket Agent, C.P. R., Chicago; Nov. 1, 1913 to Dec. 31, 1915, chief clerk, C.P.R. rail and steamship lines, Chicago, Ill.; Jan. 1, 1916 to Feb. 1, 1919, General Agent, Passenger Department, C.P.R., Minneapolis, Minn.; Feb. 1, 1919 to March 1921, General Agent, Passenger Department, Canadian Pacific Ocean Services, Chicago.

Jacob Lewis Englehart, until recently, Chairman, Timiskaming & Northern Ontario Ry. Commission, Toronto, died there, Apr. 6, after a comparatively short illness, due to hemorrhage in the brain. He was born at Cleveland, Ohio, Nov. 2, 1847, and was educated in the public schools there, where he was also engaged for a time in commercial enterprises. In 1870 he moved to London, Ont., and was one of the pioneers to investigate the oil fields of that section. He organized the firm of J. L. Englehart & Co., which was the first concern to operate an oil refinery in Ontario. He sold his interests there to the London Oil Refining Co., and removed to Petrolea, Ont., and subsequently bought the Carbon Oil Co., which later became a part of the Imperial Oil Co., of which he was elected Vice President in 1881. He was appointed Chairman of the Timiskaming & Northern Ontario Ry. Commission in March, 1905, and remained as such until after the change of the Ontario Government in 1919, when he asked to be relieved. On the death of his wife in 1908, he gave the Town of Petrolea his homestead there, which he had had equipped as a hospital, and in 1909 he gave a complete Roentgen ray apparatus to the St. Michael's Hospital, Toronto, and in 1910, a chime of 11 bells to Christ Church, Petrolea. He was associated with several financial and other organizations, including the Bank of Toronto, the Crown Savings & Loan Association of Petrolea, the London & Western Trust Co., etc., and was also a member of the Toronto, York, Toronto Hunt, and London Clubs. The funeral took place at Petrolea, Apr. 9, a special train being run from Toronto. Among these present were, G. W. Lee, Chairman, T. & N.O.R. Commission; W. H. Maund, Secretary-Treasurer; S. B. Clement, Chief Engineer and Superintendent of Maintenance; W. A. Griffith, Superintendent; and W. A. Graham, Purchasing Agent and Storekeeper, T. & N.O. Ry.; F. P. Brady, Assistant to the Executive, Canadian National Rys.; U. E. Gillen, General Manager, Toronto Terminals Ry. Co.; A. L. Smith, Superintendent, Toronto Union Station; G. G. Bowker, General Superintendent, Ontario Lines, P. J. Lynch, Superintendent, Barrie Division, C. Forrester, Superintendent, London Division, G.T.R.; C. O. Stillman, President, and other officials, Im-

perial Oil Ltd., and several other business associates.

J. M. R. Fairbairn, Chief Engineer, C.P.R., Montreal, and R. A. Ross, E.E., consulting engineer, and a member of the Montreal Administrative Commission, will be given the degree of D.Sc., by Toronto University on June 9. Mr. Fairbairn graduated from the University in 1893.

Mrs. Hays, widow of C. M. Hays, formerly President, G.T.R. and G.T.P.R., returned to Montreal recently, with her daughter, Mrs. Thornton Davidson, after spending several weeks at Pasadena, California.

John J. Higgins, chief clerk in office of Vice President in charge of construction, Canadian National Rys., Toronto, was married in the Church of the Immaculate Conception, at Winnipeg, by Monsignor Cherrier, on April 6, to Miss Mary Eva Corrigan, formerly accountant, Engineering Department, C.N.R., Winnipeg. Her fellow employes gave her a complete set of community silver, silver tea service and china dinner set, and St. Ignatius choir, in which she was soprano soloist, gave her an electric coffee urn. They went to New Orleans for their wedding trip.

E. C. Kennedy, chief clerk, Bonaventure station ticket office, G.T.R., Montreal, was presented with a club bag, Apr. 2, by his associates, on leaving for Detroit, where he has been appointed City Passenger Agent, Canadian National-Grand Trunk Rys.

H. G. Kelley, President, G.T.R., left Canada for London, Eng, during April, to consult the directors as to the position of the arbitration proceedings with the Dominion Government regarding the price of certain G.T.R. stock, and as to the company's financial position, etc.

Lt.-Col. R. W. Leonard, St. Catharines, Ont., formerly National Transcontinental Ry. Commissioner, has given $250,000 in trust, the income from which will establish scholarships at certain institutions.

Howard M. MacCallum, who has been appointed Assistant General Passenger Agent Ocean Traffic, C.P.R., Montreal, was born at Huntingdon, Que., Dec. 3, 1882, and entered transportation service in Sept. 1899, since when he has been, to May 1904, general freight and passenger work, Allan Line, Montreal, and Portland, Me.; May 1904 to Aug. 1907, chief clerk to General Passenger Agent, Steamship Lines, C.P.R., Montreal; Aug. 1907 to Aug. 1908, Travelling Passenger Agent, Steamship Lines, C.P.R., Winnipeg; Aug. 1908 to Dec. 1909, General Agent, Steamship Lines, C.P.R., Winni-Toronto; March to Apr. 1921, General Agent, Canadian Pacific Ocean Services Ltd., Chicago, Ill.; Feb. 1919 to March 1921, General Agent, Passenger Department, Canadian Pacific Ocean Services, Toronto; March to Apr. 1921, General Agent, Passenger Department, Ocean Traffic, C.P.R., Toronto.

M. H. MacLeod, Vice President in charge of Construction, Canadian National Rys., and E. Langham, formerly General Purchasing Agent, C.N.R., returned to Toronto April 6, after a trip on the s.s. Canadian Forester, to Nassau, Bahamas; Kingston, Jamaica; and Belize, British Honduras.

George G. McKay, whose appointment as General Agent, Passenger Department, Ocean Traffic, C.P.R., Detroit, Mich., was announced in our last issue, was born at Hamilton, Ont., June 13, 1878, and entered transportation service in 1893, since when he has been, to June 1905, operator and ticket agent, G.T.R., at various points in Ontario; June 1905 to June 1906, ticket agent, Pere Marquette Rd. and Cincinnati, Hamilton & Dayton Rd., Detroit, Mich.; June 1906 to Oct. 1911, City Passenger and Ticket Agent, C.P.R., Detroit, Mich; Oct. 1911 to June 1916, City Passenger and Ticket Agent, C.P.R., Chicago, Ill.; June 1916 to June 1920, Travelling Passenger Agent, C.P.R., Detroit, Mich.; June to Nov. 1920, Assistant General Agent, Passenger Department, C.P.R., Chicago, Ill.; Nov. 1920 to March 1921, General Agent, Passenger Department, Canadian Pacific Ocean Services, Detroit, Mich.

Chas. S. Meek, exporter and importer, Vancouver, who died there recently, was a son-in-law of the late Sir William Whyte, formerly Vice President, C.P.R.

Lt.-Col. C. N. Monsarrat, heretofore Consulting Engineer, Railways and Canals Department, Ottawa, has left the service, the position having been abolished, and has entered into partnership with P. L. Pratley, M.Eng., as Monsarrat & Pratley, consulting engineers, with office at 508 Drummond Building, Montreal. They will specialize in design and supervision of bridge work, of all types, for railway or highway purposes, and will provide similar services in connection with difficult foundations, piers, dams and structural steel work for industrial and other buildings. They will undertake the preparation of reports and estimates, the making of inspections and appraisal and furnishing of professional advisory services. Lt.-Col. Monsarrat was born at Montreal, July 2, 1871, and entered C.P.R. service in Nov. 1889, since when he has been, to June 1896, structural draftsman, Chief Engineer's office, Montreal; June 1896 to Apr. 1897, Inspector of Steel Bridges, in charge of their manufacture and erection; Apr. 1897 to Dec. 1901, designing and estimating structural work, and engineer in charge of erection of many important structures in British Columbia and elsewhere; Dec. 1901 to Jan. 1903, Assistant Engineer, Montreal; Jan. 1903 to Apr. 1911, Engineer of Bridges, Montreal; Apr. 1911 to Apr. 1918, Chairman, Quebec Bridge Commission, and from Apr. 1918, Consulting Engineer, Railways and Canals Department, Ottawa.

James Albert Morice, who has been appointed Foreign Freight Agent, C.P.R., Toronto, was born at Stratford, Ont., Sept. 17, 1878, and entered railway service June 2, 1896, since when he has been, to July 7, 1907, in local freight and operating departments, G.T.R., Toronto; July 8, 1907 to March 14, 1919, Contracting Foreign Freight Agent, C.P.R., Toronto; March 15, 1919,to March 31, 1921, agent, Foreign Freight Department, C. P.R., Toronto.

L. Mulkern, Division Freight Agent, C.P.R., St. John, N.B., was entertained at dinner at St. John, recently, and presented with a gold watch, by a number of friends, on leaving there, to become Division Freight Agent, C.P.R., North Bay, Ont.

F. H. Phippen, K.C., of Toronto, chief counsel for the G.T.R., in the arbitration proceedings between the Government and the company, who has gone to England with President H. G. Kelley, to consult the directors, was accompanied by Mrs. and Miss Phippen.

Lieut. F. W. Rous, who died at the Sanatarium at Gravenhurst, Ont., recently, leaving a wife and four children, was born at Belleville, Ont. For some years he was private secretary to Senator M. J. O'Brien, and had a good deal to do with the latter's railway contracts, etc. He went overseas with the 159th Battalion, in Oct. 1916, serving with it until it was broken up in Feb. 1917, when he was transferred to the 8th Reserve Battalion, and in July 1917 he joined the 4th C.M.R., serving with it through Paschendale. He was wounded in the lung at Amiens, and was awarded the military cross for conspicuous bravery. On returning to Canada, he became President, Automobile Supply Co., Toronto. Tubercular trouble resulted from his wound, and finally he was attacked with double pneumonia, from which he died.

M. S. Throne, General Agent, Freight Department, C.P.R., New York, died there, Apr. 6, from blood poisoning caused by an infected carbuncle. He was born at Watertown, Wis., Aug. 12, 1881, and entered railway service in 1908, since when he was, to 1910, in Wisconsin Central Ry. service at Milwaukee, Wis., and as Freight Claim Agent at Chicago, Ill.; 1910 to 1913, chief clerk to Vice President and Traffic Manager, Minneapolis, St. Paul & Sault Ste. Marie Ry., Minneapolis, Minn.; 1913 to Mar. 15, 1919, District Freight Agent, C.P.R. and M.St.P.&S.S.M.R., Cleveland, Ohio; and from March 15, 1919, until his death, General Agent, Freight Department, C.P.R., New York.

W. E. Weegar, who has been appointed Trainmaster, Districts 30, 31 and 32, Ottawa Division, G.T.R., Ottawa, entered G.T.R. service Nov. 17, 1887, since when he has been, to Nov. 12, 1899, brakeman; Nov. 12, 1888 to Jan. 20, 1913, conductor; Jan. 20, 1913 to June 22, 1918, Trainmaster, Montreal; June 22, 1918 to April 1921, Trainmaster, District 30, Ottawa Division, Ottawa, Ont.

H. K. Wicksteed, B.A.Sc., C.E., has returned to Toronto, after spending some months in South America, where he made a study of the Brazilian railway system. He had a very enjoyable and interesting trip, and a most cordial reception, and received numerous courtesies from the officials of the several railways travelled over, including the Central Rio to Sao Paulo; the Sao Paulo & Paulista, Santos to Barretos; the Sorocobana; the Sao Paulo-Goyaz; the Sao Paulo-Rio Grande and the Parana, besides a portion of the Leopoldina system. Aside from the professional interest, he describes the scenery, on some of the mountain sections between the sea and the interior plateau, as magnificent, especially that on the Parana between Paranagua and Curityba. He returned to Canada via London, Eng., calling at the northern Brazilian ports of Bahia and Pernambuco, and at Madiera, Lisbon, and Vigo.

Sir Thomas White, who has been representing the Dominion Government as one of the arbitrators to settle the amount to be paid for certain G.T.R. stocks, has resigned his seat in the House of Commons, as member for Leeds, Ont.

Discrimination by Railway Companies. H. H. Stevents, Center Vancouver, B.C., introduced a bill in the House of Commons recently to amend the Railway Act by striking out the words "unreasonable," "undue," "unjust," etc., in the sections dealing with discrimination. He stated his object to be to make the question of discrimination an absolute one, rather than one subject to modifications.

What Information Respecting Canadian National Railways Should be Made Public?

At each session of Parliament since the Canadian Northern Ry. was taken over by the Dominion Government and the operation of the Canadian Government Rys. also placed under the Canadian Northern directors, a large number of questions have been asked in the House of Commons, and some in the Senate in reference to all the lines. The great majority of these questions have not dealt with matters of government policy, as would be the logical expectation, but have been in connection with mere details of operation, and of local importance only. Representative questions of this nature, together with the answers, have been given in Canadian Railway and Marine World from time to time; one concerned the discharge, as the member put it, of one sectionman on the I.R.C., but it afterwards developed that he was attempting to obtain information concerning a reduction of maintenance forces, effected by discharging one laborer on each section, on a certain district. Another member desired details concerning the purchase of ice at a point in Nova Scotia, the names of the tenderers, the amounts of the tenders, the successful tenderer, and so on. Another enquired as to the taking off of a certain local train; and another, concerning the amount of insurance carried on the Fort Garry Hotel in Winnipeg, with all details. One member lodged a very strenuous complaint because lumber was piled on one side of the track at a certain point, and maintained that it should have been piled on the other side. Another, evidently with a view to creating agitation to completely revolutionize the system of railway accounting in use in North America, demanded to be informed concerning "the gross receipts, operating costs, and surplus or deficit during 1919 and 1920, 'in' every divisional point on the Government railways." In connection with these questions, considerable inconsistency has been shown by the Minister of Railways, Dr. Reid. Very often, questions dealing with operating details have been dismissed by him with the statement that the properties are under corporate control, and that the information sought was not, and could not reasonably be expected to be in the Government's possession, or with the statement that the giving of such information would not be in the public interest. On the other hand, other questions, likewise concerned with operating details, have been answered most fully.

Viewing the matter broadly, the attitude of the opposition, as repeatedly expressed by its leader, W. L. Mackenzie King, and by his lieutenants, has been that Parliament is entitled, under any and all circumstances, to be fully informed concerning the expenditure of every cent of the public funds. Despite repeated explanations by Premier Meighen, and the Minister of Railways, as to the corporate form of management of the National lines, and the determination of the Government to refrain from interference in matters of operation, the opposition has persisted in demanding full information, and in bitterly assailing the Government for its refusal to furnish it. On March 22, on the motion for committee of supply, Mr. King moved in amendment "That, subject to the reservation that in exceptional cases there may be documents of a confidential charcacter, which in the public interest may properly be withheld from publication, the House declares that it is the undoubted right of Parliament to demand and receive copies of all reports, accounts, correspondence and papers in relation to the management of every department of the public service, including the affairs of the Canadian National Rys., whether operating under the control of a department or under corporate form." After a lengthy debate, the amendment was defeated by 117 to 79. Throughout the discussion, the opposition took the stand that the withholding of information inevitably tended to put the road "into politics," while the Government, supported by the Progressive party under the leadership of Mr. Crerar, took the opposite view.

In the course of the debate, reference was made to Mr. A. K. MacLean, of Halifax, having a resolution on the order paper calling for the formation of a select standing committee on Canadian National Rys. and shipping, and Mr. Crerar expressed his approval of such a move. Mr. McLean's motion was introduced on April 5, and withdrawn on the same date, after some discussion.

On April 8 the Premier moved "That a select standing committee on National railways and shipping be appointed for the present session, and be instructed to enquire into the following questions:—(1) What information as to operation of Canadian National Rys. and shipping, as conducted by the board of directors and management, should, in the public interest, be brought down in Parliament on questions, motions for production of papers, or otherwise? (2) When, by what method, and under what conditions, if any, should such information be given, regard being had for the necessity of securing to Parliament, and the public, all facts requisite for the determination of policy, including finance, and to the board of directors the best possible conditions and efficiency of management? (3) What system of auditing should be adopted, and what extent of detail should be given in the annual report? (4) Whether, and for what purposes, the committee should be continued, and that for the above purposes and for such other purposes as the committee deem in the public interest there be referred to the committee the board of directors' annual report, and that the committee have power to examine witnesses under oath, to send for papers, persons and records, and to report from time to time.."

Mr. Mackenzie King immediately stated that the committee proposed was not so much a committee for the purpose of giving Parliament information, as it was a committee for the purpose of placing restrictions around the giving of information. He claimed that giving a committee the duty of finding out what information should or should not be brought down, is simply depriving Parliament of a right which it has, to any and all information, and that the restrictions placed on the committee itself were highly undesirable. He moved the following amendment:—"That all the words after the word 'session' in the second line, to the end of the question, be omitted, and the following be inserted instead thereof:—"That such committee shall have power to enquire into all matters in any way relating to the railways owned or controlled by the Government of Canada whether under the direction of the Railways and Canals Department or under any corporation in which the Government are stockholders, whether relating to construction or operation, from the date of the appointment by the Government of the board of directors of the Canadian Northern Ry. Co. down to the present time; and similarly to enquire into all matters in any way connected with the Canadian Government Merchant Marine, either in respect of the construction or operation of the ships, and that such committee shall have power to send for papers, persons and records, to engage counsel and transportation experts, and to make such reports and recommendations from time to time as, in their judgment, will be calculated to promote the public interest." After a protracted debate, this amendment was defeated by 73 to 56, Mr. Crerar and his followers supporting it.

Before the main motion was put, Mr. Crerar urged an enlargement of the committee's powers, and moved in amendment:—"That the motion be amended by adding thereto, as clause 5, the following words: 'What approximation, if any, consistent with the responsibility of Parliament in the matter, can be found to the appointment and the control of directors and management, ordinarily exercised by shareholders in a private corporation.'" Mr. Meighen expressed himself as being in general agreement with this, but desired to change the amendment to read: "What, if any, improvement could be made in the general scheme of management," which Mr. Crerar, in moving his revised amendment, moved also that it be inserted as clause 4, with clause 4 of the original motion made clause 5. The revised motion was then put to a division and carried by 80 to 42, the Progressive party supporting the Government.

The committee provided for by the above motion was appointed on April 11, to consist of the following members:—Messrs. Allan, Ballantyne, Bureau, Cahill, Casgrain, Chaplin, Copp, Crerar, Davidson, Duff, Hocken, Long, MacLean (Halifax), MacLean (York), Manion, McLean (Royal), Mewburn, Murphy, Nicholson (Algoma), Papineau, Reid (Grenville), Reid (McKenzie), Stevens, Stewart (Lanark), Tweedie, White (Victoria). Major-General Hon. S. C. Mewburn was appointed chairman of the committee, and Mr. Stewart vice chairman.

The committee met for organization on April 14, with D. B. Hanna, President, Canadian National Rys., and A. J. Mitchell, Vice President, Finance and Accounts, in attendance. The next meeting was on April 20, when Messrs. Hanna and Mitchell were again present. At this meeting, Mr. Hanna submitted a plan of the organization of the Canadian National Rys. and auxiliary services and of the Canadian Government Merchant Marine Ltd. In reply to a question by one of the committee, he outlined the "make-up" of the system, explaining the relation of the different lines composing it, and then entered into an explanation of the organization, naming the board of directors, and stating that the operation of the railways is carried on under the administration of six vice presidents and a general counsel, viz.: A. J.

Mitchell, Finance and Accounts; C. A. Hayes, Traffic; M. H. MacLeod, Construction; S. J. Hungerford, Operation and Maintenance; R. C. Vaughan, Purchases and Supplies; and G. D. Perry, Telegraphs. G. G. Ruel is General Counsel. Mr. Hanna then detailed the organization of the various departments as follows:—

The finance and accounting department is sub-divided into the treasury department and the audit and accounting department, the auditing being carried on by an outside firm of auditors. Dealing with subjects under this head which should properly be withheld from publicity through parliament, Mr. Hanna specified, confidential arrangements with company's bankers re proposed issues; details of proposals received in respect of insurance contracts; disclosures of salaries of staff; information giving details of business handled at competitive points; details of competitive prices; details of investigation in regard to dismissal of employes.

In dealing with the traffic department, Mr. Hanna outlined its functions, and the methods employed, and said: "While our tariffs of necessity become public . . . yet it might be unwise at times to be obliged to divulge information of sources from which information has been obtained that has assisted in determining the bases for the published tolls. Particulars should not be asked for as to business done with the railway by any individual shipper or group of shippers. It would be unwise that information should be given as to the traffic earnings on any particular district or for any particular town or city. If occasion should arise for disciplining a representative of the department . . particulars should not be required, or the employe encouraged to carry a fancied grievance to a source outside of the organization. To do so would impair discipline and weaken the authority of the immediate officer in charge."

In referring to the construction department, Mr. Hanna said:—"It is most essential that certain information which this department has and obtains from time to time should not by any means become public property. This applies particularly to the location of new lines through important centers. The reason, of course, for this, is so that the railway will not be held up in prices for right of way. The approximate estimates of cost of doing work, where it is contemplated to do it by contract has been found, by practice, inadvisable to be made known to contractors, who then may use these figures to their advantage in putting in their tenders."

In dealing with the operating and maintenance department, Mr. Hanna pointed out that the work of operation is divided between sub-departments as follows, the first six, generally speaking, being handled divisionally, and the others departmentally:—(1) Transportation; (2) mechanical; (3) maintenance of way and structures; (4) car service; (5) police and special service; (6) medical service; (7) railway telegraph and telephone service (local); (8) dining and sleeping cars and hotels; (9) express; (10) coast steamships and ferries: (11) electric railways. He pointed out that it would be unwise to divulge information in detail in regard to contemplated improvements or extension of facilities, before the necessary property was secured or agreements with municipal or other interested bodies were concluded; or as to dismissal or other punishment of employes for violation of rules, or unsatisfactory services; also in regard to the earnings of individual trains.

After dealing with the organization of the purchasing and stores department, Mr. Hanna said:—"The disclosing of information to the public in respect to our purchases would be most disastrous to the railway from a buying standpoint . . . We would be placed in the unfortunate position of our competitors knowing everything about our business, and we knowing nothing about theirs, and, being able to obtain our prices, they would in every case endeavor to obtain lower ones."

In regard to the Canadian National Telegraphs, he said:—"We should not be obliged to divulge information in regard to our methods, and results of solicitation for business, nor in respect to the names of persons or firms who are good customers of the company."

He then detailed the work of the legal department, and of the President and executive staff. In dealing with the organization and work of the Canadian Government Merchant Marine, he demonstrated the bad results which would follow the disclosure of certain kinds of information, and in concluding his statement, said:—"A splendid spirit of cooperation and loyalty extends throughout the organization, each officer seeming to feel the greatest confidence in the ultimate success of the railways. There is not the slightest indication among the officers and employes that Government control of the properties means stagnation."

A. J. Mitchell, Vice President, Finance and Accounts, was examined at length by members of the committee, on a variety of subjects relating to C.N.R. organization and work. He filed statistics as follows:—Comparative operating results, Canadian Northern Ry. and Canadian Government Rys.; gross revenue, working expenses and fixed charges for 1920 and 1919 for the same railways; wages, Canadian National Rys.; cost of principal materials; information re Canadian Pacific Ry.; information re United States railways; 2nd annual report, Canadian Government Merchant Marine.

Mr. Mitchell appeared again before the committee April 26 and submitted a number of statements showing the financial and operating positions of the Canadian National Rys. A large part of his testimony concerned the great increases in wages, caused by the McAdoo

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Sstatistics, Internal Trade Division.

Week ended April 15.	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William						
C.P.R.	1,637,886	2,566,952	854,006	.....	158,168	5,217,012
Consolidated Elevator Co.	1,101,016	200,324	82,131	54,484	.....	1,437,955
Ogilvie Flour Mills Co.	1,091,889	253,839	83,179	.....	.....	1,428,907
Western Terminal Elevator Co.	1,091,526	283,604	39,219	252,956	11,993	1,679,298
G. T. Pacific	2,555,010	2,516,583	237,534	367,495	55,674	5,732,296
Grain Growers' Grain Co.	1,611,781	429,812	51,429	.....	14,145	2,115,167
Fort William Elevator Co.	350,116	700,633	123,064	244,082	26,081	1,443,976
Northwestern Elevator Co.	632,623	31,822	12,700	43	*29	677,159
Port Arthur—						
Port Arthur Elevator Co.	3,226,083	3,831,199	951,763	43,064	96,199	8,148,308
Sask. Co-op. Elevator Co.	3,035,047	598,812	86,623	120,794	12,901	3,854,177
Canadian Government Elevator	619,863	1,332,019	310,621	568,680	53,556	2,884,739
Davidson and Smith	353,799	746,367	192,262	.....	1,439	1,293,867
Private Terminal Elevators	2,917,581	2,067,914	375,069	265,665	10,708	5,636,937
Total Pub. & Pte. Terminal Elevators.	20,224,220	15,559,880	3,407,600	1,017,263	440,835	41,549,798
Total Pte. Term. Elevators, Winnipeg	52,106	31,171	1,905	792	265	86,239
Saskatoon: Can. Gov't Elevator	525,070	1,984,478	7,940	972	946	2,519,406
Moose Jaw: Can. Gov't Elevator	557,818	481,286	.....	10,610	2,798	1,052,512
Calgary: Can. Gov't Elevator	302,491	1,839,229	63,089	,778	117	2,205,704
Vancouver, B.C., Can. Gov't Elevator..	72,056	72,043	10,883	.....	.....	154,982
Total Interior Terminal Elevators	1,457,435	4,377,036	81,912	12,360	3,861	5,932,604
Midland—						
Aberdeen Elevator Co.	.....	70,854	.....	.....	.....	70,854
Midland Elevator Co.	.....	90,460	.....	.....	.....	90,460
Tiffin, G.T.P.	3,102	269,571	.....	37,831	.....	310,504
Port McNicoll	1,990	157,830	.....	.....	.....	159,820
Goderich—						
Elevator & Transit Co.	.....	208,080	10,000	.....	.....	218,080
West Can. Flour Mills Co. Ltd.	1,834	.....	.....	.....	.....	1,834
Kingston—						
Commercial Elevator Co.	.....	2,951	2,814	.....	.....	5,765
Port Colborne—						
Maple Leaf Milling Co. Ltd.	111,533	.....	.....	.....	.....	111,533
Montreal—						
Harbor Commissioners No. 1 and 2..	219,904	526,298	68,967	.....	1,459	816,628
St. Lawrence Milling Co.	114,773	10,344	946	.....	.....	126,063
Quebec Harbor Commissioners	.....	136,990	.....	.....	.....	136,990
West St. John, N.B., C.P.R.	17,380	145,138	66,226	.....	.....	228,744
Total Public Elevators	470,516	1,618,516	148,953	37,831	1,459	2,277,275
Total Country Elevators	9,747,548	13,234,180	1,942,539	1,248,685	.....	26,172,952
U.S. Atlantic Seaboard Ports—						
Portland, Me.	1,006,755	284,682	279,001	.....	178,617	1,749,055
Baltimore, Md.	62,792	.....	.....	.....	6,034	68,826
New York, N.Y.	37,430	15,659	9,181	.....	948	63,218
Total U.S. Atlantic Seaboard Ports	1,106,977	300,341	288,182	.....	185,599	1,881,099
U.S. Lake Ports—						
Buffalo, N.Y.	683,752	47,761	.....	.....	.....	731,513
Duluth, Minn.	374,555	64	.....	922	.....	375,541
Total U.S. Lake Ports	1,058,307	47,825	.....	922	.....	1,107,054
Total Quantity in Store	34,117,108	35,168,949	5,871,091	3,217,853	632,019	79,007,021

*Overshipped.

and Chicago awards, and in material prices. He stated that material prices are showing a tendency to decrease, and that it is a logical expectation that wage rates will decrease in proportion. He showed how necessary it was for the C.N.R. to spend large sums for maintenance, terminal improvement, and equipment, to put the property in proper shape, and in a thorough analysis of operating costs showed the great advantage enjoyed by the C.P.R. in freight and passenger traffic density, and length of haul in both passenger and freight service. The inadequacy of rate increases, to property offset the great increases in operating costs, was also demonstrated.

On April 27, R. T. Riley, of Winnipeg, the only western representative on the Canadian National directorate, stated to the committee that he considered the first big question to be decided by it was whether the primary object of the Canadian National directors should be to furnish service to the people, or cut down deficits at any sacrifice. By cutting down train service to the absolute minimum, and abandoning all work undertaken with a view to the future, the latter course would be pursued, but in his opinion, such a policy would meet with instant public disapproval. He claimed that there could be no real success until the people of Canada realize they are the shareholders in the Canadian National Rys. enterprise, and that the time has come for all to forget about the Intercolonial and the other lines composing the system, and to think and speak of the Canadian National only. He urged the desirability of no parliamentary interference in matters connected with operation, but also said: "I do not see how it is possible, until the millenium comes, for a government to run railways without political influence somewhere."

On the same day, while S. J. Hungerford, Vice President, Operation and Maintenance, was informing the committee concerning operating features of the property, a dispute arose among the committee as to how far it would be proper to enquire into railway wages. After Mr. Hungerford had been excused to catch a train, the differences of opinion still existed, the chairman of the committee, supported by several other members, contending that the subject would be an interminable one, while other members claimed that they were entitled to all information concerning the matter. Finally, it was moved by J. A. Stewart that a statement should be requested from Mr. Hungerford in explanation of particulars cited in statements filed before the committee. The motion carried, so that it appears that an enquiry into wages will be conducted by the committee.

Canadian National Railways Construction, Betterments Etc.

North Sydney Railway Wharf. — A press report states that the plans for the improvement of the railway wharf at North Sydney, N.S., provide for an extension at the head of the wharf of 150 ft., the same width as the present structure, and an extra 90 ft. on the western side. Improvements to the office section are also contemplated, and it is said that a concrete warehouse will be built on the new addition.

Petitcodiac River Bridge. — Tenders were received recently for the construction and completion of the substructure for a single track railway bridge over the Petitcodiac River, 1.4 miles from Salisbury, on the branch line between Salisbury and Albert, N.B.

Newcastle to Tracadie.—Residents of Northumberland County, N.B., are asking the Dominion Government to build a line to connect Tracadie with Newcastle. Newcastle is on the west bank of the Miramichi River, and such a line would run along the river bank, skirt Miramichi Bay, and along the coast to Tracadie, which is near the mouth of Portage River. Tracadie is the terminus of the Caraquet & Gulf Shore Ry., which starts from Gloucester Jct., 38.8 miles west of Newcastle, and runs to Tracadie, 82 miles.

St. John Station. — A press report states that owners of properties expropriated for the new station building at St. John, N.B., have received notice of the prices offered. If these are not accepted the prices to be paid will be settled by the Exchequer Court.

Hervey Jct. Station, Portneuf County, Que., on the National Transcontinental Ry., was burned recently.

Canadian Northern Ry. - National Transcontinental Ry. Connection. — The Board of Railway Commissioners has authorized the Canadian Northern Quebec Ry. to open for traffic its connection with the National Transcontinental Ry. near St. Prosper, Que. This connection, we were officially advised in Dec. 1920, is half a mile long and has a ruling gradient of 0.4%. St. Prosper is about 14 miles west of St. Marc, where two miles of line with a 0.4% gradient, have been built to connect the C.N.Q.R. and the N.T.R.

East Burrill Viaduct.—We are officially advised that Angus Sinclair, Toronto, is the contractor for the substructure of the East Burrill viaduct deviation, between Glenalda and St. Boniface, mile 87.6 to 91.6. Canadian Railway and Marine World for July 1920 contained full details of a number of projected revisions on the St. Lawrence Subdivision, of which the Burrill revision is one. This deviation is approximately 4 miles long, extends over two ravines, one of which is to be filled in solid, and the other is to be crossed by a steel trestle 450 ft. long and 80 ft. high. The grading work is unimportant, but there is some rock work. The object of this, as of the other diversions, is to reduce the gradients on the subdivision from 1% to 6/10%, and to flatten out the curvature. In the work now to be done the bridge or trestle will have a total length of 645 ft., instead of the 450 ft. of which we were advised in July 1920.

The bridge to be built is located at mile 89.7 west of Quebec, near St. Boniface, and will cross the Lavergne gulley, through which flows a small stream, the East Burrill Creek. The new bridge will be a single track girder viaduct with Steel towers on concrete pedestals and abutments. The track will be a 2 degree curve throughout the bridge, the superelevation of 1½ in. being taken up by tilting the spans. There will be a sidewalk on one side of the bridge. The dimensions of the bridge will be: Length 645 ft.; greatest height, 80 ft.; centers of grades, 9 ft.; spans, 2 end spans of 60 ft. each; 4 intermediate spans of 60 ft. each, 1 intermediate span of 85 ft., and 4 lower spans of 40 ft. each; these spans will be supported on 5 braced steel towers and 1 rocker bent tower. The substructure will consist of 22 concrete pedestals averaging 10 ft. high; batwing abutment at east end 26 ft. high, and temporary timber abutment at west end resting on rock fill, to be replaced by permanent concrete abutment when the fill settles. The concrete for the substructure will be 1-2-4 and 1-2½-5. The ground in which the work will be done is sticky clay, boulders and blue clay, and piling may be necessary in spots. Actual construction has not been started, but the site is cleared and the contractor's plant is being assembled. The general contractor for the substructure, Angus Sinclair, has let a sub-contract to Campbell & Lattimore, Toronto. Tenders for the superstructure were received to recently. It is hoped to have the structure completed by the end of the year.

Chaudiere Jct., Que.—It is reported that it is intended to close the locomotive house at Cap Rouge, Que., and to concentrate the power and train operation at Chaudiere Jct., where the locomotive house is being extended, and a standard coaling plant and ashpit facilities are being provided.

Ste. Rosalie to Bagot, Que.—J. E. Marcile, M.P. for Bagot, Que., asked in the House of Commons recently: "Has the Government any intention of using the land now unused, but formerly occupied by the Canadian National Rys., between Ste. Rosalie and Bagot Station? If not, is it the Government's intention to hand the land back to the respective former owners?" The Minister of Railways replied: "The matter is under consideration by the C.N.R. management."

Work in Prairie Provinces in 1920.— J. F. Reid, M.P. for Mackenzie, Sask., asked in the House of Commons March 4: "How many miles of grading were completed on Canadian National Rys. branch lines in Manitoba, Saskatchewan and Alberta during 1918, 1919 and 1920? On what lines and in what respective provinces was the grading done, and how many miles of rails were laid?" The Minister of Railways, in replying, gave details of the miles of grading and track laying for each of the three years, which are summarized as follows:—

	Grading.	Tracklaying.
1918	100.88	29.37
1919	268.96	181.08
1920	88.8	128.1
	458.64	338.55

Western Lines Construction. — A. E. Warren, General Manager, Western Lines, is reported to have stated at Edmonton, Alta., recently that a great deal of work will be done on the lines in the western provinces this year, but until the Dominion Parliament has passed the appropriations it is impossible to state the nature or extent of the work planned. There will be a large amount of ballasting and track repair work on the main and branch lines; elimination of lines where the Canadian Northern Ry. and the Grand Trunk Pacific Ry. parallel each other, and in addition to other general work, erection of coal storage sheds at Prince Rupert is contemplated.

Ontario District Concrete Structures. Tenders are under consideration for a number of concrete structures on Ontario District lines.

Port Arthur, Duluth & Winnipeg Ry. A. E. Warren, General Manager, West-

ern Lines, C.N.R., and several divisional officers have been inspecting this line for the purpose of deciding what repair and reconstruction are necessary. This line was originally built from Port Arthur to Gunflint Narrows, near the International Boundary, but is only being operated for 58.1 miles as the North Lake subdivision of the Canadian Northern Ry., branching off from Kashabowie Jct.

Regina Right of Way.—A press report states that negotiations are in progress for the purchase by the C.N.R. of a 66 ft. strip of private property off the northern tier of blocks in the Transcona and Rosemount subdivisions, Regina, Sask., for widening the right of way on the Moose Jaw line between the Grand Trunk Pacific Ry. shops and the western limits of the city. Application is reported to have been made to the city council for the closing of the portions of the streets and lanes which will be cut off.

Maryfield Branch.—A delegation from Southern Saskatchewan is reported to have waited on the Dominion Government recently in connection with tthe extension of the Canadian Northern Ry. Maryfield Branch. In 1919 arrangements were made for the extension of the branch from Bengough, the route favored by the management being one which it is stated will ultimately connect with the main line at Gravelbourg. Settlers are asking for a diversion via the shores of Big Muddy Lake, which would add about 16 miles to the length of the line as projected, but would, it is claimed, serve an additional 11 townships.

Grand Trunk Pacific Ry.—The Canadian National Rys. received tenders to April 7 for the following work on the Grand Trunk Pacific Ry. at Melville, Sask.:—Construction of earth dam and excavation of reservoir for railway water supply, and excavation and laying of cast iron pipe line in connection with same.

A press report states that several important diversions are being planned in Northern Alberta consequent on the coordination of the Canadian Northern Ry. and the Grand Trunk Pacific Ry. under the Canadian National Rys. The diversions proposed will, it is said, eliminate several bridges on the G.T.P.R., including the long trestle over the Battle River, near New Norway; eliminate the G.T.P. R. station at Camrose, and necessitate the construction of a new piece of line from New Norway, on the G.T.P.R., to Battle, on the C.N.R. The building of this piece of line would save a considerable mileage in hauling coal from the Brazeau collieries to Edmonton.

Saskatoon-Calgary Line.—A Calgary, Alta., press report says that A. E. Warren, General Manager, Western Lines, when there recently stated that it is not the intention to carry on any important construction work in the west this year. The most important work to be undertaken will be on the Saskatoon-Calgary line, where it is intended to replace the present 60 lb. rails between Kindersley and Hanna with 85 lb. rails, and to put the track into first class condition.

Alberta Branch Line.—The Board of Railway Commissioners has approved route map showing revised general location of projected branch line through Tps. 25-27, Ranges 3-15, west 4th Meridian, mile 27 to 118, Alberta.

Entwistle - Evansburg Bridge. — A press report states that surveys are being made for a cutoff from the Canadian Northern Ry. east of Entwistle, Alta., to link it up with the G.T.P.R. there. It is stated that this would involve the abandonment of the bridge over the Pembina River between Entwistle and Evansburgh, and its removal to another place. The bridge is stated to be about 400 ft. long, and 175 ft. above water level.

Brule Lake to Grande Prairie District. A press report states that residents of Grande Prarie district, Alta., have asked the C.N.R. management for the construction of a line from Brule, 207 miles west of Edmonton on the Canadian Northern Ry., and 203 miles west of Edmonton on the Grand Trunk Pacific Ry., through the Grande Prairie district to Pouce Coupe. This line would traverse the Upper Smoky River valley coal field.

Kamloops Bridge.—The Board of Railway Commissioners passed an order recently authorizing the operation of trains across the bridge over the Thompson River at Kamloops, B.C. We are officially advised that this bridge is on the branch line starting from the C.N.R. main line at Kamloops Jct. It is about three miles south of the junction and provides access from the north to Kamloops, and to the Kamloops-Kelowna, branch, which is under construction. The substructure consists entirely of pile piers, capped, braced and sheathed with dimension timber. The end piers are connected to the shore by approach timber trestles, and the pivot pier for the swing span is protected by the usual type of guide pier. The total length of the bridge proper is 564 lineal ft., of which 181 ft. is taken up in the two arms of the swing span. The remaining 383 ft. is made up of 3 spans approximately 128 ft. between pier centers. The trestle approaches together measure 405 ft. Owing to the difficulty of obtaining steel during the war, the construction of the bridge is of the timber through Howe truss type. The work was started May 7, 1917, and the swing span was tried on March 2, 1918, and found to be wholly satisfactory. The work was carried out in its entirety by the C.N.R. construction forces.

False Creek Reclamation. — Work on the diversion of Main St., Vancouver, B.C., to bring it nearer to the C.N.R. station at False Creek, is reported to be well in hand. Final work is also being gone on with on the sea wall on the reclaimed area, and preparations are being made for returning the reclaimed area in front of the station into a lawn, etc.

Vancouver Island Lines.—The Board of Railway Commissioners has authorized the building of a temporary trestle to carry the C.N.R. over the Esquimalt & Nanaimo Cowichan Lake Branch at mile 74 Victoria-Alberni Subdivision, Canadian Northern Pacific Ry. (Mar., pg. 128.)

The Dominion Government's Action to Secure Possession of the Grand Trunk Railway.

The circumstances which led up to the suspension early in April of the arbitration between the Dominion Government and the G.T.R. Co., as to the value of certain of the company's stocks, were fully dealt with in the House of Commons on April 19, by the Prime Minister, Mr. Meighen, who in moving the first reading of a bill respecting the G.T.R. arbitration stated that the arbitration proceedings had ceased and the arbitrators' powers had lapsed under the terms of the agreement entered into March 8, 1920, and that although the agreement provided for an extension of time if necessary, the Government did not see fit to grant it until the G.T.R. met its conditions, which are set forth in the bill. He pointed out that there appears to be a feeling among certain shareholders and others in Great Britain that the Canadian Government is dealing harshly with G.T. R. investors, but he considered this was due to a failure to realize the facts, or rather a determination not to grasp the fact that their present position is due to the unsoundness of enterprises which the shareholders deliberately entered into. In tracing the financial relations of the Government and the G.T.R., he showed that the Dominion undertook certain defined responsibilities, while the G.T.R. undertook others, and that the Dominion has not only carried through, faithfully and scrupulously, every responsibility into which it entered, but had done vastly more. After outlining the contract obligations, he pointed out the additional assistance rendered, saying: "In 1909, a loan of $10,000,000 was made the G.T. Pacific Ry. on G.T.R. guarantee. In 1913, $15,000,000 was loaned the G.T. Pacific on G.T.R. guarantee. In 1914 G.T. Pacific bonds for $16,000,000 were guaranteed by the Government to complete the system without recourse to the G.T. R. This was distinctly a G.T.R. obligation under contract. Subsequently, in 1916, 1917 and 1918, cash loans were authorized by Parliament and were advanced to the G.T.P. for $7,081,000, $5,-038,000 and $4,071,000 respectively.

The G.T. Pacific Ry. had agreed to operate the National Transcontinental Ry. It failed, indeed was utterly unable, to do so, and the Government has been compelled to operate the line at many millions annual loss on operating account alone. Early in 1919, on six days notice, the G.T. Pacific informed the Government that it would cease to operate the railway. The Government has been compelled since then to provide for operation of this road under receivership and has had to advance to the receiver some $26,607,000 for operating and fixed charges. For the G.T.R. itself the Government has since the summer of 1919 advanced various sums to keep the system intact and enable it to continue, the advances aggregating approximately $47,000,000. The greater part of this has been advanced since the execution of the agreement for the acquisition of the G.T.R. The total amounts advanced to assist the G.T.R., inclusive of interest unpaid, amounts to $77,297,000, of which all but $15,000,000 is due, and to the G.T.P. $62,400,000, which is all due. The Government has also guaranteed G. T.R. obligations for $25,000,000. It is very difficult to argue in the face of this recital that the Government has at any time dealt harshly with G.T.R. shareholders or G.T.R. enterprises."

Mr. Meighen continued: "By the terms of the agreement of March 8, 1920, there was no binding obligation upon the Government to finance G.T.R. operations. The Government assisted in such financing, and Parliament authorized assistance, in order that the G.T.R. might continue to operate, and render the essen-

tial service that it does render as a transportation system and be held together as a transportation unit. The importance of maintaining the integrity of the G.T.R. system and preventing its disintegration and dissipation, into parts and pieces, appeals to everyone who carefully studies the question, and, indeed, can scarcely be overstated."

Mr. Meighen then called attention to the several warnings issued to the G.T.R. in connection with its delay in the conduct of the arbitration, and pointed out that the company was informed on Feb. 7 as to the Government's desire for possession of the property, as a condition for extension of the arbitration proceedings, but that the G.T.R. directors, instead of attempting to obtain the shareholders' opinions, distinctly refused the Government's request. The Government again warned the company on March 19, only to be cabled by the chairman, Sir Alfred Smithers, refusing assent. Therefore, Mr. Meighen, said, it is idle to maintain that the Government requested something from the directors which they were not capable of performing, because they were given abundance of time to secure the shareholders' judgment upon the proposal, if they had set about to do so. In concluding, Mr. Meighen said: "It is the Government's opinion that there is no further need whatever of the G.T.R. Co. remaining in possession of the property, and further that it is wholly unreasonable that it should insist on doing so, while the financing of the property is virtually placed on the shoulders of the country. It has had abundance of time to secure its evidence and no doubt has secured it. If the G.T.R. as a Government property, is to be operated to advantage, it must be in unison and concert with the Canadian National Rys. They should no longer be operated in any degree as distinct systems, but as one. This advantage the Dominion is entitled to now, and in the Government's judgment the G.T.R. authorities are entirely without justification in seeking to withhold it. By the present measure, the Government asks Parliament to support the stand taken by the administration. We believe the shareholders should not be finally denied the reconstitution of the arbitration board, until an opportunity is given to meet the conditions required. By the present measure, Parliament will give them this opportunity, in clear and definite language, and will give sufficient time to enable them to meet and decide. It seems to me clearly a case, not for further negotiations with the company, but for a square and final statement of what must be done, with reasonable opportunity to accept or reject. That is the purport of the bill which I now submit for the judgment of Parliament."

The bill was passed by the House of Commons on April 25. After it had been read a second time in the Senate, the Government leader, Sir James Lougheed, moved several amendments, which were adopted, others, offered by private members, being rejected. It was then read a third time and passed by the Senate, as follows:—

Whereas pursuant to The Grand Trunk Railway Acquisition Act, 1919, chap. 17. of the second session, His Majesty the King, hereinafter called "the Government," and the Grand Trunk Railway Co. of Canada, hereinafter called "the company," entered into an agreement bearing date March 8, 1920, for the acquistion by the Government, on the terms in the said agreement stated, of the entire capital stock of the G.T.R., except the present guaranteed stock as thereby defined, and the said agreement was by and subject to the provisions of chap. 13 of the Statutes of 1920 in all respects ratified and confirmed; and whereas, although the company has not concluded the presentation of its case to the arbitrators and no award has been made, the period of nine months stipulated by the eighth clause of the said agreement for the making of the award of the arbitrators has elapsed and it is expedient to prescribe terms upon which the Governor in council may approve of a further time within which the award may be made: therefore His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. The Governor in council may approve of a further time within which the arbitrators or a majority of them may make their award, but any agreement for this purpose shall stipulate terms and conditions which shall ensure to the satisfaction of the Government,—

(a) that forthwith the directors of the company and of such of the companies comprised in the G.T. system as the Government may designate shall resign or vacate their offices as directors at such time or times and in such manner as may be requested by the Government, and that nominees of the Government shall be duly appointed directors; provided that the substituted board of directors of the company need not comprise more than five members; that until otherwise provided by the board a majority of the directors shall constitute a quorum; and that it shall not be necessary that any of the directors shall reside in England or be qualified by ownership of stock;

(b) that the directors of the company so nominated by the Government and their successors shall hold office as such directors during pleasure of the Governor in council, who shall have power to remove them and to fill vacancies, and the board of directors so constituted may exercise and carry on all the powers and business of the company without reference to or consultation with the shareholders of the company, and not subject in anywise to their vote, direction or control;

(c) that the head office of the company and the meetings of its board of directors for the transaction of any business shall after the substitution of directors as herein provided for be in Canada;

(d) that the directors of the company appointed upon nomination of the Government as aforesaid, in addition to their other powers, shall have and may exercise all the powers and functions of the committee of management as provided by the said agreement;

(e) that there shall be a committee which may be constituted by authority of the present directors of the company, or otherwise as may be agreed, and may be known as the G.T. shareholders committee, which, for the purpose of carrying on the arbitration proceedings and presenting the case of the G.T. shareholders and for the exercise of the powers or duties conferred on prescribed by the said agreement of March 8 in that regard, shall have and may exercise the powers and be charged with the duties heretofore belonging to the said directors; and that assessments or deductions, as provided for by clause 21 of the said agreement of March 8 for all costs of the arbitration not heretofore provided and paid by means of assessments shall be made in such amounts as may be necessary for the purpose, and upon and in accordance with requisitions of the committee, and that upon satisfying such requisitions neither the company nor the Government as guarantor of interest and dividends shall be bound to see to the application of the moneys requisitioned or otherwise responsible for or bear any of the costs of the arbitration; and moreover, after substitution of directors of the company as herein provided for, the company, and the government as guarantor of interest and dividends on the debenture and guaranteed stocks, shall be entitled to deduct and retain from such interest and dividends as may thereafter become payable upon the said stocks any and all costs or expenses connected with the arbitration heretofore or hereafter advanced, paid or incurred by either the company or the government, other than such as under the agreement of March 8, 1920, are payable by the Government;

(f) that for the purpose of the arbitration the books, minutes, reports, documents and other records, and all the railways and properties of the companies comprised in the G.T. system shall at all times be accessible and open to inspection and examination by the committee, or by any person or persons named by the committe or by counsel representing the shareholders in the arbitration proceedings;

(g) that upon substitution of directors as hereinbefore provided for, the arbitration shall proceed to a conclusion as speedily as may be, the time for making the award to be subject to provision in the agreement satisfactory to the Government.

2. The Government and the company are respectively authorized to agree for reviving and continuing the arbitration proceedings as aforesaid, provided the agreement be made on or before May 16, 1921, and to do, execute and authorize all acts, instruments, matters and things necessary for the purposes aforesaid, and upon the execution of any such agreement on behalf of the Government and on behalf of the company under the authority of its directors the aforesaid agreement of March 8, as thereby modified shall be and continue to be binding and effective for all purposes, and the stipulations thereof affecting the Government and the company respectively shall have the same force and effect as if specially enacted by Parliament.

3. In the event of approval by the Governor in council of a further time for the making of the award under the provisions of this act, or of any agreement concluded in pursuance of the powers hereby conferred, the powers and duties of the arbitrators shall remain and continue, and be deemed to have remained and continued, and the proceedings shall be resumed and concluded in all respects as if the time within which the award is actually made had been the time limited therefor by the said agreement of March 8, 1920.

4. For the purpose of carrying out the substitution of directors of this company herein provided for, any director of the company may vacate his office by resignation in writing submitted to the board at any meeting of the directors, and if one or more of the directors of the company, not exceeding five at any one time, shall in the manner aforesaid vacate his or their offices, the remaining directors

of the company present at the aforesaid meeting or at any subsequent meeting, even although they do not constitute a quorum, may elect a director or directors nominated by the Government to fill the place or places of the director or directors so vacating his or their offices. Moreover the Governor in council may at any time appoint additional directors to the substituted board if considered expedient. The bill as amended was returned to the House of Commons and passed May 2.

The G.T.R. Co. has given notice of a meeting of shareholders to be held in London, Eng., May 12, to consider and, if approved, authorize the execution and completition of a proposed agreement amending the present agreement dated March 8, 1920, between The King, represented by the Minister of Railways and Canals of Canada of the first part, and the company as provided for in the bill passed by the Dominion Parliament, as printed above.

Canadian Pacific Railway Construction, Betterments, Etc.

Appropriations.—The directors' annual report, on another page of this issue, details expenditures on capital account for this year amounting to $4,316,236, of which the following are the principal items:—Replacement of rail in main and branch tracks with heavier rails, $1,000,000; tie plates, rail anchors, ballasting, ditching, and miscellaneous betterments, $35,700; additional terminal and sidetrack accommodation, $377,292; replacement and enlargement of structures in permanent form, $509,624; additional stations, locomotive houses, freight sheds and shops and extensions to existing buildings, $398,158; improvements in connection with telegraphic service, $55,032; machinery at various shops, $30,950; lining of Connaught tunnel, $400,000; extension work on Chateau Frontenac Hotel, $853,000.

St. John River Bridge.—The Board of Railway Commissioners passed order 30,709, March 5, as follows:—Re application of C.P.R. Co., under sec. 248 of the Railway Act, 1919, for authority to build substructure of bridge 1.8, St. John Subdivision, over the St. John River, as shown on plans on file with the Board. Upon the approval by the Governor in council, by order in council 2622, Nov. 1, 1920, and the report and recommendation of the Board's Chief Engineer, it is ordered that the C.P.R. be authorized to construct the substructure of the said bridge at St. John, as shown on plans no. 58212, dated Oct. 5, 1920; no. 58120-1, dated Sept. 14, 1920; no. 58120-2, dated Sept. 24, 1921, no. B-2-318, dated July 26, 1920; no. B-2-320, dated July 19, 1920; and no. B-2-323, dated Sept. 15, 1920, on file with the Board; detail plans of the superstructure to be filed for the approval of an engineer of the Board.

It was stated at a St. John City Council meeting on April 14 that the Minister of Public Works had invited the council to send a representative to Ottawa on April 19, to discuss the plans of the bridge with all parties interested. The Mayor was authorized to attend the meeting.

St. John Trestle No. 5.—The St. John, N.B., City Engineer, and the C.P.R. District Engineer are reported to have inspected trestle no. 5 recently, to determine what work is necessary prior to the city calling for tenders for this work and for general wharf repairs. A new agreement between the city and the C. P.R. in connection with the trestle is reported to be under consideration.

Ottawa Northern & Western Ry. — The Dominion Parliament has granted an extension of time for two years for the commencement, and five years for the completion of the authorized railway from Waltham, Que., to a junction with the transcontinental line at Chalk River, Ont.

London Division.—Work is reported to have been started on betterments of lines on the London Division. About 200 extra section men are reported to have been engaged. The work to be done will, it is reported, include the putting in of 150,000 new ties, and the reballasting of about 20 miles.

Western Lines.—D. C. Coleman, Vice President, said in an interview at Winnipeg recently:—"There is no occasion for gloom or despondency about the future of Western Canada, but conditions at the moment certainly demand that business enterprises be conducted with prudence and caution. I have no sympathy with the view expressed by some that at a time like this governments or private companies should undertake large expenditures for works that are not absolutely essential, in order to create a spurious feeling of confidence. If you violate a fundamental economic law and incur obligations at the wrong time you are bound to suffer for it in the end. If the sky clears up a bit later in the year, we shall have a reasonable programme of improvements and extensions but for the time being any action in connection with that programme is deferred."

Suffield Branch.—The shareholders will be asked at the ensuing annual meeting to authorize the extension of the Suffield Southwesterly Branch from Lomond, Sask., for not exceeding 30 miles.

Manitoba & North Western Ry.—The Dominion Parliament has authorized the construction of the following lines: — From Tp. 30, Range 10 or 11, west 2nd Meridian, near Tuffnell, Sask., northwesterly to the West Saskatchewan River, Tp. 49-51, Range 14 or 15, west 2nd Meridian, thence westerly to Prince Albert, Sask.; and from Tp. 28, Range 6-8, west 2nd Meridian, near Theodore, Sask., generally westerly to between Govan and Lanigan on the C.P.R. Pheasant Hills branch.

Agassiz to Harrisons Mills. — Some time ago a crack was discovered in the mountain side above a double tunnel on the main transcontinental line between Agassiz and Harrisons Mills, B.C. After an inspection by the engineering staff, it was decided to avert danger by the removal of the rock. A press report states that 1½ tons of explosives were placed in the crevice and fired recently, about 20,000 tons of rock being blown out, falling mainly into the river, but blocking the outlet of one of the tunnels. The inner track and tunnel, to which the traffic was diverted, were cleared three hours after the blast, after which the removal of the debris closing up the other track was started.

Vancouver Pier.—The fill at the site of the new pier B.C. on the waterfront at Vancouver, in connection with the C. P.R.'s pier and wharf plans, is reported to have been completed. The work was started in March 1920, by the Pacific Construction Co., which is stated to have employed 1 hydraulic dredge, 2 clam shell dredges, 1 dipper dredge and 5 tugs. The excavation varied from 35 ft. at the shore end to 135 ft. at the outer end, and the material utilized for the fill work was taken from the First and Second Narrows of Burrard Inlet. The following figures of the material handled are given: Total handled on job, 1,800,000 cu. yd.; excavation for foundation, 700,000 cu. yd.; handled for foundation, 1,100,000 cu. yd.; length of fill, 800 ft. C. Murphy, General Manager, Western Lines, is reported to have stated on a recent visit to Vancouver, that nothing had been settled as to when construction of the pier would be gone on with.

Maintenance of Way Flagging Rules for Impassable Track.—The Board of Railway Commissioners passed general order 334 April 1, as follows:—Re general order 188, April 23, 1917, prescribing Regulations for Uniform Maintenance of Way Flagging Rules for Impassable Track, for the observance of every railway company within the legislative authority of the Parliament of Canada, and requiring that the said rules be printed in railway companies working timetables. Upon the report and recommendation of the Board's Chief Operating Officer, the Board orders that the general order 188 be amended to provide that the Regulations for the Uniform Maintenance of Way Flagging Rules for Impassable Track may, at the option of the railway companies, be printed in the companies' rule books, in lieu of the working timetables, as provided in the said general order.

Manitoba Public Utilities Commission. A Winnipeg press dispatch of April 28 said that the Legislature had, by a vote of 24 to 21, adopted a resolution declaring that the Commission had outlived its usefulness, that it should be dispensed with, and that its duties should be transferred to the Provincial Secretary's Department. The Commissioner is P. A. Macdonald.

Trial for Manslaughter.—R. J. Allan, conductor, and A. E. Pillow, locomotive man, Chapleau, Ont., were committed for trial, April 8, by the Police Magistrade, on a charge of manslaughter arising out of a collision on the C.P.R. on Dec. 23, when a conductor also living at Chapleau was killed.

DEPARTMENT OF THE NAVAL SERVICE.

NOTICE OF SALE.

Sealed tenders addressed to the undersigned and endorsed on the envelope "Tender for Travelling Cranes," will be received up to noon, on Wednesday, the 1st day of June, 1921, for the purchase of two 2½ ton Travelling Cranes, including boilers, jibs and small fittings, and now lying at Halifax Dockyard.

Further particulars and permission to inspect the Cranes may be obtained on application to the undersigned or to the Commander-in-Charge, H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,
Deputy Minister of the Naval Service.

Ottawa, Ont., April 26, 1921.

Unauthorized publication of this advertisement will not be paid for.

Traffic Orders by Board of Railway Commissioners.

Charges for Fixing Doors of Box Cars, etc., for Live Stock.

General order 337. April 8.—Re consideration of question of charges for fixing car doors and loading charges in cases where box cars are supplied by a railway in lieu of stock cars ordered by the shipper. Upon reading the submissions filed on behalf of the United Grain Growers, and the C.P.R., the Board orders as follows:—1. That when, at any public stock yards, where loading is not done by the shipper, and a charge for loading is made, box cars are supplied to live stock shippers, in lieu of stock cars, the doors of such cars shall be fixed to the satisfaction of the shipper, at the expense of the railway having the line haul, such company being responsible for the supplying of a suitable vehicle. 2. That, where box cars are supplied by a railway to live stock shippers, in lieu of stock cars, at any public stock yards where loading charges are in effect, the loading charge shall not be based on the number of box cars actually furnished or loaded, but on the number of cars which would have been loaded had stock cars been supplied by the railway.

Switching Stone Dust at St. Marys.

30,794. March 16.—Re complaint of Deviney & Campbell, of St. Mary's, Ont., that the C.P.R. has increased its rate for switching stone dust from the Thames Quarry Co. to its tile plant at St. Marys, from 1c. per 100 lb., minimum $5 a car, to 3¾c. per 100 lb. Upon hearing the complaint at Ottawa, June 15, 1920, the complainants and the railway company being represented, and upon the report and recommendation of the Board's Chief Traffic Officer, the Board declares that the charge of 3¾c. per 100 lb. made by the C.P.R. for switching stone dust from the Thames Quarry Co.'s plant to the complainants' factory at St. Marys was wrongfully made and should have been 2c. per 100 lb.; and the C.P.R. is, therefore, authorized to refund the amount of such overcharge to the complainant.

Hull Electric Co.'s Passenger Tariff.

30,804. March 31.—Re application of Hull Electric Co., under sec. 334 of the Railway Act, 1919, for approval of its Standard Local Passenger Tariff, C.R.C. no. P-16. Upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the said tariff, providing for a 25c. fare applicable between Ottawa and Hull and the Connaught Park Jockey Club, be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of the Canada Gazette.

Diversion and Reconsignment Rules, Regulations and Charges.

30,831. March 30.—Re application of N. W. Hawkes, of the New England Freight Association, on behalf of railways in New England, U.S.A., for permission further to suspend effective date of certain schedules naming Diversion and Reconsignment Rules, Regulations, and Charges until April 30, upon one day notice. Upon its appearing that the Interstate Commerce Commission has under investigation a suspension docket no. 1250, dated March 18, further suspending, until April 30, upon one day notice, schedule issued by U.S. carriers naming Diversion and Reconsignment Rules and Regulations, the Board orders that N. W. Hawkes, Chairman, New England Freight Association, be granted permission further to suspend effective date of the following schedules, until April 30, upon one day notice, after filing thereof with the Board, viz., Boston & Maine, C.R.C. 2033; Central Vermont C.R.C. 1451; Maine Central, C1893. That all carriers in the United States publishing similar tariffs applying on international traffic be granted similar permission to file with the Board upon one day notice.

Maine Central Railroad Freight Tariff.

30,833. Re application of the Maine Central Rd., under sec. 330 of the Railway Act, 1919, for approval of its Standard Freight Mileage Tariff, C.R.C. no. C-2010. Upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the said tariff be approved; the tariff, with a reference to this order, to be published in at least two consecutive weekly issues of the Canada Gazette.

Chicago, Indianapolis & Louisville Ry. Stone Tariff.

30,839. Re application of E. P. Vernia, General Freight Agent, Chicago, Indianapolis & Louisville Ry. for permission to reissue his Tariff C.R.C. 288, applying on stone in carloads, effective April 13, upon 10 days notice. Upon its appearing that the Interstate Commerce Commission has, by its special permission 52275, dated March 21, granted a similar application, the Board orders that the Chicago, Indianapolis & Louisville Ry. be authorized to file with the Board, effective April 13, upon 10 days notice, a tariff showing increased rates on stone, in carloads, to points in Ontario, as authorized under I.C.C. ex parte no. 74.

Granite Paving Blocks Freight Rates.

30,841. Re application of Brodies Limited and Jos. Brunet, of Montreal, for a reduction in rates on granite paving blocks from Hebert to Montreal, and from Staynerville to Montreal, all in the Province of Quebec, to the basis of rates in effect prior to Sept. 13, 1920. Upon hearing the application at Montreal, March 22, the applicants, the Canadian Pacific, and the Grand Trunk Railways, being represented, the Board orders that the application be refused.

Atlantic, Quebec & Western Ry.'s Coal and Wood Pulp Rates.

30,849. April 4.—Re complaint of H. F. Iverson of Montreal, on behalf of the Chicoutimi Pulp Co. against the rate charged by the Atlantic, Quebec & Western Ry. on coal from Gaspe to Chandler, Que., and on wood pulp from Chandler to Gaspe. Upon hearing the complaint at Montreal, March 23, the Chicoutimi Pulp Co. and the Atlantic, Quebec & Western Ry. being represented at the hearing, the Board orders that the complaint be dismissed.

Minimum Weights on Grain, Etc.

30,868. Re application of R. N. Collyer, agent, Trunk Line Association, and Eugene Morris, agent, Central Freight Association, on behalf of certain United States carriers, for permission to publish, on 15 days notice, revised minimum weights on grain and grain products, and rules and regulations applicable thereto. Upon it appearing that the Interstate Commerce Commission has, by its special permission 52340, dated March 25, granted similar petitions, the Board orders that carriers in the U.S., and their lawfully appointed agents, be authorized to file, upon 15 days notice to the Board a special supplement to their tariffs to points in Canada, cancelling the minimum weights, and rules and regulations applicable thereto, established by Interstate Commerce Commission special permission 51215, and establishing revised minimum weights on grain and grain products, and rules and regulations applicable thereto, as set forth in the said special permission.

Grand Trunk Pacific Railway Tolls.

30,873. Re application of Canadian Northern Ry. Co., under sec. 323 of the Railway Act, 1919, for approval of a bylaw passed March 10, 1921, authorizing H. H. Melanson, Passenger Traffic Manager, Toronto; R. Creelman, Assistant Passenger Traffic Manager, Winnipeg; and R. F. MacLeod, Assistant to Passenger Traffic Manager, Montreal, from time to time to prepare and issue tariffs of tolls to be charged for carriage of passenger traffic upon the railway owned or operated by the Grand Trunk Pacific Ry. Co., or any portion thereof, and upon the steamships owned or operated by the Grand Trunk Pacific Coast Steamship Co., and to specify the persons to whom, the place where, and the manner in which such tolls shall be paid. Upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the said bylaw be approved.

C.P.R. Facilities to Elevators at Fort William and Port Arthur.

30,855. April 6.—Re application of Davidson & Smith, Fort William, Ont., for an order directing the Canadian Northern Ry. to allow C.P.R. to switch cars to and from the Canadian Government elevator at Port Arthur, over the Canadian Northern Ry. spur and property from and to the C.P.R., so as to afford the applicants the same privileges as the Canadian Government elevator at Port Arthur, Ont. Whereas, by the Board's order 27,693, Sept. 16, 1918, the C.P.R. was authorized, subject to and upon certain conditions therein specified, to use and operate the Canadian Northern Ry. spur line into the applicants' elevator; and upon reading the submissions filed on behalf of the applicants and the railway company, the Board orders that the C.P.R. furnish, and continue to furnish and maintain, to the applicants' elevator, under the permission granted by order 27,693, the same traffic facilities as the company has been and is furnisinng, and will furnish, to the Government elevator at Port Arthur, under the permission granted by order 20,393, Oct. 17, 1913; such service to be put into effect within ten days from the date of this order.

Free Transportation for New Zealand's Premier.

30,901. April 13.—Granting application of Canadian National Rys., under sec. 345 of the Railway Act, 1919, for permission to issue free transportation to the Prime Minister of New Zealand, and his wife, daughter, and secretary.

Chatham, Wallaceburg & Lake Erie Freight Tariff.

30,917. April 20.—Granting application of Chatham, Wallaceburg & Lake Erie Ry., under sec. 330 of the Railway

Act, 1919, for approval of its Standard Freight Mileage Tariff, C.R.C. no. 646.

Michigan Central Cheese Rates.

30,920. April 23.—Re application of Michigan Central Rd. for permission to publish, on one day notice, revised rates on cheese from stations in Canada to the Atlantic seaboard, for export. Upon it appearing that an error has been made in the publication of commodity rates on cheese, by transposition of the rates for carloads, and less than carloads, and immediate correction being necessary, in order to give effect to the proper rates, the Board orders that the company be permitted to publish a supplement to its tariff C.R.C. 3003, so as to give effect to the proper rates on cheese; the said supplement to be made effective upon one day notice.

Railway Rolling Stock Orders and Deliveries.

The Timiskaming & Northern Ontario Ry. is in the market for several cabooses.

The estimates for the year ending Oct. 31, 1922, submitted to the Ontario Legislature recently, include $150,000 for two mikado locomotives.

The four switching locomotives which the Railways and Canals Department has ordered from Montreal Locomotive Works, as mentioned in our last issue, will be used in construction work on Welland Ship Canal.

W. W. Butler, President, Canadian Car & Foundry Co., and W. H. Woodin, a director of that company and President, American Car & Foundry Co., are in England, endeavoring to close a large equipment order with British interests, for the two concerns.

Canadian National Rys., between Mar. 5 and Apr. 9, received the following rolling stock; 140 stock cars, completing an order for 350; 17 sleeping cars, completing an order for 18, and 20 baggage cars, completing an order for that number, from Canadian Car & Foundry Co.

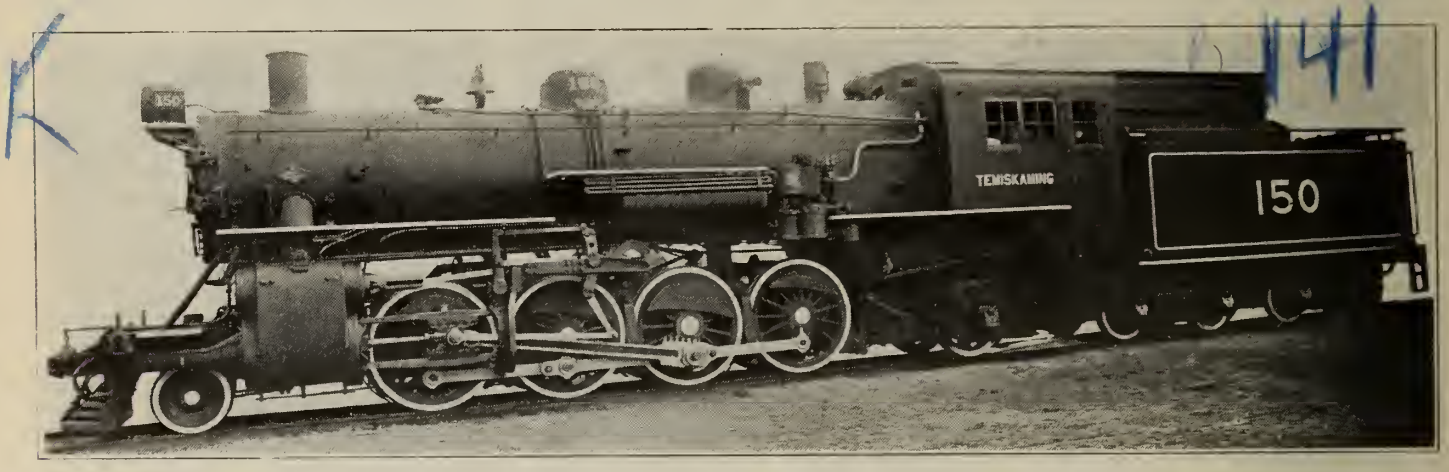
The G.T.R., during February and March, received the following additions to rolling stock: 7 switching locomotives from its Montreal shops; 840 automobile cars, 80,000 lb. capacity, and 50 baggage and express cars, from Canadian Car & Foundry Co.; and 42 automobile cars, 80,000 lb. capacity, from American Car & Foundry Co.

The C.P.R., between Feb. 11 and Apr. 13, received the following additions to rolling stock: 84 automobile cars and 160 refrigerator cars from its Angus shops, Montreal; 790 steel frame box cars from Canadian Car & Foundry Co., Fort William, Ont.; 250 steel frame box cars from National Steel Car Corporation; and 218 steel frame box cars from Eastern Car Co.

The Canadian Car & Foundry Co., between Mar. 14 and Apr. 12, delivered the following rolling stock: From Montreal, 13 sleeping cars and 18 baggage cars, to Canadian National Rys.; and 20 baggage express cars and 714 automobile cars to G.T.R.; from Fort William shops, 357 box cars to C.P.R.; and from Amherst shops, 200 trucks to Reid Newfoundland Co.

The Timiskaming & Northern Ontario Ry. has received 4 mikado (2-8-2) locomotives from Canadian Locomotive Co. One of them is equipped with a booster, a description and illustrations of which were published in Canadian Railway and Marine World for Dec., 1920, and an illustration of the completed locomotive is given on this page. The chief particulars are as follows:—

Weight on drivers	197,000 lb.
Weight, total	258,000 lb.
Wheel base of engine, rigid	16 ft. 6 in.
Wheel base of engine, total	34 ft. 8 in.
Heating surface, firebox	208 sq. ft.
Heating surface, tubes	3,016 sq. ft.
Heating surface, total	3,224 sq. ft.
Driving wheels, diar.	63 in.
Driving wheel centers	Cast steel
Driving journals, diar and length	Main 10 x 13 in. Others 9 x 13 in.
Cylinders, diar. and stroke	25 x 30 in.
Boiler, type	Radial stayed
Boiler, pressure	180 lb.
Tubes, no. and diar.	202 2 in.; 32 5¾ in.
Tubes, length	20 ft.
Brakes	Westinghouse
Superheater, Locomotive Superheater Co.'s type A	
Weight of tender loaded	143,000 lb.
Water capacity	6,500 imp. gal.
Coal capacity	12 tons
Tender truck, type	4 wheel equalized
Wheel, type	Rolled steel
Wheel, diar.	33 in.
Journal, diar. and length	M.C.B. 5½ by 10 in.
Brake beam	Trussed type



Mikado (2-8-2) Locomotive, with Booster, Timiskaming & Northern Ontario Railway.

Rolling Stock Ordered for Government Railways, Etc.

The following, evidently officially inspired, press dispatch was sent from Ottawa April 5:—"If Canadian railways have not been able to handle all Canada's freight requirements in 1918, 1919, and 1920, it is not the fault of the Dominion Government. Orders were given by the Government for delivery to the Canadian National Rys. in 1918 and 1919, and to the Canadian National-Grand Trunk Pacific and Grand Trunk Rys. in 1920, of 382 locomotives, costing $21,328,247; 21,463 freight cars, costing $65,710,094, and 331 passenger cars, costing $11,314,469; or $98,352,811 in all. All Canadian car building and locomotive works participated in this business, but some of the rolling stock was constructed outside trhe country for G.T.R. Western Lines. Most of this money, however, was spent in Canada.

"For delivery in 1918 the Government ordered for the Canadian National Rys. 185 locomotives, of all types, 21 passenger cars, and 8,715 freight cars, at a total cost of $36,217,998. For delivery in 1919 to the Canadian National, the Government ordered 50 locomotives, 3,037 freight cars and 260 passenger cars at a total cost of $18,718,820, and for delivery to the same road in 1920, 75 locomotives, 4,776 freight cars and 50 passenger cars, at a total cost of $22,058,272.

"The Government ordered for delivery in the same year to the Grand Trunk Pacific Ry. 37 locomotives and 860 freight cars, valued at $5,243,925, and to the Grand Trunk Ry. 35 locomotives and 4,075 freight cars, at a total cost of $16,113,795.

"The locomotives cost from $37,000 to $40,500 each, for switching locomotives, to $72,500 for the Santa Fe type obtained from Montreal Locomotive Works. Freight cars cost from $2,370 for flat cars, to $48,500 for a steel rotary snow plough, also obtained from the Montreal company. The passenger cars ranged from $24,000 for colonist cars to $49,348 for sleepers."

Particulars of these orders were, of course, given from time to time in Canadian Railway and Marine World, but it was not stated that the orders had been placed by the Government. The Minister of Railways is constantly reiterating that the Government does not interfere in the management of the Canadian National Rys., etc., and that the directors have a free hand. If that is the case, why should it be stated that the Government places the rolling stock orders? Does the Minister want to take the credit for popular things and to place the responsibility for others on the directors?

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys.—W. J. ATKINSON, heretofore Superintendent, Edmundston Division, Quebec District, Edmundston, N.B., has been appointed Superintendent, St. Maurice Division, Quebec District, vice F. Griffin, transferred. Office, Quebec, Que.

T. J. BROWN, heretofore Superintendent, Calgary Division, Western District, C.N.R. and Grand Trunk Pacific Ry., Calgary, Alta., has been appointed Superintendent, Dauphin Division, Prairie District, C.N.R. and G.T.P.R., vice A. E. Macdonald, transferred; with territory—Dauphin to Humboldt, not including Humboldt, 247.3 miles; North Jct. to Hudson Bay Jct., not including Hudson Bay Jct., 199.7 miles; Sifton Jct. to Winnipegosis, 20.7 miles; Thunderhill Jct. to Preeceville, 72.1 miles; Hudson Bay Jct. to Pas, 87.5 miles; Canora to Sturgis Jct., 21.7 miles; Preeceville to Lintlaw (under construction), 27.8 miles; Humboldt to St. Brieux (under construction), 33 miles; Pas to mile 214 (under construction), 214 miles. Office, Dauphin, Man.

P. BOHAN, heretofore Roadmaster, Oba Subdivision, Hornepayne, Ont., has been appointed Roadmaster, Ruel Subdivision ,Capreol, Ont., vice P. Vicks, transferred.

E. W. CAMERON, Assistant Superintendent, Saskatoon Division, Prairie District, Humboldt, Sask., has been given jurisdiction over the Battleford and Carlton Subdivisions.

W. J. COUGHLIN, heretofore Bridge and Building Master, Superior Division, Hornepayne, Ont., has been appointed Assistant to Bridge and Building Master (F. McKay), Capreol, Ont.

W. A. DUFF, heretofore Assistant Chief Engineer, Moncton, N.B., has been appointed Engineer of Standards, C.N.R. and G.T.P.R., all lines. He has charge of the preparation of standards, specifications, bridge load charts, and rules and instructions pertaining to engineering and maintenance of way, and will perform such other duties as may be assigned to him from time to time, reporting to C. B. Brown, Engineering Assistant, Operation and Maintenance Department. Office, Toronto.

JAMES GORMAN has been appointed Superintendent, Sleeping, Dining and Parlor Car Department, Western Lines, C.N.R., and Grand Trunk Pacific Ry., vice H. B. Wollen, transferred to the Hotel Department. Office, Winnipeg.

F. GRIFFIN, heretofore Superintendent, St. Maurice Division, Quebec District, Quebec, Que., has been appointed Superintendent, Edmundston Division, Quebec District, vice W. J. Atkinson, transferred. Office, Edmundston, N.B.

E. C. KENNEDY, heretofore chief clerk, Bonaventure station ticket office, G.T.R., Montreal, is reported to have been appointed City Passenger Agent, Canadian National-Grand Trunk Rys., Detroit, Mich.

J. KILPATRICK, heretofore Superintendent, Grand Trunk Pacific Ry., Smithers, B.C., has been appointed acting Superintendent, C.N.R., Melville, Sask., and his former position has been abolished.

J. W. KING has been appointed acting Shore Steward, Steamship Department, C.N.R., and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., vice J. M. McLeod, resigned.

P. VICKS, heretofore Roadmaster, Ruel Subdivision, Capreol, Ont., has been appointed Roadmaster, Oba Subdivision, Hornepayne, Ont., vice P. Bohan, transferred.

J. ROWE and not J. Reid, as mentioned in our last issue, has been appointed Roadmaster, Grand Trunk Pacific Ry., with territory from Jasper to McBride, B.C.; vice W. Willis, deceased.

J. B. WINDROSS has been appointed Manager, Macdonald Hotel, Edmonton, Alta.

Canadian Pacific Ocean Services Ltd. W. T. MARLOW, General Freight Agent, and C. E. BENJAMIN, Passenger Traffic Manager, are continuing in the service, with the same titles as heretofore. The other officials and staffs of the C.P. O.S. freight and passenger departments have been absorbed by the C.P.R., which has been appointed Traffic Agent, C.P. O.S.

Canadian Pacific Ry.—W. G. ANNABLE, heretofore General Passenger Agent, Ocean Traffic, has been appointed Assistant Passenger Traffic Manager, Ocean Traffic. Office, Montreal.

W. BALLANTYNE, heretofore Assistant General Passenger Agent, Ocean Traffic, has been appointed General Passenger Agent, Ocean Traffic, vice W. G. Annable, promoted. Office, Montreal.

H. B. BEAUMONT, heretofore General Agent, Passenger Department, Ocean Traffic, Montreal, has been appointed General Agent, Passenger Department, Ocean Traffic, Toronto, vice H. M. MacCallum, promoted.

D. C. CAMPBELL has been appointed Assistant Superintendent, Woodstock Division, New Brunswick District, vice W. Dixon, transferred. Office, Aroostook, N.B.

J. CAMERON, heretofore Roadmaster, Owen Sound and Walkerton Subdivision, Orangeville, Ont., has been appointed Roadmaster MacTier Subdivision, Bruce Division, Ontario District, vice J. H. Guthrie, transferred. Office, Toronto.

C. T. DELAMERE, heretofore Engineer of Construction, Montreal, is leaving the company's service, the position having been abolished.

J. H. GUTHRIE, heretofore Roadmaster, MacTier Subdivision, Toronto, has been appointed Roadmaster, Owen Sound and Walkerton Subdivisions, Bruce Division, Ontario District, vice J. Cameron, transferred. Office, Orangeville, Ont.

W. E. KINGSTON, heretofore Trainmaster, Wilkie, Sask., has been appointed Trainmaster, Moose Jaw, Sask., vice G. S. Lytle, transferred to Wilkie.

G. S. LYTLE, heretofore acting Trainmaster, Moose Jaw Division, Saskatchewan District, Moose Jaw, has been appointed Trainmaster, Wilkie, Hardisty, Macklin, Reford, Cutknife and Kelfield Subdivisions, Saskatoon Division, Saskatchewan District, vice W. E. Kingston, transferred. Office, Wilkie, Sask.

H. M. MacCALLUM, heretofore General Agent, Passenger Department, Ocean Traffic, Toronto, has been appointed Assistant General Passenger Agent, Ocean Traffic, vice W. Ballantyne, promoted. Office, Montreal.

F. W. NICHOLLS, heretofore Roadmaster, London, Ont., has been appointed Roadmaster, Kingston Subdivision, Kingston, Ont., vice T. J. Lackey, transferred.

J. E. PARKER, heretofore City Passenger Agent, Ocean Traffic, Montreal, has been appointed General Agent, Passenger Department, Ocean Traffic, Montreal, vice H. B. Beaumont, transferred.

I. VERSCHELDEN, heretofore Bridge and Building Master, Montreal Division, Montreal, has been appointed Bridge and Building Master, Farnham Division, Quebec District, vice H. M. Farmer, transferred. Office, Farnham, Que.

Grand Trunk Ry.—E. S. COOPER, Trainmaster, District 4, Montreal, has had his jurisdiction extended over District 5, G. COOPER, Trainmaster, District 5, having been transferred to Island Pond, Vt.

H. BATTLEY, heretofore Locomotive Foreman, Palmerston, Ont., has been appointed Locomotive Foreman, Stratford, Ont., vice R. A. Innes, assigned to other duties.

G. COOPER, heretofore Trainmaster, District 5, Montreal Division, Brockville, Ont., has been appointed Trainmaster, District 1, and a part of District 2, to east yard limit board, Richmond, Vt., vice E. W. Williams, assigned to other duties. Office, Island Pond, Vt.

W. CULROSS, Road Foreman of Locomotives, Toronto, has been given jurisdiction over the Barrie Division.

E. P. EAST, Road Foreman of Locomotives, Toronto, has been given jurisdiction over Districts 15, 20, 21, 22 and 23.

F. FOSTER has been appointed General Foreman, Allandale, Ont., vice G. McBride, assigned to other duties.

W. KIRKWOOD, Travelling Engineer, Toronto, has been given jurisdiction over District 17, including Petrolea Branch, and Districts 18 and 24.

C. J. McKEOUGH, Trainmaster, Stratford, Ont., has had his jurisdiction extended to cover districts 20 and 21, H. R. McLennan having been assigned to other duties.

D. C. MESSEROLL, heretofore Master Car Builder, Eastern Lines, Montreal, has been appointed Master Car Builder, London shops, Ont., vice W. A. Pitt, assigned to other duties.

A. B. MITCHELL, heretofore acting Master Car Builder, London shops, Ont., has been appointed Master Car Builder, Eastern Lines, vice D. C. Messeroll, transferred to London. Office, Montreal.

J. ROBERTS, heretofore acting Superintendent, Motive Power Shops, Stratford, Ont., has been appointed Superintendent, Motive Power Shops there, and his former position has been abolished.

A. F. SHARPE, Trainmaster, Allandale, Ont., is reported to have been appointed Chief Dispatcher, London, Ont., vice W. L. Doherty.

W. SHARP, Road Foreman of Locomotives, Toronto, has been given jurisdiction over Toronto Terminals and Districts 16 and 19.

W. E. WEEGAR, Trainmaster, District 30, Ottawa, Ont., has had his jurisdiction extended over Districts 31 and 32, Ottawa Division, J. S. McAdam having been assigned to other duties.

J. A. WALTON has been appointed Locomotive Foreman, Palmerston, Ont., vice H. Battley, transferred.

Freight and Passenger Traffic Notes.

The Canadian National Rys. will have summer tourist camps in the Rockies at Mount Robson Park from July 1 to Aug. 31, and at Jasper Park from June 15 to Sept. 15.

The C.P.R. has been ordered by the Board of Railway Commissioners to stop train 14 at Exshaw, Alta., beginning May 22, to allow passengers from the west to detrain.

The New York Central Rd. is reported to have inaugurated a fast freight service between New York and Montreal, via Malone, N.Y., for carload or less than carload freight.

The Ituna, Sask., Board of Trade's complaint, against reduction of Grand Trunk Pacific Ry. train service from daily to six trains a week, has been dismissed by the Board of Railway Commissioners.

The Canadian National Rys. will, it is reported, put on a through service from Montreal to Murray Bay for the summer, the train to run from Bonaventure station, Montreal, on the south shore line to the Quebec Bridge, thence into Quebec, and over the Quebec & Saguenay Ry. to Murray Bay. The old route was from Montreal to River Ouelle and thence by steamboat to Murray Bay.

The Canadian National Rys. have put in operation a new merchandise freight service between Montreal and Winnipeg, via Ottawa. Less than carload shipments for the west from point east and south of Montreal are collected at Bonaventure station, and are carried thence in through cars to Winnipeg, where they are distributed to various centers. Goods consigned by this service are due in Winnipeg six days after leaving Montreal.

The Alberta & Great Waterways Ry. is reported to have transported 122 cars, containing 2,285 tons of freight, from Edmonton to the end of track at the Clearwater River, Alta., between Nov. 1 and Mar. 31. Of this 23 cars contained machinery for oil drilling in the Fort Norman district; 6 contained boats and 5 contained machinery for boats. The other freight was mechandise and miscellaneous supply, mainly for Fort Norman.

A Vancouver press dispatch of April 12 stated that freight rates on lumber and shingles, from British Columbia to eastern Canada, would be reduced on April 21, as a result of the Canadian Railway Association's decision to assist Canadian lumbermen to compete against those of the southern United States, and that the new rates would make a reduction of about $4.30 a thousand feet on lumber from Vancouver to Toronto.

The British Columbia Berry Growers Association is reported as having announced that 500 freight cars will be required to move the 1921 B.C. crop. This means a production of approximately 2,500 tons of small fruits. Production is expected to be more than 50% over last year, when the crop brought in $1,000,000, there being about 2,800 acres under this cultivation. The Association will endeavor to enlarge the market for British Columbia berries.

The C.P.R. has announced that during June, July, August and September special fare tickets will be on sale to the Atlantic and Pacific coasts and return good to Oct. 31. Special fare tickets will also be sold to Rocky Mountain resorts, where the C.P.R. has hotels at Banff, Lake Louise and Glacier, and the summer camp at Lake Windermere. All tickets will be good for stopovers at any point en route, and may be used from Winnipeg, on the direct line to Banff, etc., or via Saskatoon, Edmonton and Calgary.

The Pacific Great Eastern Ry., owned and operated by the British Columbia Government, has increased the rates for commutation tickets on the line from North Vancouver to Whytecliff. The old and new costs of a book of 25 tickets from North Vancouver to the several points on the line are as follows:—

	Old rate	New rate
Cypress Park . .	$3.90	$4.50
Caulfield . .	4.20	4.80
Eagle Harbour . .	4.75	5.55
Whitecliff . .	6.00	7.50

The C.P.R. has for a considerable time been running a train each way between Montreal and North Toronto, daily except Sundays, with connections to and from Ottawa. On May 1, the run of this train will be extended from Yonge St. station, Toronto, to Hamilton, the extended route being via Islington and the Islington-Mimico cut off to the G.T.R. Toronto-Hamilton line and thence to the Toronto, Hamilton & Buffalo Ry. station in Hamilton. The westbound train will leave Montreal at 9.30 p.m. daily except Sundays, and the eastbound train will leave Hamilton at 8 p.m. daily except Saturdays. Through sleeping cars will be operated in each direction.

The Roberval-Saguenay Ry.'s application for permission to operate a three times a week service on its Laterriere Branch, instead of a daily service, on the ground that the traffic offering does not warrant the daily service, has been dismissed by the Quebec Public Service Commission. After hearing representations by the Mayor of Laterriere and the Saguenay Chamber of Commerce, considering a letter from the Dominion Minister of Railways, and reading the contract entered into by the Ha Ha Bay Ry. Co. with the Quebec Government, April 3, 1912, which contract was taken over when the Roberval-Saguenay Ry. Co. acquired the Ha Ha Bay Ry., the Commission decided that there was no reason for relieving the company of any of its contract responsibilities. Had there been any abnormal conditions, such as existed in 1918, the Commissioners would have had to give them consideration, but under present circumstances they felt compelled to refuse the application.

The Canadian National Rys. made several changes, in the Montreal-Winnipeg and Toronto-Winnipeg passenger service, both ways, starting April 30. Train 1, the Continental Limited, leaves Bonaventure Station, Montreal, 9 p.m. daily, via G.T.R. to Ottawa; Canadian Northern Ry. to North Bay; Timiskaming & Northern Ontario Ry. to Cochrane; National Transcontinental Ry. to Winnipeg, which is reached at 7.30 p.m. daily. This train ran heretofore over the C.N.R., via Capreol and Port Arthur. Train 2, the Continental Limited, leaves Winnipeg at 10.30 a.m. daily via National Transcontinental Ry. to Cochrane; Timiskaming & Northern Ontario Ry. to North Bay; Canadian Northern Ry. to Ottawa; Grand Trunk Ry. to Montreal, arriving at Bonaventure station 10.15 a.m. daily. These trains ran formerly over Canadian Northern Ry. via Capreol and Port Arthur. Train 3, The National, leaves Toronto union station 10.30 p.m. daily, by Canadian Northern Ry. via Capreol and Port Arthur, reaching Winnipeg 9.10 p.m. daily. Train 4, the National, leaves Winnipeg 5.00 p.m. daily, by Canadian Northern Ry., via Port Arthur and Capreol, arriving at Toronto, 5.30 p.m. daily. This train ran formerly via G.T.R. to North Bay, T. & N.O. to Cochrane and National Transcontinental Ry. to Winnipeg.

Coal Consumption by Locomotives.—The immense amount of coal used by railway locomotives is shown by the following figures:—In the year ended June 30, 1916, locomotives in Canada used 8,677,354 tons; in 1917, 9,788,424 tons; in 1918, 9,839,906 tons, and in 1919, 9,141,023 tons. The consumption for the entire country for the years 1916, 1917, 1918 and 1919 was 28,865,856 tons, 33,123,735 tons, 34,771,832 tons, and 28,863,017 tons respectively. Of this, 60.87% was imported. Averaging the four years, locomotives used 29.6% of all coal used in Canada.

The Great Winnipeg Water District Commissioners passed the following resolution recently:—That where capital expenditure is contemplated along the district railway line in work which would be dependent upon the railway, the parties be notified that it is not the settled policy of the district to continue the operation of the railway, and that there is a possibility of it being discontinued at the end of 1921 or any time thereafter.

Switch Displacement Charged.—Leonard Robertson, Canadian National Rys. station agent at Denmark, N.S., was committed for trial recently on a charge of being responsible for the displacement of a switch at Urquhart's siding, whereby a train was wrecked and the locomotive man was killed.

Calgary Wants a Union Station.—The Calgary, Alta., Board of Trade passed a resolution recently favoring a union station in the city for all passenger traffic, and, it is reported, expressed the opinion that the C.P.R. station should be used for the purpose.

Liquor Selling Punished.—Julius Bornstein, a news agent on the C.P.R., Montreal-Toronto line, was fined $350 and sentenced to one month in jail, by the Cornwall, Ont., police magistrate, recently, for selling intoxicating liquor on the train.

The Pennsylvania Rd. has reduced its quarterly dividend from 1½ to 1%, after having paid dividends of 6% a year for 22 years, except in 1906, when it paid 6½%, and in 1907, when it paid 7%.

C.P.R. Aid to Golf Club.—The C.P.R. is reported to have promised to give $5,000 a year for five years for the development of the United Service Golf Club at Victoria, B.C.

Motor Bus Service.—The St. Catharines, Ont., Chamber of Commerce is reported to have arranged for the operatoin of a motor bus between St. Catharines and Beamsville.

Two Princes of the old Russian Nobility are said to be working as section laborers on the Canadian National Rys., between Hearst and Armstrong, Ont.

Franklin Railway Supply Co. has removed its general offices to National City Building, 17 East 42nd St., New York, N.Y.

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NOTICE TO ADVERTISERS.

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ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, MAY, 1921.

PRINCIPAL CONTENTS.

Appointments Transportation 253
Birthdays of Transportation Men 240
Board of Railway Commissioners,—
Orders by, Summaries of 261
Traffic Orders 251
Canadian National Rys.,—Construction 247
Information to be made public 245
Pacific type locomotives 233
Storage Battery Car Tests 258
Canadian Pacific Ry..—Construction 250
Report 237, 256
Car Wheels, Chilled Iron 239
Electric Railway Department .....265 to 271
Fares on Ontario Electric Railways., Bill to Change 269
Finance, Meetings, etc. 269
Freight and Passenger Rate Increases 266
Guelph Radial Ry. Transfer 267
Niagara, St. Catharines & Toronto Ry. Purchase Negotiations 267
Projects, Construction, etc. 268
Toronto Transportation Commission's Car Order 271
Wages, Working Conditions, etc. 270
Winnipeg Electric Ry. Increased Fares Appeal 265
Express Companies, Among the 264
Freight and Passenger Traffic Notes 254
Grand Trunk Ry.,—Dominion Government Action to Secure Possession 248
Mainly About Railway People 243
Marine Department .....272 to 288
Canadian Canal Boats in New York State 283
Canadian Government Merchant Marine,—
Minister of Marine's Statement 272
Shipbuilding, Operation, etc. 278, 280
St. John, N.B., Immigration Depot 287
Shipbuilding, General, in Canada 276
Welland Ship Canal Contract 278
Railway Deficits in Canada and the U.S..... 255
Railway Development 241
Railway Earnings 262
Railway Employes' Protection Regulations 262
Railway Rolling Stock Orders and Deliveries 252
Rates, Maritime Provinces Demand Special.. 259
Telegraph, telephone and cable matters 264
Timiskaming & Northern Ontario Ry. Locomotive Boosters 260
Wages, Railway, Regulation of in U.S. 257
Wages, Railway, Toronto Debate 260
Wages Development in Canada and U.S..... 263

Railway Deficits in Canada and the United States.

While the people of Canada have been brought to a realization of the drain upon the national resources occasioned by the deficits incurred in the operation of the Canadian National Rys., it would be well if they were thoroughly informed of the financial results attending the operations of railways on the American continent in their entirety, as it is a fact that only the roads in an exceptionally strong position, by reason of low capitalization, favorable operating conditions, and abundance of traffic, or combinations of these conditions, are earning a favorable return. The C.P.R. is such a favorably situated road, but even its annual report for the calendar year 1920 shows that operating expenses were $40,000,000 greater than in 1919, while gross revenue increased by a less amount, although rates were increased to partly compensate for wage increases and there was a 25% increase in freight business handled. The operating ratio for 1920 was 84.70 against 81.39 in 1919 and 78.10 in 1918.

Statistics compiled by the Bureau of Railway Economics show that the net operating income of United States lines was $1,052,776,628 in 1916, $974,778,937 in 1917, $693,111,170 in 1918, $516,290,-090 in 1919, and only $62,264,421 in 1920. The operating ratio was 65.55% in 1916, 70.57% in 1917, 81.54% in 1918, 85.25% in 1919, and 93.59% in 1920.

The Transportation Act was designed to allow U.S. railways to earn 5½ or 6% on their investment. The earnings for Nov. 1920 were $41,544,063 short of the amount needed to give a return of 6%. In September, October and November, U.S. railways handled more business than ever before, but their net was only 4% on the investment. In September, they earned at the rate of 4.1%, in October at the rate of 4.6%, in November at the rate of 3.3%, and in December, when the slump in business was becoming pronounced, at the rate of 1.4%. For December, 88 roads, operating 79,151 miles of line, had deficits amounting to $20,-173,000, but the average earnings were kept above zero by the fact of 114 roads having net operating income amounting to $37,210,000. In 1920, 95 roads had deficits for the year, and the only thing that kept them out of bankruptcy was the government guarantee that extended to September.

As above noted, the net operating income for all U.S. roads for 1920 was something over $62,000,000; in other words, if it had not been for the government guarantee, the investors in U.S. railway securities would have received an average return of only 1/3 of 1% on their investments.

In January, 1920, 166 class 1 roads in the U.S. operating 200,000 miles of line, had a deficit of $1,289,291. In Jan. 1920 these roads had an operating income of $52,971,220. Conditions cannot be said to be improving, in view of such showings as these.

The following table of net operating income or loss for some of the principal roads serves to show the state of affairs in the U.S.

Railway	Miles	Operating loss Jan. 1921	Year 1920
Boston & Maine....	2,300	—$1,341,012	—$5,338,490
Chicago & Northwestern	8,402	—1,179,203	3,230,232
Chicago, Milwaukee & St. Paul 10.605		—882,485	—84,620
Erie	1,989	—796,149	—10,531,612
Great Northern .	8,170	—1,524,728	4,075,364
Lehigh Valley ..	1,437	—491,307	—6,077,686
Louisville & Nashville	5,043	—440,210	1,324,557
Maine Central ..	1,215	—1,008,027	—2,165,595
New York Central 5,675		—254,633	6,111,625
N.Y., New Haven & Hartford	1,985	—1,542,837	—4,006,319
Northern Pacific	6,655	—632,179	3,545,640
Pennsylvania 10,604		—525,759	845,645

—The minus sign indicates an operating loss.

Of course, the present slump in business in the U.S. and consequent lessening of traffic offered, are largely responsible for these operating losses by lines which are commonly looked on as the best and strongest railway properties of the U.S., and the securities of which are held by thousands of individuals in every walk of life. That traffic has fallen off greatly, is evidenced by the figures for car loading. In the busiest part of 1920, approximately 1,000,000 cars a week were loaded with revenue freight. For the week ended Jan. 1, 1921, the number was 598,905; for the week ended Jan. 8, 706,413; Jan. 15, 709,888; Jan. 22, 703,-115; Jan. 29, 699,936. For the week ended Feb. 26, the number fell to 658,222, and since then has averaged about 700,-000.

The railways have tried to meet the situation as best they could, by laying off men whose services could be dispensed with and by otherwise cutting down expenses wherever possible. The railway business, however, is one in which the overhead expense is an exceptionally large part of all expense, and for this reason the reduction in expenses could not be made to coincide with the reductions in revenue. But leaving aside all considerations of reduced business and revenue, the record of performance in the months of 1920, when business was at its maximum, is not particularly encouraging from an earning point of view.

In view of the foregoing facts it must be evident to the people of Canada that, while the Canadian National lines are at an added disadvantage, because of the sparsely settled condition of a large part of the territory served, and for other reasons, their operating results are to a large extent but the natural consequence of a state of affairs which has affected the majority of U.S. railways so adversely.

A Concise Accident Report.—Among the passengers on a transcontinental train were several Chinamen, and a citizen who was somewhat queer in his actions. This latter individual refused to remain seated, and persisted in roaming from one end of the train to the other. Finally he was enticed into a game of fan-tan with some of the Chinamen. After the game had been in progress a short time, a row broke out, and, in the struggle that followed, two of the Chinamen and the queer individual fell off the train. On arrival at the terminal, the conductor handed in a report to the Superintendent as follows:—"Two washers and a nut lost from train no. 1."

Railway Lands Patented.—Letters patent were issued during March for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	160.00
Canadian Pacific Ry.	85.35
Kettle Valley Ry.	87.763
Manitoba, Southwestern Colonization Ry.	5.37
Nicola, Kamloops & Similkameen ....Ry.	9.82
Total	348.303

Canadian Pacific Railway Co.'s Annual Report.

The C.P.R. Co.'s report for the calendar year 1920 exemplifies the increased cost of railway operation and cost of transportation service to the public. A comparison of some of the figures, with corresponding figures for former years, illustrated the changes which have taken place.

The operating ratios in 1917, 1918, 1919 and 1920 were 69.46, 78.10, 81.39 and 84.70% respectively. In itself, such a condition, in which the operating ratio is steadily increasing, cannot be considered satisfactory. The ratio of 84.70 in 1920 meant but a nominal surplus for the company. However, as pointed out elsewhere in this issue, only railways in an exceptionally strong position can keep their operating ratio down to even that figure under present conditions. Considering that the operating ratio of U.S. railways for 1920 averaged 93.59, C.P.R. shareholders have cause to be pleased with the results of the year.

In comparing the traffic and traffic density for 1920 and 1919, it is seen that the ton miles of freight handled in 1920 was 13,994,508,975, against 11,121,322,-012 in 1919. Freight train earnings per mile of road increased from $8,434 to $11,072, and freight earnings per train mile increased from $5 to $5.50. The tons of revenue freight carried one mile per mile of road increased from 840,928 to 1,066,401. Although the number of revenue passengers carried increased from 15,671,752 to 16,759,555, the number of passengers carried one mile decreased from 1,763,604,596 to 1,718,084,-609, involving a decrease in the length of the average trip of from 112.53 to 102.45 miles. Passenger traffic density decrease is shown by the figures for passengers carried one mile per mile of road, which were 135,727 in 1919 and 132,223 in 1920. Passenger train earnings per train mile increased from $2.59 in 1919 to $2.81 in 1920, and passenger train earnings per mile of road increased from $4463.87 to $4844.78.

The increases in rates which took effect Sept. 13, 1920, had some effect in increasing the company's revenue per unit of transportation sold. The amount received per passenger mile increased from 2.59c. in 1919 to 2.82c. in 1920, and the amount received per ton mile of revenue freight increased from 1.003 to 1.038c. The effect of the increased passenger rate, despite the decrease above noted in total passenger mileage, was to increase the total passenger revenue from $46,000,000 to $49,000,000, and the effect of the increased freight rate, coupled with the increase in tonnage handled, was to increase freight earnings from $111,000,000 to $145,000,000.

Large as was the increase in gross revenue, from $176,929,060.00 to $216,-641.349.30, the fact of the operating ratio having increased indicates that operating expenses increased in even greater proportion. Passenger train mileage having changed only slightly, a certain part of the increased operating expense can be attributed to the increased freight business; but it is axiomatic that an increase in traffic will be handled at a much less proportionate cost than that previously existing, and so the explanation for the rapid increase in operating expense will be found elsewhere, viz., in increased coal and material prices, and in the effect of the Chicago Wage Award, retroactive to May 1. In view of the fact that compensatory rate increases did not take effect till September, the C.P.R.'s showing is remarkable. If, however, freight traffic had fallen off 25% in 1920, instead of increasing to that extent, results would have been materially different.

Car loading, as shown by an increase in the number of tons of revenue freight per loaded car mile, of from 22.08 to 23.44, improved, although excelled in 1918, when it was 23.90. Train loading also improved, the number of tons of revenue freight per train mile being 529.25 in 1920, and 498.07 in 1919, but was likewise excelled in 1918, when it was 530.44.

No small part of the showing made by the C.P.R., which must be regarded as highly gratifying, under the conditions surrounding railway operation at present, is due to the exceedingly high morale among its employes of every rank. A good esprit de corps, a maximum degree of co-operation, and a realization of the fact that reward and promotion will be received as deserved, altogether independently of outside influences, are all necessary for the success of any enterprise. To the existence of these factors throughout the C.P.R. organization, a large part of its success is doubtless due.

Canadian National Rys. Superintendent at Hornepayne.

J. O. Brouillard, Drummond and Arthabasca, Que., asked in the House of Commons recently:—"Who has been appointed Superintendent of Hornepayne Division, Canadian National Rys.; what is his age, and how many years of service as a railway man has he had; who recommended him; why was not a conductor or a locomotive man promoted to that position?" The Minister of Railways replied:—"J. J. Napier; 39 years of age; has been in service of Canadian northern Ry. since 1905; was recommended by General Superintendent; Mr. Napier was formerly a locomotive man."

The Association of Professional Engineers of Manitoba has decided to offer to Manitoba University the establishment of an engineering scholarship, and assistance in lectures on special engineering subjects, on lines similar to those adopted in the province by the medical profession. The association's officers for this year are M. A. Lyons, Chief Engineer, Good Roads Board; Vice President, J. G. Legrand, Bridge Engineer, Western Lines, Canadian National Rys.; Secretary and Registrar, G. L. Guy, Chief Engineer, Public Utility Commission; council, W. M. Scott, Commissioner, Greater Winnipeg Water District; D. A. Ross, consulting engineer; H. A. Dixon, Chief Engineer, Western Lines, Canadian National Rys.; P. B. Gaffney, Bridge Engineer, Good Roads Board.

United States President Harding, in his inaugural address, on Mar. 4, urged the cessation of unnecessary government interference in business, and also the cessation of government ownership experiments.

The Canadian Ticket Agents Association will hold its annual meeting and outing at Ottawa, on Sept. 20, and succeeding days, making itis headquarters at the Russell House.

The Canadian National Railways "No Politics Order."

The circumstances surrounding the issuing of the so called "no politics" order by President Hanna, of the Canadian National Rys., have been fully reviewed in previous issues of Canadian Railway and Marine World, as well as development following its issue. Since the announcement of the board of conciliation's decision and the reinstatement of the three employes affected, we have secured considerable information concerning the status of railway employes in other countries, in relation to political activities, and aspirations to parliamentary honors, which clearly shows that Mr. Hanna was fully justified by the practice elsewhere, outside of all other considerations in the stand he has taken.

In Australia and New Zealand, civil servants and employes of the government railways and steamship organizations are ineligible for political office in so far as the federal or state governments are concerned. In South Africa, railway employes are ineligible to hold seats in parliament. Employes of the French state railways are not permitted to hold seats in the Senate or Chamber of Deputies unless they resign their railway positions. In England, railway employes elected to parliament have to resign their positions on the railway or give up their seats in parliament.

The above shows that in the countries mentioned a man cannot be a railroader and a parliamentarian at the same time, and if he wants to be a parliamentarian it is necessary for him to stop being a railroader. The experience has evidently been that the two spheres of activity do not blend to the advantage of either the individual or the state, and it is evident that, by custom and precedent, Mr. Hanna has ample justification.

Rules for wire construction along, or across, railways, or across or near other lines, wires, conductors, structures or appliances. The Board of Railway Commissioners issued the following circular recently:—Referring to circular 186, Jan. 5, 1920, applying general order 231, of May 6, 1918, and the conditions and specifications thereby approved, to construction along, as well as across, the railway. Since sec. 372, sub-sec. 1 (b) applies to construction across or near other lines, wires, conductors, sructures, or appliances within the Dominion Parliament's legislative authority, where, therefore, the construction, whether along or across the railway, or across or near other lines, wires, conductors, structures, or appliances, is by consent and in accordance with the Standard Conditions and Specifications set out in the schedule to general order 231, and approved by that order, no further leave of the Board is necessary.

The Nakusp & Slocan Ry. Co. has given notice of application to the Board of Railway Commissioners to recommend the sanctioning of an agreement for the lease of its line and undertaking to the C.P.R. Co. for 99 years from July 1, 1920.

The C.P.R.'s summer train schedule will go into effect May 22, when the fast Trans-Canad train will be put in operation for the season, trains leaving Mont-

The Timiskaming & Northern Ontario Ry. is reported to have put in force a regulation that all passengers must buy tickets before boarding trains.

Regulation of Railway Wages in the United States.

The Transportation Act, passed by the U.S. Congress in 1920, contained a division (secs. 300-316) providing for the settlement of disputes between carriers and their employes and subordinate officials. These labor provisions, as well as the other portions of the act, which has to do with the highly important subject of railway regulation in its entirety, were framed only after a great deal of discussion, both in and outside of Congress. At one stage of the development of the bill, clauses making strikes unlawful were incorporated in it, but were struck out. The main feature of the law as it now stands is the necessity of attempting to settle all disputes in conference, and failing this, of submitting them to a public tribunal endowed with powers of hearing disputes and making decisions concerning them.

Sec. 300 of the act contains definitions of "carrier," "Board," etc., as used therein, "Board" meaning the Labor Board provided for in sec. 304. Sec. 301 provides that it is the duty of all carriers and employes to exert every available means to avoid any interruption to operation, growing out of any dispute between carriers and their employes, and initiate a conference to settle such dispute. If the dispute cannot be so settled it shall be referred to the authorized board. Sec. 302 provided that "Railroad boards of labor adjustment may be established by agreement, between any carrier, group of carriers, or the carriers as a whole, and any employes or subordinate officials of carriers, or organization or group of organizations thereof." Sec. 303 defines the function of these labor boards of adjustment, which may be local, regional, or national, so far as the law is concerned, and which is to settle any dispute not settled by ordinary conference between the parties concerned. Sec. 304 provides for the establishment of the "Railroad Labor Board," consisting of three members representing the railway managements, three representing railway labor and three representing the public, all appointed by the President of the U.S. with the advice of the Senate, directly in the case of the public representatives, and from note less than six nominees in the case of the labor and management representatives. Any vacancy is to be filled in the same manner as originally. Sec. 305 provides for appointments in case either labor or management fails to provide nominees. Sec. 306 deals with qualifications for membership on the Board, terms, salaries, etc. The salary of members is $10,000 a year each. Sec. 307 provides that, in case a board of adjustment as provided by sec. 302, cannot decide a dispute, or if a board of adjustment is not organized, the Labor Board, either upon its own motion, or upon proper application, shall hear and decide any dispute involving grievances, rules or working conditions. The Labor Board will also decide disputes concerning wages. If the Board is convinced within 10 days that any increases it may have granted will necessitate a readjustment of the rates of any carrier affected, it may suspend its decision, and rehear the case, with a view to either affirming or modifying such decision. This section also states that the concurrence of five of the nine members is necessary to a decision, and in a decision concerning wages, at least one of the representatives of the public must concur. It also provides that "All the decisions of the Labor Board . . . shall establish rates of wages and salaries and standards of working conditions which in the Board's opinion are just and reasonable." The section further provides that in determining the justness and reasonableness of wages, the Board shall take into consideration, "among other relevant circumstances," the following: (1) The scale of wages paid for similar kinds of work in other industries. (2) The relation between wages and the cost of living. (3) The hazards of employment. (4) The training and skill required. (5) The degree of responsibility. (6) Character and regularity of employment. (7) Inequalities of increases in wages or of treatment, the result of previous wage orders or adjustments. Sec. 308 deals with investigations and published reports of the Board, and provides for the election of a chairman, and the maintenance of offices in Chicago. Sec. 309 provides that "Any party to any dispute to be considered by an adjustment board, or by the Labor Board, shall be entitled to a hearing, either in person or by counsel." Sec. 310 gives the Board power to summon witnesses and the right to examine all records and entitles the Board to call on any district court to enforce these rights on its behalf. Sec. 311 states that any person disobeying the Board, in respect of the terms of the preceding section, is liable to a penalty of $500 for each offence, each day during the continuation of such disobeyment constituting a separate offence. The section also provides that any U.S. civil servant or employe shall furnish the Board any information contained in the records of his office. Sec. 312 provides that no carrier shall pay a lower rate than that in effect on March 1, 1920, when the roads were returned to their owners, until Sept. 1, 1920. Sec. 313 gives the Labor Board power to enquire into and determine any suspected violation, by carriers or employes, of any of its rulings. Secs. 314, 315 and 316 provide for the appointment and duties of the Board's Secretary, the making of appropriations for the Board's expenses, and the cancellation of the Board of Mediation and Conciliation established by the act of July 15, 1913, respectively.

The Board, as constituted in 1920, includes the following members:—Group representing the public: R. M. Barton, Chairman, former member of the Tennessee Court of Appeals; G. W. Hanger, former Assistant Commissioner, U.S. Board of Mediation and Conciliation; Henry Hunt, former Mayor of Cincinnati. In the group representing railway management are Horace Baker, formerly General Manager of the Cincinnati, New Orleans & Texas Pacific; W. L. Park, former Vice President of the Illinois Central, and J. H. Elliott, formerly General Manager of the Texas & Pacific. In the group representing railway labor are Albert Phillips, Vice President of the Brotherhood of Locomotive Firemen and Enginemen; A. O. Wharton, President A.F. of L., Railroad Department; and J. J. Forrester, President, Brotherhood of Railway and Steamship Clerks, Freight Handlers and Express and Station Employes. Messrs. Barton, Phillips and Baker are appointed for three years; Messrs. Hanger, Wharton and Elliott for two years, and Messrs. Hunt, Forrester and Park for one year.

The Board was constituted about April 13, 1920, and started hearings on wage demands, in Washington. Its first official order dismisssed the petition for hearing on the part of the "outlaw" strikers, on the ground that they had not obeyed the letter and spirit of the law requiring that transportation suffer no interruption owing to disputes. On May 17, the Board moved to its permanent headquarters in Washington. In July it issued the order granting increases in pay to railway employes, known as the "Chicago Wage Award." Shortly after, it issued an order granting increases amounting to $30,000,000 yearly to American Railroad Express Co. employes. Another interpretation of interest concerned an application for hearing in disputes between the Spokane & Eastern Ry. & Power Co., and the Forst Dodge, Des Moines & Southern (electric roads) and their employes. The Board denied its jurisdiction, on account of sec. 300 stating "The term 'carrier' includes any express company, sleeping car company, and any carrier by railroad subject to the Interstate Commerce Commission except a street, interurban, or suburban electric railway not operating as a part of a general steam railroad system of transportation." Another interpretation of interest concerned the Erie Rd., which reduced the pay of its unskilled labor without the conference required by law, and was ordered by the Board to restore the rate as set forth in its July award.

The policy of having railway revenues controlled by the Interstate Commerce Commission, and railway wages, representing two thirds of railway operating expenses, controlled by the Railway Labor Board, contains possibility of conflict in regulation in its entirety. As noted above, sec. 307 specifically states that the Labor Board, in determining the justness of wages, shall take into consideration, "among other relevant circumstances" the conditions as set forth. Just how far the earnings of the railways, and the scales of rates as prescribed by the Interstate Commerce Commission, will be considered by the Labor Board as a "relevant circumstance" in its deliberations, it is difficult to say. The Board itself has been rather noncommittal to date, stating that while no doubt railway earnings are relevant, it is the Interstate Commerce Commission's function to regulate rates, and entirely beyond the Labor Board's concern as to what the rates are. To any one enquiring into the railway situation as it exists, it is evident that this arrangement of affairs, involving as it does a distinct division of responsibility in matters which are so closely and inseparably connected as railway wages and rates, can largely influence the degree of success attending the regulation of U.S. railways under the Transportation Act of 1920, and future developments will be interesting and worth watching.

E. J. Wearing, General Agent, Grand Trunk Railway, Liverpool, Eng., in renewing his subscription writes:—"I receive Canadian Railway and Marine World regularly and look forward to getting it, as it is always a source of interest and contains very useful information."

Reduction in Number of C.N.R. Shop Employes.

A. B. Copp, Westmoreland, N.B., said in the House of Commons April 11:—"I desire to refer to a matter which has been dealt with in the public press for the last two or three days, and I should be glad to have an expression of opinion regarding it from the Minister of Railways. I refer to the reduction in the number of working men in the Canadian National Rys. shops in Moncton. There is a rumor to the effect that from 600 to 800 are to be turned out from the shops. Is that report correct, and, if so, is the order only a matter of temporary expediency or is it to be permanent? This is of great importance to the people in that city as well as to the public generally."

The Minister of Railways said:—"The member informed me at six o'clock of his intention to bring this matter up on the orders of the day. I called up President Hanna at Toronto, and asked him the real situation. Mr. Hanna informs me that, owing to a decline in the business of the railways, they could not find work for all the employes in the shops. They therefore offered to keep on all hands and reduce work to half time. All employes in the shops west of Port Arthur accepted. Those on the Government Railways, as a body refused, and the management could therefore do nothing but lay off temporarily all surplus employes. Just as soon as there is work the men will again be taken on."

Steel Rail Orders for Canadian Railways.

The Algoma Steel Corporation, Sault Ste. Marie, Ont., had to close down, on Dec. 25, 1920, for six weeks, owing to want of orders, but it then received a Canadian National Rys. order for 40,000 tons, 85 lb., C.P.R. standard section steel rails, which were rolled and shipped to western points by the middle of March. It also received an order from the Michigan Central Rd., for 15,000 tons, 105 lb., Dudley section, which were also shipped, after which the mill closed down again. Recently another order has been received from Canadian National Rys., for 50,000 tons 85 lb. C.P.R. standard section rails, principally for western points, which will be sufficient to keep the mill in operation for a couple of months. It also has an order from the Timiskaming & Northern Ontario Ry., for 2,900 tons of 90 lb. A.R.A. type, A rails. Negotiations are said to be in progress with the Dominion Iron & Steel Co. for 20,000 tons for the Canadian National Rys.

J. C. Douglass, South Cape Breton and Richmond, N.S., said in the House of Commons on April 11:—"I desire to draw the Minister of Railway's attention to a Sydney, N.S., press dispatch of April 9, as follows:—'In a statement to the Canadian Press today, R. M. Wolvin, President, Dominion Steel Co., stated that the company had offered to roll rails for the Canadian National Rys. at actual cost, but he gave positive denial to a statement appearing in an Ottawa dispatch, which reported the offering of a large rail order to the company by the Railways Department.' In view of the importance of this matter, and the large amount of unemployment that prevails at Sydney and Glace Bay in consequence of the small amount of business being done in connection with coal and steel operations, I desire to ask the Minister if he has any statement to make on the subject."

The Minister of Railways said:—"I noticed the article in question and I wish to make the following statement with respect to it:—The Canadian National Rys. have rails for renewals and repairs for 1921. Notwithstanding this fact they have offered to take a large quantity of rails for new work. They have offered the Algoma Steel Co. the same price as paid it for rails during 1920, $55 a ton, and have offered the Dominion Iron & Steel Co. the same price. This price both companies have refused and are asking higher prices. As the mills have reduced the wages of employes, and rails in the U.S. are offered at $47 a ton, it is not considered reasonable that the Government should be called upon to pay an increased price for rails for 1921."

Storage Battery Car Test on Canadian National Railways.

The Canadian National Rys. is arranging to make a 30 day test of a storage battery car between Belleville and Trenton, Ont., on its Rideau Subdivision, Ottawa Division. The distance between the two points is 11.4 miles, and the intention is to place the car in hourly service between them, leaving Trenton at 8.35 a.m. on the first trip of the day and leaving Belleville at 10 p.m. on the last trip. Two stops are contemplated between Belleville and Trenton, and if it is found that the car can make the time it is likely that one or two more stops will be scheduled. At present there are three passenger trains each way daily between the two points, and the hourly schedule will be necessarily interfered with at certain times by reason of having to clear these regular trains.

In the event of the tests proving successful, it is possible that several of these cars will be introduced into branch line service, an example of such service being on the line from Trenton to Picton, Ont, 30.6 miles. The expectation is that the cars will be suitable on such runs, where the traffic does not compensate for the expense of frequent steam operation, and is not sufficient to warrant the large capital expenditures incidental to electrification.

The car to be used in the test is 55 ft. long with the interior arrangement practically the same as that of an ordinary first class passenger car. The car does not generate power, but is equipped with storage batteries, the capacity being such that the car will cover about 140 miles in one charging of the batrepresentative of the present day averteries, on divisions where the grades are age. The maximum speed which can be attained is 40 m.p.h. on level track. The car has been built in the United States, special ball bearing trucks being a feature of its construction. The charging of the batteries for the test runs will be done at Trenton, where the railway has the necessary facilities.

The Canadian National Rys. have been ordered by the Board of Railway Commissioners to restore train service between Middleton and Port Wade, N.S.

The New Brunswick Government, during the year ended Oct. 31, 1920, collected $2,573.34 in taxes from electric railways.

Grand Trunk Railway Tourist Traffic to Georgian Bay.

The G.T.R. has made arrangements with the Midland, Ont., Town Council under which tourist traffic to Georgian Bay will be handled from Midland, instead of from Penetanguishene as heretofore. The G.T.R. will run an express train from Toronto to Midland. The service will probably be started June 25, continuing to about Sept. 6. The northbound train will leave Toronto about 10 aflmflfi reaching Midland about 2 p.m., and the southbound train will leave Midland about 12.45 p.m., reaching Toronto about 4.20 p.m. The traffic on Georgian Bay will be handled by the Georgian Bay Tourist Co., and the Honey Harbor Navigation Co.

The agreement with the G.T.R. provides that the Town of Midland shall provide this year a plank platform 10 ft. wide paralleling track 11, from 60 ft. west of the westerly limit of King St. easterly to the intersection of track 11 and the Esplanade track, for the transfer of passengers between trains and steamboats; to increase the width of the present planked portion of the dock from 24 ft. to 40 ft. for the whole length of the dock, and to erect a canopy roof thereon 14 ft. wide by 158 ft. long, together with fences; to arrange for the free use by the G.T.R. of the warehouse at the foot of King St. until a permanent baggage room is built by the town, to undertake the transportation of passengers and baggage between the rtains and the steamboats, and to provide for a steamboat service between Midland and Copperhead. The town also agrees to complete in 1922 the construction of the dock from King St. westerly to a point in line with the present planked portion of the dock, and to extend the railway siding from the easterly limit of King St. to the westerly end of the dock, the work to be of sufficient strength to carry passenger trains; to rebuild and maintain the trestle from the eastern limit of King St. to the easterly limit of the trestle; and to repair the siding thereon and the track approaching it, to erect a frame building 42 x 14 ft. containing a waiting room 14 x 21 ft., lavatory accommodation and a baggageroom adjoining the station, for the accommodation of the traffic. The G.T.R. agrees to continue to run tourist traffic via Midland as long as the steamboat service and all other facilities are satisfactorily maintained.

Ticket Collectors on Canadian National Rys. Trains.—Hon. R. Lemieux, Maisonneuve and Gaspe, Que., asked in the House of Commons recently: "How many train agents are there on the Candian National Rys. System?" The Minister of Railways replied: "Assuming that by 'train agents,' ticket collectors is meant, the management states there are 25." In answer to other questions, the Minister stated their salaries are from $150 to $175 a month. They are not appointed to assist conductors. They have been appointed since June 1910. There is no record of the conductors having applied for the assistance of ticket collectors.

Exchange on Freight Charges Between Canada and the United States.—The surcharges collected during April, under Board of Railway Commissioners general order 326, of Jan. 14, were 8%.

The Maritime Provinces' Demand for Special Railway Rates.

A Fredericton, N.B., press dispatch of April 12 stated that a member of the Nova Scotia Government had been in consultation there with the New Brunswick Government, and that the two provinces would join in a demand for the restoration of the old commodity rates and differentials on the Intercolonial Ry., and in opposing the application of rates put into effect by the Board of Railway Commissioners for the I.R.C. since 1916, adding that the I.R.C. was not built as a commercial proposition, but to make Confederation possible. In support of this contention it is alleged that all governments and all managements of the Intercolonial since Confederation up and until 1916 had established rates that would permit the products of industries in the Maritime Provinces to have a freight rate that would take them into the centers of Quebec and Ontario for competitive business.

The situation, we are advised, is that, prior to the increases in railway rates which were sanctioned by the Board of Railway Commissioners, as concerned the railways under its jurisdiction, the industrial interests of the Maritime Provinces were favored with a scale of rates applying on their products destined for Ontario and the west, which compensated in large measure for their geographical disadvantage, involving longer hauls, and which enabled them to compete successfully with producers in the Montreal territory and in the areas to which their goods were destined. Although the Board of Railway Commissioners has not jurisdiction over the Intercolonial Ry., the increases in rates as applying to lines under its jurisdiction were also applied to certain I.R.C. rates, with the result that the existing differentials were destroyed, and the spread, as between Maritime Province points and points in the Montreal territory were materially increased. The spread as between Sydney, N.S., and Montreal, in favor of the latter, on freight to Fort William, Ont., was, as of Sept. 1, 1914, on first class traffic, 30c. On April 1, 1916, it was 34c.; on April 1, 1918, it was 39½c.; on Aug. 15, 1918, it was 49½c., and after the application of the 40% increase was 69c. The spread on 5th class traffic was 15, 17, 19½, 24½ and 34½c. for the respective dates as above, and on other classes in proportion. Rates from Halifax, as compared with those from Montreal to Toronto, showed a difference in favor of Montreal on first class, on April 20, 1913, of 22c.; on Dec. 1, 1916, of 25c.; on March 15, 1918, of 30c.; on Aug. 12, 1918, of 38½c., and, after the 40% increase, of 52½c. On the rates to Windsor, Ont., these spreads on first class ran 20, 26, 30, 37½ and 52½c. on the dates mentioned. Many further examples could be cited, but the foregoing are sufficient to demonstrate the grounds on which the Maritime Provinces largely base their complaint, viz., reduced ability to compete in common markets by reason of increasingly unfavorable differentials.

In connection with that part of the press dispatch which refers to rates put into effect by Board of Railway Commissioners of Canada for the Intercolonial Ry. it must be borne in mind that section 5 of the Railway Act of 1919 excludes government railways from the Board of Railway Commissioners' jurisdiction, as did the previous act, so that, as a matter of fact, while decisions of the Board, in matters of joint rates, must inevitably affect the I.R.C., the I.R.C. rates themselves are not subject to review by the Board. The Board's position in the matter is clearly shown by a recent decision of Assistant Chief Commissioner McLean, in connection with the Sydney and North Sydney Boards of Trade application re export rates, in which he stated: "The fundamental question is the question of our powers . . . there is the further point that, while provision is made in Canadian National legislation, that, on the issuance of orders in council, railways in which the government has ownership or interest can be brought under our jurisdiction, no such order in council has been issued yet, in regard to Canadian Government Rys. As our powers must be derived from acts passed by parliament, we have to say frankly that we have been given no power to control rates over the Canadian Government Rys., or to compel them to initiate rates. Under the present circumstances, having no jurisdiction . . . the Board has no power to issue the order asked for."

Mr. McLean referred to legislation which would put all the Canadian National Rys. lines under the Board's jurisdiction, which will be applied at some future date, but at present the country is presented with a situation wherein some portions of the Canadian National system are subject to the Board of Railway Commissioners regulation, and other portions are not. The Intercolonial, Prince Edward Island, and National Transcontinental Rys., as being purely governmental undertakings, are not; the Canadian Northern Ry., being a government undertaking only so far as concerns stock ownership, is under the Board's jurisdiction. The Grand Trunk Pacific Ry., built by a company and operated by the Canadian National Rys. directors for the receiver, in this case the Minister of Railways, is under the Board, as will be the G.T.R. when the Government acquires the stock. The Quebec & Saguenay, and other small eastern roads purchased outright by the Government and incorporated into the Canadian Government Rys., are not under the Board's jurisdiction.

To speak of rates put into effect by the Board of Railway Commissioners of Canada, for the Intercolonial Ry. since 1916, is not strictly accurate, the situation being that the increases applying to lines under the Board's jurisdiction were automatically applied to the rates covering traffic over the I.R.C. section of the Canadian National Rys., to the end that existing differentials were greatly changed, as above noted.

That people in I.R.C. territory have always maintained that they should receive lower rates than the standard scale has been commonly known, and in the past they have received considerable concessions in this direction. When delegates representing the then Province of Canada, comprising Quebec and Ontario, met with delegates from the Provinces of New Brunswick and Nova Scotia, in conference, at Quebec, in Oct. 1864, to arrange for their confederation as the Dominion of Canada, the Grand Trunk Ry. was in operation from Sarnia, Ont., to Riviere-du-Loup, Que., about 120 miles east of Quebec City, a total distance of about 780 miles; and the Nova Scotia Ry. was in operation from Halifax to Truro, about 64 miles, leaving a gap between Truro and Riviere-du-Loup of about 500 miles. The European & North American Ry. was also in operation from St. John to Shediac, N.B., about 108 miles. One of the resolutions passed by the conference provided that the general government to be established for the Dominion should secure, without delay, the completion of a railway from Riviere-du-Loup to Truro and this was embodied in the British North America Act, passed by the British Parliament, and assented to in March 1867, which declared that the Dominion Government should, within six months after the union, provide for the commencement of a railway, to connect the river St. Lawrence with Halifax, for its construction without intermission and for its completion with all practicable speed. But so far as we can ascertain there was no provision that special rates were to be given. Similarly before British Columbia came into Confederation in 1871, the building of the C.P.R. through to the Pacific Coast was provided for, but, so far as we are aware, British Columbia has never contended that the line should not be run as a commercial enterprise.

The extent to which the interests of the Maritime Provinces have been favored by special rates, the extent to which the basis existing before the increases took effect was determined by considerations of a political nature, and the extent to which they were based on purely economic consideration, would take more space to discuss than can be given at this time. We are informed that the general enquiry concerning the entire rate structure of the country which is being conducted by the Board of Railway Commissioners will include these features of I.R.C. territory rates.

Reduction of Dominion Atlantic Railway Passenger Service.

The Board of Railway Commissioners passed order 30,809, March 21, as follows:—Re Dominion Atlantic Ry.'s application for reduction of train service between Truro and Windsor and between Kentville and Annapolis, N.S. Upon hearing the application at Moncton, N. B., March 7, the applicant company, the Berwick, Middleton, Lawrencetown and Annapolis Royal Boards of Trade, and the Nova Scotia Shippers' Association being represented, the Board orders that the company be authorized to provide the following train service between Truro and Windsor, viz., Train 1, to leave Truro, daily, except Sunday, at 6.35 a.m. and arrive at Windsor at 8.50 a.m., as at present; train No. 4 to leave Windsor at 11.30 a.m. and arrive at Truro at 1.50 p.m., daily, except Sunday. That the operation of trains 96 and 97 from Kentville to Annapolis be cancelled.

Petroleum & Transport Ltd. has been incorporated under the Dominion Companies Act, with $3,000,000 authorized capital and office at Montreal, to acquire and develop oil properties; to own and operate all or any means of transport, wharves, docks, pipe lines, etc. The incorporators are:—Hon. W. J. Shaughnessy, K.C., R. C. Holden, A. D. Wright, C. Arnold and B. Forbes, Montreal.

Locomotive Boosters for Timiskaming & Northern Ontario Railway.

A Kingston, Ont., press dispatch of April 8 says.—"The first locomotive booster ever used in Canada was yesterday tested on the mikado freight locomotive built by the Canadian Locomotive Co. for the T. & N.O. Ry. and proved a decided success in every way, so much so that it will be applied to four remaining locomotives being built for the T. & N.O. Ry. The booster consists of a simple two cylinder steam engine, upon a cast steel bed plate. It is applied to the two trailing wheels of the locomotive, hitherto simply used to carry the weight of the locomotive. It is used for heavy loads at speed, and increases the steam making capacity of locomotive boilers."

The foregoing is no more correct than the ordinary daily newspaper report. As far as Canadian Railway and Marine World can ascertain, there was no test of the booster, in the ordinary sense of the term, on April 7. In response to our enquiry the Canadian Locomotive Co. wrote us on April 8 as follows:—"The locomotive was tried yesterday, and performed very satisfactorily. We are, however, unable to furnish you with any data, as no record was kept, and no load was applied. We believe the T. & N.O. R. will conduct some tests after the locomotive has been broken in, in service. We may add that, in a run of 14 miles yesterday, the booster was cut in and out several times, and operated very smoothly."

The so called "test" on April 7 had nothing to do with the decision to equip four Pacific type locomotives with boosters, which was arrived at last autumn, when the locomotives were ordered, as was stated in Canadian Railway and Marine World for Dec. 1920. It was also decided at the same time to have a booster put on one of the four mikado locomotives which were ordered in May 1920, as stated in Canadian Railway and Marine World for June 1920, and it was this locomotive which was given a trial run on April 7.

The statement in the press dispatch that the booster "is used for heavy loads at speed, and increases the steam making capacity of locomotive boilers," is altogether erroneous and misleading. In the first place, the booster is designed to operate only at slow speeds. Its true function is to aid in starting a train, and assist in hauling it over heavy grades, where the speed is necessarily slow. The theory is that, when the speed is low, the capacity of the boiler is in excess of the demands for steam, and that the surplus steam which may be generated may as well he used in furnishing additional tractive effort. This theory is put into practice by utilizing the trailing wheels as driving wheels for the time being, through the medium of the booster. How the writer of the press dispatch reasons that the booster increases the steam making capacity of the boiler is a mystery. One would imagine that the additional drain on the boiler, when the booster is cut in, would necessarily tend to reduce steam pressure considerably, and it seems that where the hooster is to be used successfully, on grades of any length, the capacity of the boiler must be high, in relation to the cylinder demands made on it. Beyond the possibility of steam leaks, due to lack of maintenance, this would seem to be the only consideration of consequence that could act to make the booster otherwise than highly successful.

As was stated in Canadian Railway and Marine World a few months ago, the ruling grades on the T. & N.O.R. are approximately 1½%. There are several of them, and all quite short. On account of being short, and so much steeper than the average, the management believes the booster to be well adapted to furnish the additional tractive effort required to surmount them. The occurrence of a number of station stops, on grades as high as 1%, also makes the booster exceptionally adaptable.

The press report also states that the trailing wheels were hitherto used simply to carry the weight of the engine. The next press report will likely have it that the driving wheels, not being favored with a little weight to carry, are used simply to balance the pistons.

Railway Wages Debated in Toronto.

A debate on railway rates and wages took place before the Canadian Club in Toronto on April 11, between D'Arcy Scott, barrister, etc., Ottawa, a former member of the Board of Railway Commissioners, and Jas. Murdock, Vice President of the Brotherhood of Railway Trainmen. Mr. Scott, who spoke first, said he was not going to rely on the $70,000,000 deficit on the Canadian National Rys. as a reason for the reduction of railway wages, and proceeded to trace the growth of the wage bills, by the application in Canada of the McAdoo award and the Chicago wage award. He pointed out the overtime provisions of the railway wage agreements, with examples to show how they operated, citing the case of a conductor earning over $5,000 yearly, and other examples of $300, $350 and $400 monthly wage receipts. He pointed out that the 8-hour basic day was a large factor in the increase of overtime payments, made at the time and one half rate, and that high railway wages keep up wages in other industries, and retard a return to normal conditions.

Mr. Murdock said that the course of events indicated to him a desire, on the part of the public, to sacrifice the wages of Canadian railway employes on the railway altar, for the purpose of enhancing the welfare and prosperity of the entire population of the country. The whole proposition resolved itself into a question of whether prosperity in this country must be purchased at the expense of railway employes. He emphasized the risks and hazards incidental to railway work, claimed that the work tends to wear a man out quickly, and stated that the people, regarding the statements of exceptionally high earnings on the part of individual employes, fail to realize that these employes earn far above the average by reason of working long overtime hours.

A large audience listened to the debate; but, as each speaker had only 25 minutes in which to present his views, there was a feeling on the part of all that only the fringe of the subject had been touched, and that much more time would be necessary for a thorough discussion and analysis of this important matter.

Since the debate, Mr. Murdock has written Mr. Scott a letter, which was given to the press. In it he claimed that Mr. Scott was in error in having referred to all train and locomotive men being paid time and one half for overtime, and stated that on nearly one half of the railway mileage of Canada, neither freight locomotive men or train men are so paid. He further stated that no conductor earns $5,000 yearly, although it is possible for a man to earn at this rate for a month or so at a time by working double time. In concluding, Mr. Murdock stated that the hardest job a labor leader has is that of convincing his men that those in high places are not deliberately stating untruths in regard to labor; that he did not consider that Mr. Scott would intentionally convey inaccurate information to the public, but that statements made by Mr. Scott in the debate had the same result so far as the mind of the average individual laboring man was concerned.

In reply, Mr. Scott wrote an open letter to Mr. Murdock, in which he said that Mr. Murdock might better have made his statements at the debate, as he had half an hour to do so after Mr. Scott had finished speaking, instead of attempting to continue the debate in the newspapers. Mr. Scott points out that the whole burden of his argument was a condemnation of the application of the McAdoo award to Canada. In connection with his statement about the earnings of a conductor on Ottawa-Brockville run, he states that he got his information from a man who has been a member of Mr. Murdock's organization as long as, or longer than, Mr. Murdock has. His information was to the effect that the conductor earned $420 a month, which, multiplied by 12, is $5,040 a year, and although he conceded that it was improbable that a conductor would keep up his work at this rate for a whole year, the fact remained that he could earn that much in a year, under the rules, by doing so. He contends that there are many such cases in Canada, where a crew runs into a terminal, spends several hours at home at that terminal, and takes the train back again the same day, with the consequence that the crew is paid for the 12 or 14 hours used in making the round trip, although they are resting perhaps six hours out of that time. He states further that although the cost of living has come down, and wages in other industries have been reduced, Canadian railways are still paying the rates of wages fixed by the two U.S. American awards, and that although he wants to see railway freight and passenger rates reduced, he cannot see how it can be done so long as these railway labor awards, to which Canada was not a party, remain in effect.

United States Railroad Administration.—President Harding has named J. C. Davis, of Ohio, who has served as General Counsel to the Railroad Administration, to be Director General, succeeding J. B. Payne, who resigned a short time ago. Mr. Davis' duties will be principally the winding up of the Administration's affairs.

Italian Railway Electrification. — A Rome cablegram says that Italy has decided to electrify about 5,000 miles of its railways, and will send a mission to the United States shortly to study railway electrification there.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

General order 332. March 14.—Ordering that live stock valuations in classification of household goods and. settlers' effects, as set out on page 100 of Canadian Freight Classification 16, be amended to agree with provisions of sec. 1 of Livestock Bill of Lading, schedule A. approved by general order 298, June 2, 1920.

General order 333. March 26.—Prescribing form, size and style of tariffs of telephone companies of telephone tolls to be charged; also system of publication and posting of rates and tariffs.

General order 334. April 1.—Amending general order 188 to provide that Regulations for the Uniform Maintenance of Way Flagging Rules for Impassable Track may, at option of railway companies, be printed in their rule books, in lieu of working timetables.

General order 335. April 1.—Amending general order 236, re protection to railway employes, by adding to par. 2 the following: "In case of the leading engine giving up the train short of the destination of the train, a test of the brakes must be made to see that the same are operative from the engineer's valve of the engine remaining with the train."

General order 336. April 2.—Amending Uniform Code for Railways. This order is given in full under "Amendment to Uniform Code, rule 99" elsewhere in this issue.

General order 337. April 8.—Re charges for fixing car doors and loading charges in cases where box cars are supplied by a railway company in lieu of stock cars ordered by the shipper. This order is given in full under "Traffic Orders by Board of Railway Commissioners" elsewhere in this issue.

General order 338. April 13.—Authorizing Bell Telephone Co. to further increase certain tolls.

30,773. March 15.—Ordering Canadian National Rys. to restore train service between Middleton and Port Wade, N.S., and rescinding order 30,724.

30,774. March 15.—Authorizing C.P.R. to build spurs for B.C. Spruce Mills Co., Wattsburg, B.C.

30,775. March 14.—Extending for three months time within which Vancouver Harbor Commissioners may enter into agreement with C.P.R. for occupation of lands and building of tracks in Vancouver, B.C., required under order 30,430.

30,776. March 16.—Ordering C.P.R. to erect shelter at Stickney, N.B.

30,777. March 14.—Ordering Canadian National Rys. to build grain loading platform on n.w. ¼ Sec. 27, Tp. 47, Range 18, west 3rd meridian, at mile 26, Sturgeon River Subdivision, Sask.

30,778. March 15.—Dismissing Canadian National Rys. application to remove station agent at Osaca, Ont.

30,779. March 14.—Approving agreement between Bell Telephone Co. and Thamesville Telephone Co., Kent County, and rescinding orders 6,892 and 23,256.

30,780. March 16.—Recommending to Governor in council for sanction agreement between Nakusp & Slocan Ry. and C.P.R., re lease of former to latter for 99 years.

30,781. March 10.—Ordering Michigan Central Rd. to cut down trees and install two electric bells, with wigwag signals, at crossing just east of Charing Cross station, Ont.

30,782. March 16.—Approving revised plans of proposed Michigan Central Rd. bridge over power canal, at Montrose, Ont.

30,783, 30,784. March 15, 17.—Approving Bell Telephone Co. agreements with Conn Telephone Co. of Wellington, Grey and Dufferin Counties, Ont., and rescinding orders 6,093 and 24,539; and Lacloche Rural Telephone Co., Algoma District, Ont.

30,785. March 16.—Authorizing C.P.R. to build spur across lane in Block C.D.L. 196, between Powell and Cordova Sts., Vancouver, B.C.

30,786. March 17.—Approving agreement between Bell Telephone Co. and Rockwood & Oustic Telephone Co., Wellington County, Ont., and rescinding order 24,766.

30,787. March 17.—Authorizing Canadian National Rys. to cross a number of highways on its Eston Southeasterly Branch, mile 0 to 31.13, Sask.

30,788. March 16.—Authorizing Canadian National Rys. to divert the highway between Secs. 11 and 12, Tp. 23, Range 17, west 3rd meridian, Sask.

30,789. March 18.—Ordering Grand Trunk Pacific Ry. to erect station between Dominion and Quebec Sts., Prince George, B.C.

30,790. March 17.—Approving Canadian National Rys. revised location on east half of n.w. ¼ Sec. 15, Tp. 17, Range 11, west 6th meridian, B.C.

30,791. March 17.—Authorizing C.P.R. to cross, divert and close diverted portion of highway at mile 37.9, Rosetown Southeasterly Branch, Sask.

30,792. March 17.—Ordering G.T.R. to remove trees and brush at Machetts crossing, Stephenson Tp., Ont., west approach to be graded up to standard of 5%, and east approach to be surfaced up and given uniform grade crossing to the bridge.

30,793. March 15.—Rescinding order 28,414, June 4, 1919, ordering G.T.R. to divert road allowance between Cons. 4 and 5, Raleigh Tp., Ont., so as to make it cross track at right angles.

30,794. March 16.—Declaring that charge of 3¾c. per 100 lb. made by C.P.R. for switching stone dust from Thames Quarry Co.'s plant to factory at St. Marys Ont., was wrongfully made and should have been 2c. per 100 lb., and authorizing C.P.R. to refund the overcharge to DeVinney & Campbell, St. Marys, Ont.

30,795 to 30,803. March 17.—Dismissing applications of Quebec, Montreal & Southern Ry. to remove station agents at Contrecoeur; authorizing removal of station agents at Varennes and St. Judes; dismissing applications to remove agent at St. Aime; authorizing removal of agents at St. Francois du Lac; Gentilly; Becancoeur and St. Roch; and dismissing application to remove agent at Becquets, all in Quebec.

30,804. March 31.—Approving Hull Electric Co.'s Standard Local Passenger Tariff C.R.C. no. P-16 providing for a 25c. fare between Ottawa and Hull and Connaught Park Jockey Club.

30,805. March 17.—Ordering C.P.R. to enlarge station at Bindloss, Alta., by June 15.

30,806. March 18.—Approving agreement between Bell Telephone Co. and Leith & Annan Telephone Co., Grey County, Ont.

30,807. March 18.—Ordering C.P.R. to appoint station agent at Barnwell, Alta.

30,808. March 18.—Authorizing British Columbia Electric Ry. to build spur for Granite Island Quarries, South Vancouver, B.C.

30,809. March 21.—Ordering Dominion Atlantic Ry. to provide train service between Truro and Windsor, N.S., and cancelling operation of trains 96 and 97 from Kentville to Annapolis, N.S.

30,810. March 18.—Authorizing G.T.R. to connect with and operate over spur built by Hydro Electric Power Commission of Ontario., in Brant Tp., Ont.

30,811. March 22.—Approving supplement 16 to Canadian Freight Classification 16, including ratings on liquors.

30,812. March 21.—Declaring that for the present, C.P.R. crossing near Tramping Lake station, Sask., is protected to Board's satisfaction.

30,813. March 21.—Ordering Canadian National Rys. to appoint caretaker at Woodlands, Man.

30,814. March 18.—Authorizing New York Central Rd. to make highway crossing at Melocheville, Que.

30,815. March 21.—Authorizing Calgary & Edmonton Ry. (C.P.R.) to make highway crossing at Victoria Ave., Red Deer, Alta.

30,816. March 22.—Authorizing Grand River Ry. to take certain land in Preston, Ont., for efficient operation of its line.

30,817. March 21.—Amending order 30,715 re protection of Dundas St. east of Cooksville station, Ont.

30,818. March 21.—Approving agreement between Bell Telephone Co. and Percy Tp., Ont., and rescinding order 24,624.

30,819. March 21.—Declaring that for the present Canadian National Rys. crossing at Government Road, mile 74.1 west of Beachburg, Ont., is protected to Board's satisfaction.

30,820. March 22.—Approving Canadian National Rys. revised location through s.e. ¼ Sec. 29, Tp. 18, Range 14, west 6th meridian, B.C.

30,821. March 21.—Extending to May 15 time within which Canadian Northern Ry. may build spur for J. I. Case Threshing Co., Winnipeg.

30,822. March 21.—Dismissing application of Town of Simcoe, Ont., for order directing railway companies to give residents of Simcoe as favorable rates on freight going in and out of Simcoe as they accord to other places.

30,823. March 23.—Ordering C.P.R. to build umbrella roof over platform at Val Morin station, Que., and dismissing application of residents for order directing it to enlarge station and change its location there.

30,824. March 24.—Approving Canadian Northern Ry. location mile 0 to 26.06, Tps. 49 to 52, Ranges 26, 25, west 2nd meridian, Sask., and authorizing crossing of a number of road allowances.

30,825. March 26.—Authorizing Canadian Northern Pacific Ry. to cross highway in s.e. ¼ Sec. 8, Tp. 19, Range 18, Kamloops Division of Yale District, B.C.

30,826. March 26.—Declaring that for the present C.P.R. crossing near Stalwart, Sask., is protected to Board's satisfaction.

30,827. March 26.—Rescinding order 21,994, June 16, 1914, authorizing Grand Trunk Pacific Ry. to build spur for Alsip Brick & Supply Co., North Alberta District, Alta.

30,828. March 26.—Authorizing Alberta Public Works Department to make highway crossing over C.P.R. between Secs. 5 and 6, Tp. 19, Range 15, west 4th meridian, Alta.

30,829. March 26.—Declaring that C.P.R. crossing near Rosetown, Sask., is protected to Board's satisfaction.

30,830. March 29.—Ordering Canadian National Rys. to build subway on Water St., Winnipeg, within six months.

30,831. March 30.—Authorizing N. W. Hawkes, New England Freight Association, on behalf of New England railways, to further suspend effective date of certain schedules naming diversion and reconsignment rules, regulations and charges until Apr. 30, upon one day notice; also granting similar permission to all carriers in the U.S. publishing similar tariffs.

30,832. March 24.—Approving agreement between Bell Telephone Co. and Zion & Wolseley Telephone Co., Grey County, Ont.

30,833. March 26.—Approving Maine Central Rd. Standard Freight Mileage Tariff C.R.C. no. C-2010.

30,834, to 30,837. March 29.—Approving Canadian National Rys. revised location through Secs. 35 and 36, Tps. 17-14, mile 33.65 to 35.75; fractional s.e. ¼ Sec. 33, n.e. ¼ Sec. 28 and n.w. ¼ Sec. 227, Tp. 19, Range 15; Secs. 16, 17 and 18, Tp. 19, Range 14, mile 21.95 to 24.65, and s.w. ¼ Sec. 2, east half of Sec. 3 and east half of Sec. 10, Tp. 18, Range 14, mile 31.6 to 33.65, west 6th meridian, B.C.

30,838. March 26.—Authorizing Canadian National Rys. to rebuild bridge over South Saskatchewan River, at mile 159.8 Duck Lake Subdivision, Saskatoon, Sask.

30,839. March 30.—Authorizing Chicago, Indianapolis & Louisville Ry. to file with Board, effective Apr. 13, upon 10 days notice, tariff showing increased rates on stone, in carloads, to points in Ontario, as authorized under I.C.C. ex parte no. 74.

30,840. March 30.—Authorizing Canadian Northern Ry. to open for traffic its Lucky Lake Branch from Lucky Lake to Scapa, mile 19.7 to 28.54, Sask.

30,841. March 26.—Dismissing application of Brodies Ltd. and Jos. Brunet, Montreal, for reduction in rates on granite paving blocks from Hebert to Montreal, and from Staynerville to Montreal, to the basis of rates in effect prior to Sept. 13, 1920.

30,842. March 30.—Authorizing Alberta Public Works Department to make highway crossing over C.P.R. in n.w. ¼ Sec. 30, Tp. 10, Range 26, west 4th meridian.

30,843. Apr. 1.—Authorizing G.T.R. to build spur for Ontario Public Highways Department, crossing Governor's Road, on Lot 2, Con. 1, Oxford East Tp.

30,844. March 24.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to remove station agent at Hedley, B.C.; caretaker to be appointed.

30,845. March 30.—Approving details and location of G.T.R. station at New Hamburg, Ont.

30,846. March 30.—Authorizing C.P.R. to remove station agent at Hosmer, B.C.; caretaker to be appointed.

30,847. April 4.—Authorizing Dominion Atlantic Ry. to remove station agent at Ohio, N.S.; caretaker to be appointed.

30,848. April 4.—Authorizing Quebec, Montreal & Southern Ry. to remove agent from Becquets station, Que., on establishment of joint station at Fortierville, Que.

30,849. Dismissing complaint of F. H. Iverson, Montreal, on behalf of Chicoutimi Pulp Co., against rate charged by Atlantic, Quebec & Western Ry. on coal from Gaspe to Chandler, and on woodpulp from Chandler to Gaspe, Que.

30,850. April 4.—Authorizing C.P.R. to move station at Macaza, Que., to a point more convenient to the village.

30,851. April 4.—Authorizing Crow's Nest Southern Ry. to remove its station agent at Waldo, B.C., pending further order.

30,852. April 5.—Authorizing C.P.R. to build siding at mile 134.19, St. Agathe Subdivision, Brunet, Que.

30,853. April 4.—Ordering G.T.R. to install gates at farm crossing on J. Poliquin's property, near Princeville, Que.

30,854. April 4.—Authorizing C.P.R. to remove station agent at Westerham, Sask.; caretaker to be appointed.

30,855. April 5.—Ordering C.P.R. to furnish and continue to furnish and maintain for Davidson & Smith Elevator Co., Fort William, Ont., same traffic facilities as have been furnished to Dominion Government elevator.

30,856. April 4.—Approving agreement between Bell Telephone Co. and Port Hope Telephone Co., Durham County, Ont.

30,857. April 4.—Authorizing G.T.R. to build three spurs for Canadian Libbey Owens Sheet Glass Co., Hamilton, Ont., crossing Canadian National Rys. spur.

30,858. April 4.—Ordering Canadian National Rys. to appoint station agent at Hay Lake, Alta., by Sept. 1, caretaker to be appointed in meantime.

30,859. April 5.—Dismissing application of Watts Trading Co., for appointment of station agent at Watts, B.C., and ordering Canadian National Rys. to appoint caretaker there, and to stop trains 9 and 10 regularly on Tuesdays and Fridays.

30,860. April 6.—Approving Canadian Northern Western Ry. plan showing change in railway for station purposes at Mayerthorpe, Alta.

30,861 to 30,863. April 6.—Approving Canadian Northern Ry. plan showing changes in railway for station ground purposes at Cleeves, Spruce Lake and St. Walsburg, Sask.

30,864. April 6.—Approving Campbellford, Lake Ontario & Western Ry. (C.P.R.) revised location of business spur at Trenton, Ont.; authorizing crossing of Canadian Northern Ontario Ry.; to operate its trains over proposed interchange track; rescinding order 26,152 re C.N.O. R. crossing, and approving protection by half interlocker.

30,865. Ordering C.P.R. to stop train 14 at Exshaw, Alta., to allow passengers from west to detrain, effective May 22.

30,866. April 7.—Ordering G.T.R. within 60 days to install combined bell and wigwag signal in lieu of gates at crossing of 5th Ave., St. Pierre, Que.

30,867. April 7.—Dismissing application of United Farmers of Alberta for station agent at Wrentham, and ordering C.P.R. to appoint caretaker there.

30,868. April 8.—Authorizing carriers in U.S. upon 15 days notice to Board, to file special supplement to tariffs to points in Canada, cancelling minimum weights and rules and regulations applicable thereto, established by I.C.C. Special Permission 51,215, and establishing revised minimum weights on grain and grain products and rules and regulations applicable thereto, as set forth therein.

30,869. April 7.—Authorizing G.T.R. to dispense with operation of gates at crossing of Main St., Victoriaville, Que., provided all train movements are flagged across.

30,870. Authorizing Grand Trunk Pacific Ry. to build spur for U. G. G. Sawmills, Lot 3115a, Cariboo District, B.C.

30,871. April 7.—Authorizing Alberta Public Works Department to make highway over C.P.R. in s.e. ¼ Sec. 3, Tp. 11, Range 23, west 4th meridian.

30,872. April 3.—Dismissing Canadian National Rys. application for leave to appeal to Supreme Court of Canada re spur for Newcastle Junior Mining Co., Drumheller, Alta.

30,873. April 8.—Approving Canadian Northern Ry. bylaw authorizing H. H. Melanson, R. Creelman and R. F. MacLeod to prepare and issue tariffs of tolls.

30,874. April 8.—Authorizing Canadian Northern Ry. to build spur for Eastern Lands Department at mile 3.1 Oba Subdivision, Ont.

30,875. April 8.—Authorizing Canadian National Rys. to alter and extend Great West Land Co. spur through s.e. ¼ Sec. 7, Tp. 53, Range 23, west 4th meridian, Alta.

30,876. April 7.—Dismissing complaint of Board of Trade, Ituna, Sask., against reduction of train service on Grand Trunk Pacific Ry. from daily to six trains a week.

30,877. April 7.—Amending order 10,451 by providing that gates installed at G.T.R. crossing of Bourdage St., St. Hyacinthe, Que., be operated for 24 hours every day.

30,878. April 8.—Authorizing Alberta Public Works Department to make highway over C.P.R. in s.e. ¼ Sec. 10, Tp. 8, Range 5, west 5th meridian.

30, 879. April 7.—Approving Quebec Central Ry. location from near Scott station, Que., to connect with Canadian National Rys. at Diamond Jct., Que.

30,880. April 7.—Approving Canadian National Rys. route map of revised genera llocation through Tps. 25-27, Ranges 3-15, west 4th meridian, mile 27 to 118, Alta.

30, 881. April 11.—Authorizing C.P.R. to enter on E. Agnew's land for removing trees obstructing view of crossing between Lots 5 and 6, Con. 2, Nassagaweya Tp., mile 0.42 Hamilton Branch, south of Guelph Jct., Ont.

30,882. April 11.—Amending order 30,785 re C.P.R. spur across lane between Powell and Cordova Sts., Vancouver, B.C.

30,883. April 11.—Approving relocation of C. P.R. station at Lydiatt, Man.

30,884, 30,885. April 8.—Authorizing Quebec Central Ry. to cross Levis-Jackman highway, St. Maxime de Scotts Parish, and Breakeyville Road, Ste. Helene de Breakeyville Parish, Que.

30,886. April 11.—Authorizing C.P.R. to build spur for Merchants Grain Co., Fort Wiliam, Ont.

30,887. April 11.—Authorizing C.P.R. to divert road allowance in n.e. ¼ Sec. 6, Tp. 22, Range 15, west 3rd meridian, at mile 57 Rosetown Southeasterly Branch, to cross and close such diversion, and rescinding order 30,235.

30,888. April 11.—Ordering Canadian National Rys. to build standard timber cattle pass on Mrs. M. L. Longlet's property in s.e. ¼ Sec. 22, Tp. 27, Range 21, west 4th meridian, Alta., by Apr. 30.

30,889. April 11.—Authorizing Canadian Northern Ry. to build temporary trestle over Esquimalt & Nanaimo Ry., Cowichan Lake Branch, at mile 74.0 Canadian Northern Pacific Ry. Victoria-Alberni Subdivision, Vancouver Island, B.C.

30,890. April 11.—Authorizing Canadian Northern Ry. to build highway crossing in n.e. ¼ Sec. 5, Tp. 52, Range 21, west 3rd meridian, at Cleeves, Sask.

30,891. April 11.—Declaring that for the present Michigan Central Rd. second road crossing west of Tillsonburg station, Ont., is protected to Board's satisfaction.

30,892. April 11.—Approving plan showing proposed changes in overhead crossing and highway approaches on Halifax & Southwestern Ry. at mile 6.2 Lunenburg Subdivision, N.S.

30,893. April 11.—Authorizing C.P.R. to build extension to spur for F. L. Moorehouse, Calgary, Alta.

30,894. April 8.—Approving proposed protection at crossing of Grand River Ry. and G.T.R. at proposed gauntlet track, at miles 0.51 and 0.78, Galt, Ont.

30,895. April 13.—Authorizing Canadian National Rys. to build new tracks, rearrange tracks, and connect with Timiskaming & Northern Ontario Ry. at mile 61.4 North Bay, Ont.

30,896. April 14.—Authorizinf G.T.R. to dispense with watchmen at crossing of Lindsay St., Lindsay, Ont., between 9.45 and 5.45 a.m., during January, February, March and April, each year.

30,897. April 14.—Authorizing G.T.R. to build spur for Warren Bituminous Paving Co. of Ontario, Downie, Ont.

30,898. April 14.—Extending to July 31 time within which C.P.R. may install electric bills and wig-wag at crossing of Dundas St., near Cooksville station, Ont.

30,899. April 14.—Authorizing C.P.R. to build extension to spur for Imperial Oil Ltd., Calgary, Alta.

30,900. April 14.—Authorizing Quebec Central Ry. to build across Beaulieu Road, St. Jean Chrysostome, Que.

30,901. April 13.—Authorizing C.P.R. to move station at Macaza, Que., and amending order 30,850, Apr. 4.

30,903. April 15.—Authorizing C.P.R. to build spur for M. & L. Samuel Benjamin & Co., Toronto.

30,904. April 15.—Authorizing Alberta Public Works Department to make highway crossing over C.P.R. in south half of Sec. 10, Tp. 13, Range 16, west 4th meridian.

30,905. April 15.—Authorizing C.P.R. to build standard 4 station at Handel, Sask.; to be completed by Sept. 1, 1921.

30,906. April 15.—Authorizing C.P.R. to make highway crossing at Hudson Ave., Cote St. Luc, Que., and when Westminster Ave. is opened, crossing hereby authorized to be closed.

30,907. April 15.—Authorizing C.P.R. to arrange to have its agent at Brant, Alta., meet train 537 on Monday, Wednesday and Friday, each week.

Regulation for Protection of Railway Employes.

The Board of Railway Commissioners passed general order 335 April 1, as follows:—Re general order 236, May 20, 1918, prescribing certain regulations for the protection of railway employes, paragraph 2 of which reads as follows:—"2. When more than one engine is attached to a train, the engineer of the leading engine shall operate the brakes." Upon reading the submissions filed on behalf of the railway companies, and representatives of railway employes; and upon the report and recommendation of Board's Chief Operating Officer, the Board orders that general order 236 be amended by adding to paragraph 2 the following, viz.: "In case of the leading engine giving up the train short of the destination of the train, a test of the brakes must be made to see that the same are operative from the engineer's valve of the engine remaining with the train."

Canadian National Railways Earnings.

Following are gross earnings for the system, monthly, for 1921, compared with 1920:—

	1921	1920
January . .	$8,781,839	$7,267,562
February . .	8,150,341	6,516,059
March . .	9,497,740	7,761,326
	$26,429,740	$21,544,947

Approximate earnings for two weeks ended Apr. 14, $3,978,250, against $3,653,052 for same period 1920.

Canadian Pacific Railway Earnings, Expenses, Etc.

Following are gross earnings, operating expenses and net earnings, monthly, for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
	$27,234,417	$26,779,600	$1,454,817	$155,002
Incr.	.....	.....	155,002	.....
Decr.	$237,256	$392,258	.....	.....

Approximate earnings for March, $14,466,000, and for two weeks ended Apr. 14, $6,262,000, against $15,489,000 and $7,252,000 for same periods 1920.

Grand Trunk Railway Earnings.

Following are gross earnings, operating expenses and net earnings, monthly, for 1921, compared with 1920:&

	Bross	Expenses	Net	Increases
Jan.	$6,402,587	$6,954,707	*$543,120	$270,100
Feb.	5,733,447	5,332,627	400,820	888,653
	$12,136,034	$12,278,334	$142,300	$1,158,753
Incr.	2,420,198	1,261,400	1,158,753	.....

Approximate earnings for March. $6,222,885, against $5,756,371 for March, 1920.

CANADIAN NATIONAL RAILWAYS.

Eastern Lines—Quebec District.

Sealed tenders addressed to the undersigned and endorsed, "Tender for Concrete Structures, Quebec District," will be received at this office until 12 o'clock noon, Monday, May 16th, for the construction of four structures on the Quebec District.

Drawings, Specifications and Form of Contract may be seen and form of tender obtained at the following offices:—Office of Division Engineer, Tunnel Terminal Station, Montreal; Office of District Engineer, Champlain Market Bldg., Quebec; Office of Division Engineer, G. N. W. Building, Ottawa.

Tenders will not be considered unless made on the form supplied by the Railway Company and accompanied by an accepted cheque on a chartered bank for the sum of Seven Thousand Dollars ($7,000), payable to the order of the Treasurer of the Canadian National Railways.

Note.—Blue print copies of drawings can be obtained at above offices in Quebec, Montreal and Ottawa, and at the office of the Engineer, Maintenance of Way, Room 409 Old Union Station, Toronto, by depositing the sum of ten dollars ($10.00) payable to the Treasurer, Canadian National Railways, the said cheque to be returned if the intending tendered submits a regular tender.

The lowest or any tender not necessarily accepted.

W. A. KINGSLAND,
General Manager,
Canadian National Railways,
Bank of Toronto Bldg., Montreal, Que.

Railway Wage Developments in the United States and Canada.

Canadian Railway and Marine World for April dealt with the discussion which had been going on concerning railway wages, and gave a summary of events in that connection up to that time. Since then the discussion has continued in railway and business circles.

In the United States, hearings before the Railway Labor Board in Chicago, concerning the national agreements have continued, a feature of them being examinations of several railway executives by labor representatives, the executives being summoned to appear by the Board, on request of the organizations' representatives. An extended rebuttal to the arguments for the railways was made by B. M. Jewell, of the American Federation of Labor's railroad department, and in addition, a statement was prepared and presented on behalf of the employes by W. J. Lauck, their consulting economist. Press reports state that, a few days after the conclusion of Mr. Jewell's rebuttal testimony, the Board rendered its decision in the whole matter, abrogating the national agreements, but reggognizing certain principles contained therein as fair and just, and directing individual roads and their employes, in coming to future agreements, to take these principles into consideration.

The conferences between individual roads and their employes concerning wage matters, as required by Transportation Act, dealt with elsewhere in this issue, have continued, until at the present time practically every road of any size in the U.S. has filed requests for hearings before the Labor Board, due to inability of the roads and their employes to come to any agreement in connection with proposed wage reductions in practically every case. In some of the requests, the matter concerns only the wages of unskilled labor, but, in the others, the roads demand reductions in the rate of pay of all classes of employes. Our latest advice is to the effect that the Labor Board has grouped a great many of the cases for individual roads into matter for one hearing, and laid down the rule that in that hearing, and similar ones following, eight hours will be given each side in the dispute, to present its oral testimony, in addition to which written testimony may be presented. Important developments in regard to wage rates are expected shortly.

Interesting features of the matter in the U.S. were, first, a meeting between a committee representing the American Association of Railroad Security Owners, and several labor organization leaders. The results attending this direct coming together of capital and labor, with management excluded altogether, were not definitely stated. The statment made concerning the meeting was to the effect that all recognized the seriousness of the existing situation, and expressed a desire to be helpful in solving the problems brought about by it. A second feature was a brief discussion of the railway situation by President Harding, in an address to Congress delivered recently, in which he said:—"Railway rates and the cost of operation must be reduced . . . the remaining obstacles, which are the inheritance of capitalistic exploitations, must be removed, and labor must join management in understanding that the public which pays is the public to be served, and simple justice is the right, and will continue to be the right of all the people." The address, however, in so far as the betterment of the general railway situation was concerned, contained no practical suggestions, although it is stated that the President is considering the problem seriously and has been in frequent consultation with railway executives and labor leaders.

A case which had been before the Labor Board for many months concerned disputes between short line carriers and their employes has been dismissed, the Board giving as a reason that it was found impracticable to try to decide on reasonable wages, for the varying work done under greatly varying conditions, by some 4,000 different employes of short line railways in widely separated parts of the country.

Another development worthy of note is that the Chairman of the Association of Railway Executives has held conferences with the leaders of the train and locomotive service brotherhoods, relative to the question of the advisability of establishing regional boards of adjustment. It was decided to submit the question to conferences of the individual roads in each region.

In Canadian circles, the most outstanding development in this connection has been the debate which took place recently before the Canadian Club in Toronto, in which D'Arcy Scott, a former member of the Board of Railway Commissioners, attacked the present wage scales, and James Murdock, Vice President of the Brotherhood of Railway Trainmen, defended them. This debate is dealt with elsewhere in this issue. According to press reports, Chief Railway Commissioner Carvell, while in Vancouver recently, again attacked the McAdoo award, both in principle and in regard to the influences causing its adoption in Canada, and drew forth a spirited reply from L. L. Peltier, Ottawa representative of the Order of Railway Conductors, defending the provisions of the award and denying Mr. Carvell's statements of it having been adopted in Canada at the instance of U.S. leaders of international labor organizations. The present scale of railway wages was also defended in a speech in the Senate on April 13, by the Minister of Labor, in which he claimed that the wage award was granted voluntarily by the Railway War Board, and that no outside pressure was brought to bear in the matter.

Railway Mechanical Convention Matters.

As stated in Canadian Railway and Marine World for April, the Railway Supply Manufacturers Association decided not to hold an exhibit of railway appliances, etc., at Atlantic City in June, as usual. .

The American Railway Association's Purchases and Stores Division has decided not to hold its annual convention at Atlantic City, in June, but will hold a business meeting at the Blackstone Hotel, Chicago, on June 9, 10 and 11. The general committee and standing committees will be in attendance. Members are requested to have such representatives of their supply departments attend as can conveniently do so. The meeting will consider reports of committees which have completed their investigations of the subjects referred to them and are ready to present their recommendations, and will formulate a constructive plan for future activities. The endeavor of the meeting will be to handle such subjects as will produce economy in the operations of the supply departments of the railways. In this connection, arrangements will be made to exhibit a series of motion pictures, illustrative of the reclamation work on railways. This will be an important feature and will be in addition to the committee reports, all in the interest of economical and more efficient service.

The American Railway Association's Mechanical Division has also decided not to hold its annual meetings at Atlantic City from June 15 to 22, but instead to have a business session, on June 15 and 16, at the Drake Hotel, Chicago, at which reports will be presented by committees on the following subjects: Prices for labor and material; car construction; loading rules; brake shoe and brake beam equipment; train brake and signal equipment; specifications and test for materials; tank cars and standard methods of packing journal boxes.

Employment and Pay of Counsel in G.T.R. Arbitration.

J. O. Brouillard, Drummond and Arthabaska, Que., asked the following questions in the House of Commons recently, which were answered by the Minister of Justice.

Q. "Upon whose recommendation was W. N. Tilley, K.C., appointed counsel for the Government on the arbitration proceedings between the Dominion, and the G.T.R. Co., and what is his remuneration in such services?" A. "Mr. Tilley was retained upon the responsibility of the Government. Retainer, $10,000; $400 a day for days engaged out of Toronto; $100 a day for days in Toronto."

Q. "Is E. F. Newcomb, barrister, Ottawa, employed by the Government with the arbitration proceedings between the Dominion and the Grand Trunk Ry. Co.?" A. "Yes."

Q. "If so, what is his position, and upon whose recommendation was he appointed?" A. "He was retained by W. N. Tilley, K.C., leading counsel for the Dominion, who, when he was retained, stipulated the right to select junior counsel."

Q. "What is his remuneration?" A. "$30 a day for each day upon which he is exclusively engaged upon the work of the arbitration."

Q. "Is he son of the Deputy Minister of Justice?" A. "Yes."

Q. "Is the Government aware that he was only admitted to practice law within the past two years?" A. "No. He was admitted in 1916."

Q. "What are the special qualifications for this work?" A. "The Government is advised that his qualifications are excellent."

Q. "Has he received any other work from the Department of Justice? If so, upon whose recommendation, and what was the kind of work given, and how much has he earned to date for services other than connected with the G.T.R. arbitration?" A. "Yes. Upon the Department's responsibility; litigated matters; earnings, according to departmental record, $570."

Standard specifications for galvanized telegraph and telephone wire have been issued in booklet form, by Canadian Engineering Standards Association.

Amendment to Uniform Code, Rule 99.

The Board of Railway Commissioners passed general order 336, April 2, as follows:—Re general order 42, July 12, 1909, approving a Uniform Code for Canadian railways; and re rule 99, paragraphs 6 and 9 thereof, which read as follows:—

"If recalled before another train arrives he (the flagman) must, at night, or when weather conditions obscure day signals, or when snow ploughs or flangers may be running, in addition to the two torpedoes leave a fusee, burning red, at the point he returns from and at such other points on his return as may be necessary to ensure full protection.

"Flagmen must each be equipped for day time with a red flag and 4 torpedoes, and for night time, and when weather or other conditions obscure day signals, with a red light, a white light, and 4 torpedoes, 3 red fusees, and a supply of matches."

Upon hearing the matter at Ottawa, Sept. 27, 1920, the Canadian Pacific, Grand Trunk and Canadian National Railways, the Michigan Central Railroad, the Brotherhood of Locomotive Firemen and Enginemen, the Brotherhood of Locomotive Engineers, and the Brotherhood of Railroad Trainmen being represented at the hearing, and upon the report . and recommendation of the Board's Chief Operating Officer, the Board orders that paragraphs 6 and 9 of rule 99 be struck out and the following substituted therefor, viz.:

"If recalled before another train arrives, he must, in addition to the two torpedoes, leave a fusee, burning red, at the point he returns from, and, while returning to his train, when snow ploughs or flangers may be running, curvature, weather, or other conditions governing, a fusee burning red must be placed at such points, or times, as the flagman may find necessary to ensure full protection. To maintain the proper interval between trains, a fusee burning red must be left by the protected train, at the point from which it moves.

"Flagmen must each be equipped for day time with a red flag, 22 x 28 in., on a staff, at least 6 torpedoes and 5 red fusees; and for night time, and when weather or other conditions obscure day signals, a red light, a white light, with a supply of matches, at least 6 torpedoes, and 5 red fusees."

Grain Inspected at Western Points.

The following figures, compiled by the Dominion Bureau of Statistics, Internal Trade Division, show the number of cars of grain inspected at Winnipeg and other points on the Western Division, during March, and for 7 months ended March 31, 1921 and March 31, 1920:—

	Mar. 1921	7 mos. to Mar. 31, 1921	7 mos. to Mar. 31, 1920
Canadian Northern Ry.	7,770	55,969	39,217
Canadian Pacific Ry....	4,742	89,699	58,923
Grand Trunk Pacific Ry.	1,536	18,973	17,064
Great Northern Ry. (Duluth)	1	162	491
Total	14,049	164,803	115,695

J. F. McTaggart, heretofore Travelling Auditor, has been appointed Treasurer, Canadian National Telegraphs, Toronto, vice D. E. Henry, resigned on account of ill health.

Telegraph, Telephone and Cable Matters.

J. Stevens, heretofore chief operator, Grand Trunk Pacific Telegraphs, Regina, Sask., has been appointed chief operator, Canadian National Telegraphs there.

At a meeting of the Great North Western Telegraph Co.'s directors at Toronto, April 7, D. B. Hanna, President, Canadian National Rys., was elected President, vice Z. A. Lash, K.C., deceased, and G. D. Perry, General Manager, Canadian National Telegraphs, was elected Vice President, G.N.W.T. Co.

D. E. Henry, who has resigned as Treasurer, Canadian National Telegraphs, Toronto, on account of ill health, entered Great North Western Telegraph Co.'s service in 1899, under the late H. P. Dwight, then President and General Manager. He was appointed Treasurer in March 1911.

D. B. Hanna, President, Canadian National Rys., has been elected President, Great North Western Telegraph Co., succeeding Z. A. Lash, deceased. G. D. Perry, heretofore General Manager, has been elected a Vice President, Adam Brown, of Hamilton, continuing as the other Vice President.

The exclusively Canadian wireless news service which was inaugurated by the Canadian Pacific Ocean Services to its liners in mid-ocean, has now supplanted, on all Canadian liners, the United States news service, which has been discontinued. The present bulletin consists of Canadian news, combined with English news received from the Welsh station.

Telephone conversation was carried on between the President of the U.S., at Washington, D.C., and the President of Cuba, at Havana, Apr. 11, and between the Premier of Canada and the President of Cuba, April 14, by land lines to Key West, Fla., and thence by submarine cableto Cuba. It is reported that in connection with this formal opening of the line, telephone messages were received from the Catalina Islands in the Pacific, by wireless, cable and land lines. The report gives the distance between the Catalina Islands and Cuba as "5,700 miles, or farther than from London to Pekin." The distance, as the crow flies, from Catalina Islands to Cuba, is approximately 2,500 miles, and from London to Pekin on the same basis, approximately 6,000 miles.

Practically all telegraph and telephone lines south and west of Winnipeg were seriously interfered with during one of the worst blizzards experienced in Western Canada, which commenced Apr. 5 and continued for three days. On the fourth day, although the storm had ceased, a high wind developed, which played havoc with the lines, heavily laden with ice and snow. Regular communication between Winnipeg and the east was maintained and also with Regina and points west, by way of Chicago, Seattle and Vancouver until Apr. 11, when all important circuits were recovered and reploced in service. A severe sleet and wind storm occurred in southeastern Ontario Apr. 16 and 17, and telegraph and telephone companies suffered to a considerable extent. Canadian National Telegraphs lost about 100 poles, but their main routes were practically intact on Apr. 18. The storm was particularly severe in the vicinity of Stratford.

In connection with the Western Union Telegraph Co.'s desire to land its Barbadoes cable at Miami, Florida, in order to connect with its land lines, and the U.S. Government's refusal to consent to the connection being made, the U.S. Circuit Court of Appeals has confirmed the lower court's decision refusing the Government's application for a preliminary injunction to prevent the landing of the cable, and the sending of messages originating in, or addressed to, Brazil, over the cable from Cojimar, Cuba, to Key West. The judgment stated that, conceding that Congress has the right, under its power to regulate commerce, to prohibit the landing of cables between foreign countries and the U.S. coast, no practice had been established sufficient to sustain the contention that the President had such power as chief executive, and it declared that the company had the right to land its cable on the Florida coast, under the Post Road Act.

Among the Express Companies.

Canadian National Ex. Co. has opened an office at Colinton, Alta.

The Canadian National Ex. Co. has discontinued its agent at Libau, Man., which is now operated as a prepay point.

The Canadian National Ex. Co. put its service into effect on the Murray Bay Division, from St. Joachim to Murray Bay, Que., Apr. 4.

J. A. Walford, heretofore agent, Edmonton, Alta., has been appointed agent, Dominion Ex. Co., Penticton, B.C., during the absence, on three months leave, of W. E. Davis.

The Alberta Government received taxes from express companies operating in the province in 1920 as follows:—Canadian National Express Co., $995; Canadian Express Co., $725; Dominion Express Co., $2,440. The companies are taxed on the number of offices in the province and not on the income derived.

The Gold Seal Liquor Co., Calgary, Alta., has given notice of appeal to the Supreme Court of Canada, against the decision of the Supreme Court of Alberta's Appellate Division in favor of the Dominion Ex. Co., to the effect that an express company is not bound to accept shipments of intoxicating liquor, either into, or out of, the province.

The C.P.R. Passenger Department has made arrangements with the Dominion Express Co., whereby foreign and domestic money orders, and letters of credit, or travellers' cheques, are placed with the railway representatives and agents. These will now be procurable at all C.P.R. hotels, Great Lakes steamships, British Columbia Coast and Lake and River Services, Atlantic and Pacific steamships, and C.P.R. passenger offices in Canada and United States.

The City of Toronto has appealed to the Dominion Government against the increases in express rates authorized by the Board of Railway Commissioners' general order 327, Feb. 2, and published fully in Canadian Railway and Marine World for February, page 129. The appeal contends that the method of arriving at the sum due to the railways for their share in transporting goods for express companies by multiplying the freight rate 1½ times, was arbitrary and unsound, and that the companies' overseas business should be considered in arriving at what must be considered as fair remuneration. The Government decided that if the matter was to be argued further, the companies would be given an opportunity to be heard.

Electric Railway Department

Winnipeg Electric Railway's Increased Fares Confirmed by Court of Appeal.

The Manitoba Court of Appeal on April 4 dismissed the City of Winnipeg's appeal against the Manitoba Public Utilities Commissioner's order of Aug. 20, 1920, fixing the fares to be charged by the Winnipeg Electric Ry. in the city. In the autumn of 1918 the company was faced with a serious financial situation, on account of increased operating costs, and applied to the city council for leave to increase fares over those stipulated in the franchise under which the company was operating. The city council referred the company to the Public Utilities Commission and two interim orders were issued by the Commissioner, who had exhaustive valuations of the company's property made. This investigation extended over two years and included a complete valuation of the company's physical assets, and the company's financial history also came under review. At the end of the investigation the Commissioner made a final order raising the fares as follows:—Cash fares 7c.; 4 tickets for 25c.; school children, 7 tickets for 25c. The city appealed against this order to the Court of Appeal. By the terms of the order allowing the appeal to be taken the point submitted to the Court of Appeal was limited to the following question, viz.: Had the Public Utilities Commissioner power or authority to make the order raising the fares, in so far as it effects the City of Winnipeg; provided that on the said appeal no question shall be raised or argued as to the constitutional validity of the Public Utilities Act, or as to the validity of the appointment of the Commissioner. The controversy between the city and the company as to the Public Utilities Act involved two questions, viz., as to whether it was within the powers of the province to enact such legislation, and whether upon the construction of the act, assuming it to be within the powers of the province to pass it, the Commissioner had power to change the fares fixed under the franchise agreement between the city and the company. The question before the Court of Appeal was limited to the second of these two questions, the question as to the constitutionality of the act being eliminated.

The case was heard at considerable length and judgment was delivered by Chief Justice Perdue, who said in part: The leave to appeal was confined to the question "Had the Public Utilities Commissioner power or authority to make the said order as it affects the City of Winnipeg?" The city contended that the Commissioner had no power or authority to make the order complained of, on the ground that it was made in contravention of the express terms and conditions of city bylaw 545 and of the Manitoba Statutes, 1892, chap. 56, and of an agreement dated June 4, 1892, made in pursuance of the bylaw and special act. Having reviewed the legislation affecting the case, the Chief Justice dealt with the arguments by the city's counsel in support of its contention.

On the first ground, that the Commissioner had not power, under a general act, to alter rates fixed by a prior special act, it was held, after a review of the facts, and the consideration of cases, that bylaw 543 is not an agreement; the agreement and the contract were made subsequently and ratified by the Manitoba Statutes of 1895, chap. 54, sec. 2. It is this contract that binds the company, and it cannot be contended that the contract is a statute; it is only a contract, made in pursuance of the agreement, and validated as a contract three years afterwards. And even if it were found that the bylaw was incorporated in the act so as to be an integral part of the act, it was, the Chief Justice thought, the Legislature's intention that the Public Utilities Act's provisions would in case of conflict with those of the special act prevail over the latter. After reviewing the sections of the acts affecting this point, and cited case, the judgment proceeds: "City bylaw 543, after the legislation confirming it, still remained a bylaw, and the contract executed in pursuance of it by the city and the company remained a contract after its confirmation by the act of 1895. This contract might with the consent of the parties, be varied by a subsequent contract."

The company was brought under the jurisdiction of the Public Utilities Act by order in council on May 28, 1912, passed on a petition from the city council. When the company was brought under the act the Commission acquired exclusive jurisdiction over fares. The company and the city were no longer free to bargain with each other over the question of fares, or other matters concerning the utility. Such questions could only be dealt with by the Commission or subject to its approval. It was the Commission's duty to make orders as to extensions, equipment and service to be furnished by the company. It was also the Commission's duty to protect the public utility by permitting it to charge increased fares, to meet additional burdens imposed upon it. Frequent applications were made to the Commissioner, who issued orders as to additional tracks, the removal of tracks, and many other matters requiring the expenditure of large sums by the company. There has been a great increase in the wages, and the cost of material, and from various causes there has been a great depreciation in the utility's revenue. The Commissioner's finding on the facts is very important. The Commissioner said: "No dividends have been earned for the last five years, and the company's finances are so depleted that efficient service cannot be furnished without additional revenue. Therefore it must be evident that unless further revenues are provided the service must deteriorate and the riding public suffer. The petition of the company alleges that unless it is afforded some relief, and is permitted to increase its revenues derived from transportation, it will be forced into bankruptcy." The Commissioner had shown that increased revenue was necessary. The utility is of extreme importance to the citizens of Winnipeg and the surrounding territory. Its bankruptcy, or a serious impairment of its efficiency, would be a public disaster. Persons in the community reside, as a general rule, a considerable distance from their places of employment. They rely upon the street railway for transportation. A stoppage of its operation for a single day would cause great inconvenience and loss. To argue that the Commission could not save the situation by such simple means as a reasonable increase in fares is to put a very narrow construction upon the provisions of the act.

The company's motion to quash the appeal was refused and the appeal was dismissed with costs to be paid by the city, such costs to be the full taxable costs and not subject to the limitation contained in the Court of Appeal Act, sec. 23. Justices Dennistoun and Fullerton delivered concurring judgments.

Almost immediately after the judgment had been rendered the city council discussed the situation and passed a resolution favoring entering into immediate negotiations with the company but at the same time authorized the city solicitor to appeal against the judgment to the British Privy Council. For some months past A. W. McLimont, Vice President of the company, has been endeavoring to negotiate with the city council to permanently settle the transportation problem in Winnipeg. The following alternative suggestions were proposed by the company to the council, and these are forming the basis of negotiations. (1) The city taking the railway. (2) Agreeing upon terms the company shall operate under for the remaining period of the franchise. (3) Making an entirely new agreement, based upon service at cost or some similar arrangement in which the company's profits shall be limited, and the fares go up or down as the cost of operation increases or decreases. The control of this form of operation might be by a commission, composed of representatives of the city and the company, with an independent chairman.

A special meeting of the city council

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

was held April 15, to consider the following resolution:—"That the negotiations with the W.E.R. Co. authorized by the council at a meeting on April 4 be left with and be conducted by the public safety committee of the council; that the committee be empowered to retain the services of and to consult with and obtain the advice of any and such expert or experts as in its judgment may be necessary or expedient for and in connection with such negotiations or to thoroughly safeguard and further the interests of the city in connection with the several matters involved therein; and that the committee be instructed to go fully into the several matters in dispute between the city and the company, including he following: (1) Joint use of poles. (2) Reduction of economic waste due to unnecessary duplication of poles and wires in areas where amount of business does not justify same. (3) Agree to abandonment in certain residential districts of poles in streets, and instead thereof, both systems to occupy the poles in lanes. (4) Payment of joint pole accounts. (5) Grounding of secondaries. (6) Placing wires underground, as ordered by Public Utilities Commission. (7) Removal of wooden span wire poles from streets and attachment of span wires to buildings wherever possible. (8) Carry out recommendations of Prof. Fetherstonhaugh to adopt a system whereby the voltage of current taken to ground should be reduced from 500 to 250. (9) Electrolysis in its several phases. (10) Pavement charges. (11) Increased fares. (12) Outstanding taxes. And after the completion of such negotiations, that the committee report back to council the result thereof."

The resolution was adopted with clauses added empowering the committee to obtain the assistance of experts and counsel to negotiate for extension of service, and that all questions to be dealt with and matters between the company and the city to be, by agreement, placed outside the jurisdiction, power, authority and control of the Public Utilities Commission, and that all matters in dispute, or arising between the city and the company, be fully gone into by the committee, and that it report, from time to time, the results of its negotiations for ratification.

Permission has been granted the Winnipeg City Council to appear before the Privy Council on an appeal against the Manitoba Court of Appeal's judgment, given above.

Hamilton St. Ry. Franchise, Etc. — Although the Hamilton St. Ry. franchise does not expire until 1928, the question of its being acquired by the city prior to that time is being discussed. The chairman of the city council's street railway committee is stated to have expressed his opposition to buying out the company and to have added: "The city is doing very well as it is. We get $400 for every mile of the company's line; we also get 8% of the gross receipts, and we have the lowest fares in Canada. The company says that it is losing money, and even now does not even care to make necessary repairs. I think, under the circumstances, the city would be very foolish to try and operate. I never knew of a municipality yet that did it successfully. The Ontario Railway and Municipal Board is losing money on the London St. Ry. every day, and its experience does not show any inducement for Hamilton to go into business in that

Increases in Electric Railway Freight and Passenger Rates.

Edmonton Radial Ry.—The Edmonton, Alta., City Commissioners have submitted to the Utilities Committee a plan for adjustment of the finances of the various public utilities. A press report states that the publicly owned utilities other than the Edmonton Radial Ry. show a surplus of $546,034, and that the railway shows an accumulated deficit of $622,969, of which $200,191 was incurred in 1920. The commissioners propose that the public utilities be operated as a whole, and in order to turn the present deficit of $76,934 into a surplus it is proposed to increase the charges on all the other utilities to the extent of 12½%, the street railway being dealt with separately. The suggestion as to the street railway is that the present fares shall remain in force, but that workmen's tickets shall be discontinued; that children's tickets shall be issued only to children up to 12 years instead of 15, and that they be available during school hours, the numberof tickets sold for 25c. to be reduced from 10 to 8, the tickets for high school pupils to remain as at present.

A later press report says that the City Commissioners put in operation the following schedule of fares on April 15:—Cash fare, 7c., four tickets for 25c.; tickets for children under 12 years, 8 for 25c.; school children over 12 may use these on presentation of a school certificate between 7.30 a.m. and 5.30 p.m., except on Saturdays, Sundays and holidays. After midnight, cash fare 15c. Workmen's tickets are discontinued.

Fort William Municipal Ry.—Port Arthur Civic Ry.—The Ontario Legislature has passed an act authorizing the cities of Fort William and Port Arthur to pass bylaws to increase the fares on their electric railways over and above the 5c. rate provided for in the original act, such bylaws to be subject to the ratepayers' approval. The act as passed contains the section of the bill as originally introduced, together with the addition made in the private bills committee, both of which were given in Canadian Railway and Marine World for April, pg. 212.

The Fort William City Council's utilities committee and the Port Arthur Public Utilities Commission are reported to have met jointly recently and discussed the finances of the two electric railways. It is stated that a vote would be taken at an early date in both cities on the question: "Are you in favor of a 7c. cash fare, with 4 tickets for 25c. and 18 tickets for $1?"

Guelph Radial Ry.—The Ontario Legislature has passed an act authorizing the Guelph Radial Ry., which is owned and operated by the city, to increase its capital stock by $250,000, and to increase its cash fare from 5c. to 7c., its tickets from 6 for 25c. to 4 tickets for 25c.; and to charge double the day cash fare from 11 p.m. to 5 a.m.

Hull Electric Co.—The Board of Railway Commissioners passed order 30,804, March 21, approving this company's Standard Local Passenger Tariff C.R.C. no. P-16, providing for a 25c. single fare between Ottawa and Hull and the Connaught Park Jockey Club, instead of a 20c. one as heretofore.

Nipissing Central Ry.—We are officially advised that the Timiskaming & Northern Ontario Railway Commission, operating this electric railway for the Ontario Government, has applied to the Board of Railway Commissioners for authority to increase fares. Following is a comparison of the present fares and those asked for:—

Between	Proposed	Present
Cobalt and Haileybury	15c. or 8 tickets for $1	10c.
North Cobalt and Haileybury	10c. or 12 tickets for $1	10c.
Within Haileybury	7c. or 4 tickets for 25c.	5c.
Cobalt and Kerr Lake and intermediate points	15c. or 8 tickets for $1	10c.
New Liskeard and Haileybury	15c. or 8 tickets for $1	10c.
Points within New Liskeard	7c. or 4 tickets for 25c.	5c.
New Liskeard and Cobalt	30c. or 4 tickets for $1	20c.

School children's tickets to be 10 for 30c., instead of 10 for 25c., good only on school days, and purchasable only by scholars under 18 on presentation of certificate from the principal.

Workmen's tickets, good between 5 and 7.30 a.m., and 4.45 and 7 p.m., daily except Sundays, to be sold 21 for $1.25 from Cobalt to Kerr Lake and intermediate points; from Cobalt to Haileybury and intermediate points; from New Liskeard to Haileybury and intermediate points, instead of 21 for $1, and 21 for $2.50 from New Liskeard to Cobalt and intermediate points instead of $1.25 as at present.

New Liskeard and Haileybury municipalities and Burke Tp. have protested against the proposed increases.

Nova Scotia Tramways & Power Co. The Nova Scotia Legislature passed an act in 1920 authorizing the company to charge increased fares on its lines and limiting their collection to two years from the passing of the act. It was also provided that by the end of the year the Government should appoint a Commission under the Public Inquiries Act to consist of three members, one appointed by the Chief Justice of the N.S. Supreme Court, one by Halifax City Council, and one by the company, to make an investigation and to report to the Government and to the Halifax City Council, by Feb. 1, 1922, as to whether the increased fares granted by the act should be continued further. The Commission, which consists of Messrs. Campbell (Chairman), Rogers and McColl, has been sitting in Halifax and taking evidence. It adjourned on April 19, to May 2, and prior to adjournment asked the Halifax City Council to present its case in writing by April 29.

Port Arthur Civic Ry.—See Fort William Municipal Ry.

Winnipeg Electric Ry. — See under "Winnipeg Electric Ry.'s increased fares confirmed by Court of Appeal" on another page of this issue.

The Fort William, Ont., City Council has appointed a special committee to investigate charges that street railway tickets have been stolen in considerable quantities by employes and disposed of to outside parties. The discovery by the auditing department of considerable differences between the amount of cash received for the sale of tickets, and the number of tickets turned in by the conductors, is stated to have brought about the investigation.

Negotiations for Purchase of Niagara, St. Catherines and Toronto Railway.

Representatives of 17 municipalities in the Niagara district which are served by the Niagara, St. Catharines & Toronto Ry. (lectric) had an interview in Ottawa April 4 with the Minister of Railways, Dr. Reid, in connection with a desire, on the part of the municipalities, to buy the road on their own responsibility without having the Province of Ontario guarantee the bonds. The representatives stated that the municipalities desire to operate the road themselves, and if and when hydro electric radial railways are built, to have it made part of that system. Among the deputation were Mayor Lovelace and W. B. Burgoyne, of St. Catharines, and T. J. Hannigan, Secretary of the Hydro Electric Railway Association of Ontario.

The Minister, with whom was D. B. Hanna, President, Canadian National Rys., met the deputation, and in the discussion it was pointed out that in the original offer made by the Minister to dispose of the three government owned electric roads, the Niagara, Ct. Catharines & Toronto, the Toronto Suburban, and the Toronto Eastern (the latter in embryo), a chief condition was that the Ontario Government should guarantee the bonds issued in payment for the properties. The delegation expressed a desire to dispense with a provincial guarantee. Dr. Reid is reported as saying that his understanding, which the delegation agreed was correct, was that Sir Adam Beck had postponed the purchase of the three electric roads for the Hydro Electric Commission of Ontario, and that the HydroElectric Commission was to accept the municipalities bonds as collateral security, while, by the proposition made by this delegation, the municipal bonds would not be negotiable in the same way as would Hydro Electric Power Commission bonds, guaranteed by the Province of Ontario, and that the Dominion Government would only accept the bonds with the idea that, if financial conditions warranted, they might be sold. The Minister is also reported to have informed the deputation that, while the Dominion Government had approved his offer of sale of the three roads to the Ontario Hydro Electric Power Commission, it was manifestly out of the question to take up th esale of the Niagara, St. Catharines & Toronto Ry. singly.

The Dominion Bureau of Statistics report shows the Niagara, St. Catharines & Toronto Ry. has 61.70 miles of main track, and in the year ended June 30, 1919, had gross earnings of $892,732; operating expenses of $743,000, and a net income of $51,254. It carried in that year 6,460,695 passengers, and 356,400 tons of freight. The ocnstruction costs of the road are not available at present, but after acquisition by the Canadian Northern interests it was bonded for $20,000 a mile, and, as is shown by the above net income statement, its operations permit of a surplus after paying operating expenses and taxes, and after the deduction of fixed charges corresponding to this amount of bonded indebtedness. However, the price mentioned in the Minister of Railways' original offer, which involves acquisition of the three roads mentioned, or none, was $3,554,374.90 for the N.S.C.&T.Ry., and it does not require a great edal of calculation to see that, taking into consideration fixed charges on this sum, operation of the property in 1919 would have incurred a deficit for the municipalities. An examination into the physical location of the property and its relation to the steam railways serving the district, shows that if the municipalities were to buy the line, on the understanding that they must turn over all interchange traffic to the Canadian National Rys., which stipulation was contained in the Minister's original offer, they would be in the position of accepting a short haul on interchange business where it would be possible for them to get a long haul on the same business by turning it over to another road. Under present conditions, of course, it is almost immaterial in the long run as to the length of haul the Niagara, St. Catharines & Toronto gets on interchange business before handing it over to the Canadian National lines, and it is a fact that if the electric line just pays its way, or even incurrs some deficits on its own operations, the benefit derived by the Canadian National system by reason of the long haul business obtained from the electric road makes the operation a very profitable one so far as the C.N.R. lines as a whole are concerned.

On the present bonded indebtedness of $1,098,000, the fixed charges on a 6% basis would be $65,880, on the price the municipalities are offered the property at the fixed charges would be $212,662, a difference of $146,782, which means that the 1919 operations would have given them a deficit of $95,528. It is stated on the best of authority that a valuation of the property on a basis of reproduction cost, less depreciation, would indicate a value of about $6,000,000, so that while the municipalities would be making a "bargain" on this basis, on the basis of annual returns, based on the operating results of 1919, they would be liable to large losses.

Electric Railway Freight Traffic in Montreal.

The Montreal Administrative Commission is reported to have decided on April 15, in conjunction with the Montreal Tramways Commission and the Montreal Tramways Co. that the carrying of freight by the company must cease forthwith. The controversy on this matter has been going on for some time, and there have been negotiations between the two commissions and the company for several months. The matter was discussed by the Montreal Builder's Exchange April 16, when it was stated that the company had been carrying freight for 17 years, mainly building materials, principally at night. The Administrative Commission is reported to have ordered this haulage to cease. In the course of the negotiations following this order, it was reported that the company had expressed its willingness to continue the haulage, but was unwilling to apply to the Tramways Commission for power to do so, as a freight station would then have to be provided, and other conditions would be laid down. The Builders' Exchange passed a resolution favoring the haulage of freight by the company under such conditions as might be mutually arranged. The carrying of public freight by the company ceased in accordance with the notice on April 18. It was reported April 19 that negotiations had been restarted with a view of effecting a settlement. The only freight being carried by the company is its own and a limited quantity for the city council.

Guelph Radial Railway to be Transferred.

The Premier of Ontario stated in the Legislature April 26 that the Government would immediately introduce a bill to validate the bylaw passed by Guelph ratepayers at the last municipal elections confirming an agreement with the Hydro Electric Power Commission of Ontario respecting the Guelph Radial Ry., and the bill was introduced later in the day.

At the municipal elections in Jan. 1920 the ratepayers, following a report by Hydro Electric Power Commission of Ontario's engineers, passed a bylaw to raise $150,000 to put the line in repair and to buy additional rolling stock, the line to be operated as part of the H.E.P.C.O. projected electric railway system. Preparations were made to carry out this agreement, but owing to the raising of questions as to whether bylaws covering the construction of the Hamilton-Guelph-Elmira electric line, authorized the inclusion of the Guelph Radial Ry., and the Government position on the whole of the projected hydro radial lines, culminating in the appointment of a commission of enquiry, the bylaw was not approved by the Government. In Nov. 1920, the city council terminated the agreement voted on in Jan. 1920, and on Dec. 12 approved, for submission to the ratepayers, a new agreement under which the city undertook to sell to the H.E.P.C.O. the whole of the Guelph Radial Ry. Co.'s property and assets for $150,000, payable in 20 instalments of $11,700 each. The city council agreed to bear the cost of acquiring, equipping, maintaining and operating the line as established by the Commission, and to provide the funds therefor, and agreed to issue $300,000 of 5% debentures to be deposited with the Commission either on completion of the agreement or as required. This agreement was confirmed by the ratepayers on Jan. 1, 1921, and it is this bylaw and agreement which the Government now proposes to validate. The Premier is reported to have said in his statement to the Legislature that the Government had neither promised nor obligated itself financially in the undertaking. Having reviewed the situation and the correspondence which had passed, the Premier added: "I do not approve of the bylaw as submitted, but if Guelph is pleased with the agreement the Government will make no objection."

Levis County Ry.'s Position.—Lauson, St. Romualt and Biensille Municipal Councils have refused to vote anything to aid the Levis County Ry. to acquire new rolling stock, and to build new car shops, to replace those burned on Feb. 23. It now remains for the City of Levis to decide what it will do, and if it should come to the company's aid one or two of the other municipalities will probably change their attitude. The company is operating a very reduced service with the cars which were not burned. It has not taken any steps to replace the destroyed building and cars, everything depending on the municipalities attitude.

Montreal Tramways Co. has declared the regular quarterly dividend at the rate of 10% per annum.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—The Brantford, Ont., City Council is reported to have passed a bylaw providing for the issue of $80,000 of debentures to cover the cost of extensions and improvements on the Brantford Municipal Ry., some details of which were given in our last issue. (April, pg. 213.)

British Columbia Electric Ry. — The relaying of tracks on Government St., Victoria, B.C., was started at the beginning of April, and it is expected to have it completed early in May. (Mar., pg. 158.)

Chatham, Wallaceburg & Lake Erie Ry.—The Ontario Legislature's private bills committee has thrown out a bill, promoted by the Chatham City Council, to provide for a survey of the Chatham, Wallaceburg & Lake Erie Ry., with a view to its being taken over by the Hydro Electric Power Commission of Ontario. A deputation of citizens was to have gone to Toronto on March 30 to interview the Government on the matter, but following advices from Toronto that an order in council providing for the survey would be passed by the Government, the deputation did not go. On April 4 the Government passed an order authorizing the Hydro Electric Power Commission to make a report on the railway. The municipalities affected are Chatham City, Wallaceburg Town, Erie Beach Village and Dover, Chatham, Raleigh and Harwich townships. (Sept., 1920, pg. 503.)

Dartmouth-Imperoyal, N.S. — A proposal to build an electric railway between Dartmouth and Imperoyal, N.S., is reported to be under discussion.

Fort William Municipal Ry.—A press report states that when the plebiscite on the fare question is held the Fort William, Ont., ratepayers will be asked to vote on the question of extending the line to Mission Park. The cost of this work is estimated at $20,000. (June, 1920, pg. 316.)

Hamilton St. Ry.—The condition of Wentworth St. South was before the Hamilton, Ont., City Council's work committee recently. This is one of the streets upon which the Hamilton St. Ry. was to relay its tracks. When the company wanted to do so, the city asked that the work be delayed until a sewer was put in; this has now been done, and it is reported that the company is not in a position to get rails for track relaying. The board of control is reported to have asked the works committee to call upon the company to lay new tracks. (April, pg. 213.)

Hydro Electric Ry.—Essex Division.—A press report states that Windsor, Ont., city officials state that paving on Ottawa and other streets cannot be started until the Hydro Electric Power Commission of Ontario is ready to lay the new tracks for the electric railway. The new track work outlined by the Commission includes lines on Ottawa St., Parent Ave. and Erie St., Windsor, and on Monmouth Road, Walkerville. (April, pg. 213.)

London & Port Stanley Ry.—The question of building a bridge at Port Stanley, Ont., inner harbor, come before the Elgin County Council, April 12. It is said that the L. & P.S. Ry. officials and the Board of Railway Commissioners have reached an agreement as to the type of bridge to be erected. The county council in 1919 voted $20,000 for the erection of a swing or lift bridge, but the L. & P.S. Ry. officials favored a fixed bridge at a higher level. (April, pg. 213.)

London St. Ry.—We are officially advised that the company is in the market for a few railway diamonds. C. B. King is Manager, London, Ont.

Montreal Tramways Co. — Some reconstruction work was put under way, between Guy and Mountain Streets, on the St. Catherine St. West line, at the beginning of April.

The construction of a line along St. Denis St. to St. Catherine St. and thence eastward along St. Catherine St., is reported to be under consideration.

Other work for the season is being arranged and it was reported that repairs and construction work would be in full swing by the end of April. (April, pg. 213.)

New Brunswick Power Co.—The St. John, N.B., City Council considered recently a report from Commissioner Frick on the street car tracks, recommending that the company be asked to carry out its obligations as provided for in the following section:—"The said company is hereby empowered to lay and maintain a track and operate its railway upon the route through Queen Square, Carleton, until July 1, 1912, at which time it shall be the duty of the City of St. John, and it is hereby empowered to remove the track, poles, and wires of said company from said square, in case the company shall then refuse or neglect to do so, and shall put the square in as good condition as it was before the track was laid." (Nov., 1920, pg. 616.)

Nipissing Central Ry.—The estimates for the year ending Oct. 31, 1921, submitted to the Ontario Legislature recently, contain the following items for this railway:—

Paving Armstrong St., New Liskeard, $1,089.33.
Residence, Local Superintendent, North Cobalt, $1,803.30.
Car barns and shops (revote $1,000), $4.040.
Distribution system, $1,250.
Passenger cars, $15,803.14.
Service equipment, $2,500.

Nova Scotia Tramways & Power Co.—Residents of the Richmond Heights district of Halifax have asked the company to extend its tracks to Duffus St. At present they terminate at the corner of Kaye and Gottingen Sts. It is said that the route proposed for the projected extension is along North Creighton St., which parallels Gottingen St. (Oct., 1920, pg. 561.)

Winnipeg Electric Ry. is reported to have opened for service its new substation on Sherbrooke St. This is the last of the three-wire substations to be built in the city in connection with the agreement between the company and the city for the prevention of electrolysis. (Mar., pg. 159.)

Quebec Public Service Commission Act. The Quebec Legislature has amended article 736 of the Revised Statutes of 1909, concerning the salary to be paid the Commission's President by increasing it from $7,000 to $8,000. Article 768 i is amended by the addition of a paragraph providing that if the President be not re-appointed at the end of any term of 10 years, he shall be entitled to a pension of two-thirds of the salary he was receiving at the time he ceased to hold office, except that such failure to be re-appointed shall not be due to his refusal to continue in office.

The British Columbia Electric Railway and the Rule of the Road.

The British Columbia Legislature passed an act in 1920 changing the rule of the road, from the British practice to that in most general use elsewhere in Canada. This act became effective July 15, in the principal areas of the province, but was not to be put in force until Dec. 31, 1921, in the area on the mainland and on Vancouver Island within which the B.C. Electric Ry. operates it railways. The purpose of fixing this extension of time was to enable the Government and the company to consider the question of the payment of the cost of changing the company's lines and rolling stock to suit the new rule. The estimated cost to the company of the alterations is put in a recent press report at $1,000,000, of which $750,000 is estimated for Vancouver and vicinity, and $250,000 for Victoria and vicinity.

The B.C. Legislature passed an act at its recent session authorizing the borrowing of $3,550,000, the proceeds to be appropriated among other purpose to the payment of such sums, not exceeding in the aggregate $400,000, as the Lieutenant Governor in council may direct to be paid to the B.C. Electric Ry. towards the cost of making alterations in its track, rolling stock and equipment necessitated by the change in the rule of the road. In the course of the debate on the bill the Minister of Public Works explained that it was originally estimated that the cost to the company of the changes necessitated by the alteration of the rule of the road would be $1,000,000, but later investigations led the government to believe that the change could be made for $800,000. The Government considered that it would be acting fairly by the company by bearing half the cost, the total expenditure of the Government not to exceed $400,000. The company had delayed buying new equipment, and had delayed plans for the improvement of its lines in view of the coming into force of the changes, but with the passing of the act would be prepared to go ahead.

Since the above was put in type we have received the following from a Vancouver correspondent: — The B.C.E.R. Co.'s estimate of the cost of changing its equipment to conform to the change in the rule of the road from left to right was more than twice the $400,000 which the Government has provided. A report is being made to the Government, by an independent engineer, as to whether the company's scheme can be modified and its estimate reduced. It has been announced that the change in the lower portion of B.C. will take place on Dec. 1 next, but is difficult to see how the B.C. E.R.'s equipment can be changed by that time, and whether that is the proper season, in view of the disruption of business which will occur.

Detroit United Ry. Affairs.—Detroit, Mich., ratepayers decided April 4, by a vote of 92,013 to 52,961 not to approve o fthe Detroit United Rys. service at cost offer, and by a vote of 96,539 to 50,704, approved of an ordinance to buy the company's lines as the franchises fall in.

The equipment of the Regina, Sask., Municipal Ry. cars for operation by one man is reported to be proceeding satisfactorily. It was expected to have the White Line equipped during April.

Bill to Change Regulation of Ontario Electric Railway Fares.

A bill to amend the Ontario Railway Act was introduced in the Ontario Legislature by C. McCrea, Sudbury, March 23, and read a first time as follows:—

"1. Sec. 210 of The Ontario Railway Act is repealed and the following substituted therefore:—

"'Notwithstanding anything to the contrary contained in any agreement with a municipal or other corporation or person or in any special act, the fare to be taken by a company on a railway operated by electricity shall first be approved of by the Ontario Railway and Municipal Board, and no fare shall be charged upon such railway which has not been so approved.'

"2. Sec. 231 of The Ontario Railway Act is amended by striking out the words 'within the maximum hereinbefore mentioned' in clause i thereof and substituting therefor 'subject to the provisions of sec. 219,' and by adding to said section the following subsection:—

"'(2) Notwithstanding anything to the contrary contained in any agreement with a municipal or other corporation or person or in any general or special act, the company and the council of any municipality in which a railway is constructed may by agreement with the approval of the board vary the terms under which the said railway is operated without a vote of the electors, provided, however, that no such variation shall have the effect of extending the term of the franchise beyond the limit previously agreed upon.'

"3. Subsec. 1 of sec. 247 of The Ontario Railway Act is amended by inserting after the word 'runs' in the second line thereof the words 'or the company,' and by inserting after the word 'right' in the second line thereof the words 'to give notice.'

"4. Subsec. 4 of sec. 260 of The Ontario Railway Act is amended by adding thereto the followin:—

"'Provided always that unless within 60 days from the said taking of possession by the board the company and the council of the municipality make such agreement as in the opinion of the board will provide an ample and efficient service and enable the company to obtain sufficient revenue to keep the railway in a reasonably safe condition and to meet the working expenditure and such return on the capital actually invested as the said board shall deem fair and reasonable, the board shall, upon application by either the company or the council of the municipality make such order as it deems just and reasonable and such order shall be binding upon the company and the municipality subject to the right of either party to apply for a revision thereof at the expiration of any fifth year thereafter upon giving one years previous notice to the other party.'

"5. This Act shall come into force and take effect on the day upon which it receives the Royal assent."

The bill was read a second time April 1 and referred to the Legislature's railway committee, where it was most vigorously opposed by the City of Toronto and some other municipalities, also by Sir Adam Beck. J. W. Lyon, of Guelph, President of the Ontario Hydro Electric Railway Association, was one of its most vigorous opponents, outside of the Legislature. Mr. McCrea vigorously condemned him for his opposition, and accused him of inconsistency, in view of the fact that the City of Guelph had at the same time a bill before the House to allow fares to be raised on Guelph Radial Railway, which is owned and operated by the city, and which it is proposed to turn over to the Hydro Electric Power Commission of Ontario to operate.

The Railway Committee in considering the bill, defeated it after considerable discussion.

The Canadian Electric Railway Association's Activities.

The C.E.R.A.'s executive committee, which met in Ottawa, April 14, with President, G. Gordon Gale, in the chair, disposed of a considerable amount of routine business.

It was decided to take up the question of uniform coinage with the Finance Department.

The compensation paid by the Post Office Department for carrying mails was considered, and the matter of securing higher rates was left to the President to deal with.

The following were admitted to associate membership:—Canadian Street Car Advertising Co., and Eugene F. Phillips Electric Works, Montreal; Dominion Wheel & Foundries, Toronto; Elliot, Thompson Electric Co., Cleveland.

Replies from member companies, to a questionaire on joint councils, having been considered, the committee expressed its opinion that joint councils between officials and employes of each individual company are desirable, but that extension of these relations beyond that point is not warranted at present.

E. P. Coleman, Dominion Power & Transmission Co.; W. S. Hart, Three Rivers Traction Co.; and Lt. Col. J. E. Hutcheson, Montreal Tramways Co., were appointed a committee to consider and report on the Hydro Electric Power Commission of Ontario's proposed rules for installation and maintenance of electrical supply and signal lines.

A committee was appointed to deal with traffic regulations and accident prevention, the members being A. Gaboury, Montreal Tramways Co., chairman, assisted by Chief of Police Gaudet, Montreal; Major F. D. Burpee, Ottawa Electric Ry., assisted by Chief of Police Ross, Ottawa; R. B. Morley, General Manager, Ontario Safety League, assisted by Chief of Police Dickson, Toronto; and R. Mayne-Reade, Quebec Ry., Light & Power Co., assisted by Chief of Police Trudel, Quebec.

The following officials of member companies were appointed to watch legislation of interest to electric railways, to advice the Association's office in reference to the same, and to act as conveners of committees composed of member companies' officials in the Dominion or provinces, respectively, when joint or concerted action is deemed advisable:—Dominion. Major F. D. Burpee, Ottawa Electric Ry.; British Columbia, G. A. Kidd, B.C. Electric Ry.; Manitoba, A. W. McLimont, Winnipeg Electric Ry.; New Brunswick, J. A. Olive, New Brunswick Power Co.; Nova Scotia, W. L. Weston, Nova Scotia Tramways & Power Co.; Ontario, C. L. Wilson, Toronto & York Radial Ry.; Quebec, W. J. Lynch, Quebec Ry., Light & Power Co.

The London & Port Stanley Ry. will, it is reported, be in the market shortly for an electric locomotive, and a steam shovel.

Electric Railway, Finance, Meetings, Etc.

Montreal Tramways Co. has declared a dividend of $2.50 a share for the quarter ended March 31, payable May 2, to shareholders of record of April 15.

Regina Municipal Ry.—A press report gives the following statistics for March and for the three months ended March 31, compared with the same periods of 1920:—

March.	1921	1920.
Passenger receipts	$32,849.90	$27,918.25
Passengers carried	541,935	580,879
Three months—		
Passenger receipts	$94,596.30	$82,874.60
Passengers carried	1,555,064	1,720,793

Toronto Civic Ry:—

	1921		1920	
	Revenue	Passengers	Revenue	Passengers
Jan.	$50,392	3,025,700	$41,989	3,493,296
Feb.	46,600	2,788,606	39,331	2,334,431
March	53,021	3,159,078	45,434	2,700,264
	$150,013	8,973,384	$126,754	7,527,991

Toronto Ry. Co.—The annual and special meetings of shareholders, which had previously been adjourned several times, were further put off on April 21, to May 27. The reason is that the agreement for the purchase of certain of the company's assets by the Hydro Electric Power Commission of Ontario and the City of Toronto is not ready for presentation to the shareholders.

A press report states that the company owes the City of Toronto $1,052,540.46 for overdue percentages, exclusive of 6% interest.

Winnipeg Electric Ry. and allied companies:—

	Feb. 1921	Feb. 1920	2 mos. to Feb. 28, 1921	2 mos to Feb. 29, 1920
Gross	$460,125	$444,873	$966,354	$943,710
Expenses	363,667	328,205	724,626	693,236
Net	96,458	116,668	241,728	250,474

The surplus for Feb. 1921 after fixed charges was $44,914, against $57,085 for Feb. 1920.

Toronto Street Railway's Gauges Not To Be Changed.

The Toronto Transportation Commission, which will operate the Toronto Ry. after it is taken over by the city in September, and also the Toronto Civic Ry. lines, made the following announcement April 27:—"The question of gauge change has been occupying the attention of the Commission for a considerable time and various plans have been prepared by the staff for changing the gauge, the estimated cost of which has been figured at $1,500,000. The Commission felt that a change of gauge showed no immediate advantage and would be liable to increase the operating difficulties until the work is completed. The financial requirements of the Commission to provide funds for urgent rehabilitation will be heavy, and they felt the necessity in view of existing financial conditions, of keeping their expenditure down to the lowest possible figure. The advantage of gauge change, viewed in the more distant future, was not sufficiently tangible to warrant the Commission in assuming the extra expenditure at the present time."

The Commission's chairman, P. W. Ellis, supplemented the foregoing statement, as follows:—"We looked at it from every angle, and came to the conclusion that the advantages of retaining the present gauge outweighed those of changing it. We took into consideration the confusion and interruption of service which would follow the proposed

change, with traffic under full headway. Take just one problem involved in making such a change, that of intersections. These would have to provide for both standard and wide gauge cars while the work was in progress. If we changed one part of a route we would have to change it all, or else transfer the passengers. It was going to inconvenience car users for a long period of time, and we decided against it."

The gauge of the Toronto Ry. and Toronto Civic Ry. lines is 4 ft. 10⅞ in. The Toronto & York Radial Ry. lines, which are proposed to be taken over by the Hydro Electric Power Commission of Ontario, except the portions of them within the city limits, which will be taken over by the ci a,tyhvet ETAO taken over by the city, have two gauges. The Mimico Division, from Toronto west to Port Credit, 9.74 miles, and the Scarboro Division, from Toronto east to West Hill, 10.18 miles, are 4 ft. 10⅞ in. gauge; the Metropolitan Division, from Toronto north to Sutton, 52.13 miles, is 4 ft. 8½ in. gauge.

The Toronto Suburban Ry., which is owned by the Dominion Governmbent, and operated by the Canadian National Rys., has lines in the western portion of Toronto, with interurban lines from Toronto to Woodbridge, 12.02 miles; and from Lambton Jct. to Guelph, 46.3 miles; its total mileage being 64.02. All its lines are now 4 ft. 8½ in. Its original lines in Toronto were 4 ft. 10¾ in. The Woodbridge extension was built as 4 ft. 8½ in., but afterwards widened to 4 ft. 10¾ in. Towards the end of 1916 the gauge on all lines was narrowed to 4 ft. 8½ in. except the Lambton-Guelph extension, which was built to that gauge.

Proposed Purchase of the Ottawa Electric Railway.

The Ottawa City Council passed a resolution, April 5, asking the Hydro Electric Power Commission of Ontario to make a valuation of the Ottawa Electric Ry. and to advise as to the city's policy regarding the future operation of the railway; the cost of improving the condition of the line and providing a service that would be satisfactory to the city. A similar resolution was passed by the council on a previous occasion, but the company refused to allow such an investigation, arguing that the agreement between the company and the city calls for the appointment of arbitrators to fix the value of the property. The council is reported to have been advised that the company's concurrence in an investigation by the Hydro Electric Power Commission of Ontario is unnecessary, although it would facilitate the enquiry.

A series of three addresses by authorities on electric railway matters to the members of the Ottawa Board of Trade was arranged for recently. The first of these was delivered April 6, by D. F. Wilcox, of New York, who was appointed by the United States Government during the Wilson administration, to report on the condition of radial railways throughout that country. He spoke on municipal ownership. The other addresses are to be by E. I. Lewis, Chairman of the Indiana Public Service Commission, on private ownership; and W. E. Cann, Toledo, on service at cost.

Niagara, St. Catharines & Toronto Ry. started May 1 to operate its electric cars on daylight saving time.

Mainly About Electric Railway People.

A. Beaudry, the newly appointed President of the Quebec Public Service Commission, took his seat at the Commission's sitting in Quebec March 29, when he read the official notice of his appointment.

T. Blundell Brown, one of the directors of the British Columbia Electric Ry. in London, Eng., is on a visit to the company's properties, and will spend several weeks at the Pacific coast, before returning to England.

R. Colwell, heretofore in the Winnipeg Electric Ry.'s service, has been appointed Superintendent, Edmonton Radial Ry., Edmonton, Alta., at a salary of $3,600 a year. W. Brunless, who has been acting as Superintendent since the resignation of Superintendent Moir, has reverted to his own position of track foreman.

John Whitsell,
Manager, Winnipeg Electric Railway.

Geo. Kidd, General Manager, British Columbia Electric Ry., addressed the company's head office social club recently on the British Empire.

Geo. McGregor, Superintendent, London & Port Stanley Ry., is reported to have been relieved of his duties on April 15, following an investigation into a collision on the line Mar. 28.

E. W. Oliver, General Superintendent, Niagara, St. Catharines & Toronto Ry., Toronto, spent about a month in Bermuda recently.

S. F. St. Cyr, Chairman, Montreal Tramways Commission, addressed the old pupils of the Montreal Polytechnical School on the Montreal tramway system recently.

John Whitsell, whose appointment as Manager, Winnipeg Electric Ry., Winnipeg, was announced in a recent issue, and whose portrait appears in this issue, was born in Iowa, Nov. 30, 1868, and entered transportation service in 1881, since when he has been, to 1897, shop foreman, Sioux City Traction Co., Sioux City, Mich.; 1897 to 1900, shop foreman, Suburban Railroad Co., Chicago, Ill.; 1900 to 1913, General Superintendent, same company, Chicago; 1913 to 1917, Superintendent of Equipment, and General Superintendent of Transportation, County Traction Co., Chicago; 1917 to 1920, General Superintendent, Chicago & West Towns Ry., Chicago; 1920 to March 1921, General Superintendent, Chicago & Interurban Traction Co., Chicago.

Transportation for the Blind on Montreal Tramways.

Lt. Col. J. E. Hutcheson, General Manager, in response to an enquiry, advises Canadian Railway and Marine World that a blind person when travelling on the company's cars, accompanied by a guide, is carried for one fare, including the guide. The following notice has been issued by the Superintendent:—

"Conductors will note the attached sample pass of certificate of the blind. Presentation of this pass will authorize conductors to accept one adult fare in payment of passage of two passengers, viz., a blind person and his guide. You will note that this certificate is valid only after it has been countersigned by the principal of a blind institute. You will, therefore, examine both sides of these certificates every time one is presented."

The pass, which is printed in both English and French is about 4 x 2½ in., the English wording being as follows:—

Front.

TRAMWAYS
Certificate of the Blind.
No.....

To Conductor,—
Accept from .....
One adult fare only for bearer and guide.
A. GABOURY,
Supt.

Back.

Not valid unless countersigned by Principal of Institute of the Blind.

.....
Principal.

.....
Institution.

Electric Railway Employes' Wages, Working Conditions, Etc.

London St. Ry.—The Ontario Railway and Municipal Board is endeavoring to bring about the return of the London St. Ry. to the company's officers for operation. The question round which controversy centers is that of wages. The men are reported to have asked for an agreement with a rate of wages reaching 52c. an hour, to which request the company replied that it was not prepared to renew the existing contract which gives 48c. an hour, with whatever further grant the Ontario Railway and Municipal Board, which is operating the road, can pay out of surplus earnings. The company's position is that unless it is granted an increase of fares, it cannot do anything in the way of increasing wages. The London City Council will, it is reported, not take any action towards granting an increase, and the men, it is stated, will, unless some arrangement is made, go on strike.

Ottawa Electric Ry. — The wages agreements between the company and its car employes expired April 30. The employes union asked for alterations in working conditions which would shorten the hours without reducing the day's wage. The management pointed

out that present conditions do not allow of any changes in the hours of labor, although it was admitted that working conditions could be improved. The company's position in its relationship to the city is uncertain, and should be considered. The union is reported, after considering the management's statement, to have decided to continue at the present wages for a year unless an arrangement is arrived at between the city and the company on the franchise question. A new agreement on this basis is, a press report states, being settled, some minor details as to working conditions being in course of arrangement.

Toronto Transportation Commission Places Large Car Order.

The Toronto Transportation Commission has ordered from Canadian Car & Foundry Co., Montreal ,100 motor cars and 60 trailers, for use on the Toronto Ry., which will be taken over by the city in September, and on the Toronto Civic Ry., which will also come under the Commission's jurisdiction. The amount of the contract is about $1,270,000, which covers only the car bodies and trucks, and not the electrical equipment, air brake material, etc., the final details of which are not yet decided upon. It is expected that the prices to be paid for this equipment, when added to the price of the cars themselves, will enable the commission to obtain the cars complete, delivered in Toronto, at an average unit cost of between $17,000 and $18,000.

The cars are to be of all steel construction; the motor cars will be 51 ft. 8 in. long over all, and 8½ ft. wide, and the trailers will be the same width, but approximately 49 ft. long. The new cars will therefore be larger than the double truck cars now being operated by the Toronto Ry., which are approximately 45 ft. long.

The interior arrangement of both cars and trailers, and the means by which passengers will enter and leave, will differ substentially from the Toronto Ry.'s cars, and the design of the new motor cars and trailers themselves will differ largely also, in so far as the entry and exit of passengers is concerned, although the interior arrangement of both will be similar.

The motor car interior will be divided into two sections. The front section will be equipped with longitudinal seats, along each side of the car. The entrance for passengers, instead of being at the rear of the car as with the present equipment, will be at the front, the entrance doors being of the folding type, operated by air pressure, with the width of opening such that two passengers may enter at the same time. These doors will be interlocked with the controlling mechanism in such a way that power to move the car will not be available until the door are closed. The fares will not be paid on entry, but the conductor and fare box will be located at the center of the car so that, if the passenger remains in the front section of the car during the journey, the fare will be paid while he is leaving the car by the side door exit, or if he rights in the rear portion of the car, the fare will be deposited as he is passing from the front to the rear section. In the rear section, the longitudinal seats will be replaced by the standard arrangement of double transverse seats on each side, in addition to which there will be a bench seat at the back, conforming to the shape of the rear of the car body. Exit from the rear section will be by a side door on the right side of the car looking forward, this door also being air operated and electro-pneumatically interlocked with the controlling apparatus so that the car cannot be moved until the passenger is off and the door closed. The normal seating capacity of the car will be 57 persons.

The trailing cars will also be divided into two sections, with the seating arrangement similar to that of the motor cars, but entry will be by means of a side door opening into the forward section. The fare box in the trailer will be located so that the fare may be paid while passing from the front to rear section of the car, or while leaving the front section by the side door exit, the same as in the motor car. The entry and exit side doors of the trailer will be on the same side of the car and close to each other. Although the trailer will be shorter than the motor car, its seating capacity will be greater, accommodating 61 persons, which is explained by the fact of the controlling apparatus and space for the motorman taking up a certain amount of the space of the motor car.

The Toronto Ry.'s trailers are of the short single truck type, and for that reason less comfortable than the ordinary cars, but the new trailers will be substantially of the same type of construction as the motor cars, and fully as desirable from the travellers' point of view. The new cars will be ventilated by forced draught, and electrically driven fans, and equipped with modern electric heating equipment. The familiar straps will be replaced by a low hanging bar extending the length of the car. The cars and trailers will be connected by automatic couplers.

The Toronto Ry. cars are not equipped with air compressors, compressed air being supplied from compressors located at various points throughout the city, the cars stopping opposite the street connection to the reservoir supplied by the stationary compressor, when the reservoirs on the cars are connected up and air turned into them until the pressure equalizes. This supply of air must then suffice to operate the brakes, and, on the cars so equipped, the pneumatically-operating doors, until the next stationary supply of compressed air is reached. The new cars will be equipped with electrically driven air compressors, and storage reservoirs, thus obviating the stops to charge the car reservoir from the stationary supply. The trailer will also be equipped with air brakes, the brakes on both cars operating simultaneously, in accordance with the position of the motor's brake valve. Taking into consideration this feature, and the automatic coupling feature, the combined equipment will be more in the nature of a two-car train, rather than a simple car and trailer as known heretofore in Toronto.

Many special features will be included in the new equipment. All interior lights will be shaded, and in front, in addition to the headlight, will be a signal light, which will light up automatically as soon as the doors close and the car is ready to proceed. The information thus given will be of value to traffic officers at street intersections. At the rear will be two signal lights, designed to be of assistance to motorists; one will be red and show when the car is stopped, or when the power is shut off to make a stop, and the other light, green, will show when the car is moving or about to start, both lights being cut in and out automatically. The gearing through which the drive from the motors to the axles will be transmitted will be of the spiral type ,obviating a great deal of the noise incidental to the old style mesh; the electrical equipment will provide for quick starting and rapid acceleration.

Prior to the placing of the contract, there had been a great deal of agitation among various bodies in Toronto to have the new equipment built in the city. However, in the absence of any modern plant equipped for the work and able to do it at a cost comparing at all favorably with the prices of outside contractors, this was impossible. The proposition for the Transportation Commission to build its own cars, which would involve all the overhead and direct costs of a complete plant, distributed over an output restricted to the Commission's requirements, was out of the question. The specifications for the electrical equipment and air brake and other devices are now nearing completion, and the expectation is that the contract for these will be let in the near future. The color of the cars is still undecided on, and it is probable that the design as projected at present will be subject to minor changes before construction begins.

Toronto transportation problems has for long been recognized as a difficult one, the congestion in the main thoroughfares being very severe during the rush hours. The new cars, designed to afford the greatest rapidity in loading and unloading, together with greater capacity, should help the situation materially. Delivery is expected to begin about Sept. 1.

Electric Railway Notes.

Sudbury-Copper Cliff Suburban Electric Ry. is reported to have introduced p.a.y.e. cars.

The Dominion Parliament has authorized the directors of the Oshawa Ry. to fix the date upon which the annual meeting of the shareholders is to be held. The Oshawa Ry. is owned by the G.T.R.

The Grandview, B.C., Chamber of Commerce has, through the Vancouver Police Committee, protested against the skip-top plan adopted recently on some of the British Columbia Electric Ry.'s lines.

At a meeting of the London, Ont., City Council, April 18, an alderman gave notice of motion to ask the Hydro Electric Power Commission of Ontario to negotiate for the purchase of the London St. Ry. Co. property.

The London & Port Stanley Ry. will, it is reported, operate its electric car service between London and Port Stanley during the summer in connection with the Cleveland & Buffalo Transit Co.'s steamers, which will call at Port Stanley.

A press report states that A. W. MacAlister, K.C., heretofore English clerk in the Attorney General's Department at Quebec, is reported to have been appointed as successor to Sir George Garneau, as a member of the Quebec Public Service Commission, Sir George having resigned.

Marine Department

The Minister of Marine's Statement on Canadian Government Merchant Marine.

The following is the first official and correct report to be published of Hon. C. C. Ballantyne's speech in the House of Commons on March 29, in moving the House into committee of supply, the report in the House of Commons Debates, unrevised edition, having contained some inaccuracies:—I desire to place before the members particulars concerning the operations of the Canadian Government merchant ships during the year ended Dec. 31, 1920. I thought it well to do so at this time in order that members may be in possession of the facts and they will be in a better position, after a perusal of the official report of my remarks, to ask whatever questions they may deem proper when the House is again in committee of supply. If agreeable to members, I suggest at the outset that they be good enough to allow me to finish without interruption whatever I have to say. When we are in committee of supply I will, to the very best of my ability, and with the greatest pleasure, give the fullest information regarding the operations of the Canadian Government Merchant Marine.

Reasons for Building:—When, on April 4, 1918, I had the honor of announcing to Parliament the Government's shipbuilding programme, I gave the reasons which impelled us to enter upon such an undertaking. Although it may be a repetition of what I then said, I shall now briefly restate the reasons which caused the Government to create a Canadian Government merchant marine. During the spring of 1918, the war was at its most critical period, and losses in shipping tonnage throughout the world were very grave. Indeed, so serious was the situation at that time that it amounted to a race between the enemy submarines and the shipbuilding yards of the British Empire, in the one case to destroy allied tonnage as rapidly as possible, and in the other to make good, as far as possible, that loss of tonnage. In the first place, therefore, this Government thought it wise to enter upon shipbuilding as a war measure. Before that decision was reached, the British Government was utilizing our steel shipbuilding yards throughout the Dominion for the construction of steel ships for its own purposes, which ships were under British registry, the Canadian Government providing the necessary funds. However, as these ships were being built for the mother land, and under British registry, the moment they were ready to be put into commission they would necessarily pass into the possession of the British Government to be utilized by it in the way it might deem best. The Dominion Government, therefore, came to the conclusion, and its decision received the unanimous approval of the House at that time, that it would be better for Canada, in the national interests, seeing that she was financing the construction of these ships that were being built for the British Government, we should build ships under Canadian registry and for the benefit of the Canadian people. Accordingly our first reason for entering upon the shipbuilding programme at that time was the imperative need of providing shipping to make up the immense losses that were occurring almost hourly during the most critical period of the war. The second reason for embarking upon this policy was that the Government owned a large system of railways, amounting to about 18,000 miles, and which will be increased to something like 23,000 miles if the acquisition of the Grand Trunk goes into effect. Having this vast system of national railways, the Government deemed it necessary to complete the chain of transportation by providing ships to carry the cargoes that would be transported over this immnese railway system to our seaports for exportation. The third, but by no means the least important, reason for the construction of these ships was to enable Canada to expand her export trade; and as I proceed with my remarks members will see that the Canadian Government Merchant Marine has performed a very great national work in opening up new trade routes and in helping to develop and expand the export trade of the Dominion. No new contracts for ships have been let since 1919. I have noticed from time to time that the Canadian press, and occasionally some gentlemen engaged in banking, the presidents of our large financial institutions, have called upon the Government not to build any more ships, expressing the opinion that the time had arrived when shipbuilding by the Government in this country ought to cease. I find no fault with these financial gentlemen except to say that when they made such appeals they seemingly were not aware that the Government had not placed any new contracts for the construction of ships since 1919, but was simply carrying to completion its original shipbuilding programme. Some of those who made this demand were of the opinion that when the armistice was signed the Canadian Government should not have given any more contracts for ships. I explained to the House last year, and I repeat the statement, that the Government's reason for continuing the shipbuilding programme was the serious labor conditions that existed throughout Canada at the time of the signing of the armistice, and which conditions prevailed through the year 1919. Thousands of skilled and unskilled workmen were out of employment; and as, at that time, hundreds of thousands of our brave men were returning from the front, the Government felt that it was its plain duty to carry on shipbuilding, and to give employment not only to the men then needed in the industry, but to others who were likely to require work, and especially the returned soldiers, that from the point of view of making provision for unemployment it would be a wise policy for the Government to continue its shipbuilding programme. I hope the House will pardon me if, from this point, I adhere somewhat more closely to my notes in order to afford members that detailed statistical information which is so imperatively necessary in connection with this important matter.

Falling Freight Rates. — The year 1920, as was generally anticipated, proved unsatisfactory to shipping interests the world over, more especially from the point of view of net earnings. The loss of tonnage that had been sustained during the war was more than overtaken, with the result that there had been throughout the year a surplus of available tonnage. The world tonnage at the commencement of the war was about 49,000,000 tons. The available world tonnage at present is about 65,000,000 tons. The costs of operation that had reached abnormally high proportions during the war and to which reference will be made later, continued throughout the year. That, taken in conjunction with the substantial decline in freight rates from those of the previous year, added very materially to the difficulties with which shipowners had to cope. During the year there was a very severe decline in freight rates from United Kingdom ports over well defined routes, such as those to India and South America. While the decline in trans-Atlantic rates to U.K. ports was not so acute, it was nevertheless very substantial, and had a marked effect on the earnings of vessels. For instance there has been a decline of 65% in the rate on flour; on grain 61%; on deals 55%; on cereals 48%; and on apples 41%. On cargoes from Canadian ports to South American ports decreases have averaged from 17 to 50%. On cargoes to India there has been a decline of 20% in the comparatively short time since the route was established. From British Columbia ports to Australia there has been a steady decline averaging between 15 and 35%. On the one article of lumber the decline over the rate for 1919 was, during 1920, at least 25%.

Over all the principal trade routes, both trans-Atlantic and trans-Pacific, there has been a corresponding decline in freight rates, and while shipping companies during that time had to contend with the highest operating costs ever

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

known, they were also faced with the problem of smaller cargo offerings than had been the case for many years. As an indication of the enormous extent to which operating costs have increased in recent years, I may point out that the percentage of increase in the prices paid for the principal requirements as between the years 1914 and 1920 has been approximately as follows:—Coal 133%; provisions 100%; oils, etc., 100%; paints 125%; rope 100%; general deck and engine stores 100%; wages 300%. So acute is the depression in shipping that for some considerable time there have been lying idle in different ports of the world a very large number of British ships, and at the present time there are lying idle 536 steel steamships of United States registry, in addition to nearly 300 wooden ships of the same registry. Under all these unusual conditions the Canadian Merchant Marine may well be considered to have had a very satisfactory year, the results of which I shall place in more detail before the House.

Number of Ships.—The next matter of interest I wish to bring before the House is the number of ships that the Government owns. When I made my statement in connection with the shipbuilding programme to the House last session there were 24 ships completed and in commission as follows:—7 of 8,300 tons each; 4 of 5,100 tons each; 4 of 4,500 tons each; 8 of 3,500 to 3,900 tons each; 1 of 2,800 tons. The approximate tonnage of these ships is 129,000 tons. Since that time 23 additional ships have been completed and put in commission as follows:—9 of 8,300 tons each; 4 of 5,100 tons each; 4 of 4,500 tons each; 4 of 3,500 to 3,900 tons each; 2 of 2,800 tons. These have an approximate deadweight tonnage of 131,000 tons. There are therefore now in commission 47 ships of the following types:—16 of 8,300 tons each; 8 of 5,100 tons each; 8 of 4,500 tons each; 12 of 3,500 to 3,900 tons each; 3 of 2,800 tons each; of an approximate deadweight tonnage of 259,783 tons. There remain to be completed 16 ships of the following types:—2 of 10,500 tons each; 9 of 8,300 tons each; 5 of 3,500 to 3,900 tons each. These will have a deadweight tonnage approximately 114,470 tons. The entire programme when completed will comprise 63 ships of the following types:—2 of 10,500 tons each; 25 of 8,300 tons each; 8 of 5,100 tons each; 8 of 4,500 tons each; 17 of 3,500 to 3,900 tons each; 3 of 2,800 tons each. The approximate deadweight tonnage of all of these ships when completed will be 374,254 tons. Seven of these ships are being equipped with oil fuel installation and 13 of them will be provided with refrigeration spaces.

It will be recalled that for the purpose of the shipbuilding programme $20,000,000 was voted for the present fiscal year. Of that amount there has been expended $14,684,513.99. It is estimated that before the end of the fiscal year a further sum of $650,000 will be expended, making a total expenditure for the year of $15,334,513.99. It therefore follows that, of the amount of $8,000,000 which will be required to complete the programme, $4,665,496.01 is a revote.

Cost of Ships.—The average cost of construction of all ships under the Government shipbuilding programme figures out at $191.95 a d.w. ton. The average cost of the ships built by the United States Shipbuilding Board has been stated in a recent official communication to be about $215.00 a d.w. ton. So that, on a much smaller programme, our cost compares very favorably indeed with the cost of construction of similar steel ships by our friends to the south, being nearly $24 a ton less than theirs.

With regard to the costs of operation, a comparison of Canadian Government wage costs with like costs, of operating similar ships by Great Britain, the United States, Japan, Norway and France, is as follows:—The monthly wage cost of a Canadian Government merchant marine ship of 8,100 tons d.w. which carries a crew of 41, including 2 boys, is $3,705. Published figures from an authentic source (bulletin issued by Dow, Jones & Co., New York) show the monthly wage cost of foreign ships of similar tonnage as being, for British ships $3,924; United States, $5,315; Norwegian, $3,378; and Japanese, $2,869.

I would like to give the House particulars of the number of officers and men employed on our Government ships at the end of 1920. All told the number was 1,674, comprising:—Masters 48; officers 138; engineers 183; ordinary seamen, firemen, stewards, etc., 1,305; total, 1,674. Total number Canadian by birth or adoption:—Masters 30; officers 57; engineers 129; ordinary seamen, firemen, stewards, etc., 652; total, 868. Total number British: Masters 18; officers 81; engineers 54; ordinary seamen, firemen, stewards, etc. 653; total, 806. Grand total, 1,674.

Routes and Sailings.—I think it will interest the House also to be given some information in regard to the routes upon which these ships are plying. They are as follows:—Fortnightly sailings, Canada to Liverpool, Canada to London, Canada to Barbados, Trinidad and Demerara. Three-weekly sailings, Canada to Glasgow, Canada to Nassau, Kingston and Belize, Canada to St. John's, Newfoundland, via Charlottetown, P.E.I. Monthly sailings, Canada to Cardiff and Swansea, Canada to Pernambuco, Santos, Rio de Janeiro, Montevideo, and Buenos Aires, Canada to Havana, Cuba, Canada to Liverpool, via Sydney, N.S., Canada to Mediterranean, Straits Settlements, Java and India, Canada to Australia and New Zealand, Vancouver to Straits Settlements, Java and India, Vancouver to Australia (direct), Vancouver to New Zealand (direct).

During 1920 new routes have been opened up and allocations of steamers made as follows: (1) Montreal-Glasgow service; established Jan. 23, 1920; sailings every three weeks; allotted three 4,300 ton ships. (2) Vancouver-Australia and New Zealand service; established Feb. 23, 1920; monthly sailings; allotted five 8,100 ton ships. These ships call, east and west bound, at Wellington, Auckland, Sydney and Melbourne. (3) Montreal-Cardiff and Swansea service; established July 3, 1920; monthly sailings; allotted three 4,300 ton ships. (4) Montreal-India and the Orient service; established Sept. 11, 1920; sailings every two months; allotted two 8,100 ton ships. (5) Halifax and St. John-Nassau, Kingston and Belize service; established Dec. 8, 1920; three-weekly sailings; allotted two 5,100 ton ships.

In accordance with the trade agreement concluded during the year with the British West Indies it was decided to equip two of the 5,100 ton ships then under construction with passenger accommodation, in consequence of which a regular service every three weeks has been established between Canada and the Bahamas, Jamaica and British Honduras. The delegates at the very important conference held in Ottawa in June, 1920, to negotiate a preferential trade agreement between Canada and the West Indies, particularly the delegates from the Bahamas, Jamaica and British Honduras, claimed that they were very short indeed of passenger services. I informed them, as your Minister of Marine, that the Government did not own or intend to build any passenger ships, but the delegates were very much interested in the matter and continued their pressure upon me and the other representatives of the Government, requesting us to equip, if possible, some of our freight ships with a limited passenger accommodation. I pointed out to them that I did not think it would pay to equip freight ships with a limited passenger accommodation and to operate them on such a long route as that of Halifax to the Bahamas, Jamaica and British Honduras and back over the same route in the winter, and from Montreal in the summer. The representatives from the West Indies then said that if it did not pay, the countries they represented would each contribute a certain amount. I am sorry I have not before me the amount that each of the Islands stipulated in the agreement that it would be willing to pay, but if my memory serves me correctly the amount in all would be about £13,000. We cannot tell at present whether or not this new route will pay, but judging from one or two voyages that the ships have made, it looks as if it might break even. I would not, however, be prepared to make that as a positive statement; we shall have to wait until the end of the fiscal year. While the accommodation provided is for but 26 cabin passengers to each ship, it is of such an excellent character that it attracts a full passenger list for each sailing. Full cargoes also have been carried, and it is confidently expected that the regularity and character of the service generally will build up a profitable business in the interchange of the products of these British possessions and Canada. The first ship on this route sailed from Halifax on Jan. 25 last, with a full complement of passengers, and a general cargo of flour, potatoes, oats, cement and general merchandise.

Trade Development.—The House and the country generally, and the exporters of Canada in particular, will be interested to know what these ships are capable of doing in the way of expanding Canada's export trade. In this connection, I regret to have to express my disappointment with the efforts so far made by the Canadian manufacturer and exporter. These ships have been equipped with one or two extra passenger cabins in order that Canadian business men might either go themselves to these British possessions and foreign countries, or send their commercial agents. While the showing of exports is not a bad one so far, I would like again to make an urgent appeal to Canadian manufacturers and business men to reach out more aggressively for export trade. I said last year, and I say it again, that if Canada is to wipe out her immense war debt within a reasonable time, Canadians must not only look after the home trade but reach out aggressively for foreign markets. We have provided this magnificent fleet of freight ships and these new routes have been opened up. No old established steamship company would take the chance that the Government

ships have taken in opening up one new route after another; the old companies would naturally hesitate and first try to ascertain whether or not it would be profitable to put ships on the various new routes to which I have referred. But these ships are Canadian ships, built in the national interest. The Government has never attempted, and, I hope never will attempt, to interfere in the management of the ships; all I have said to the management, as the responsible minister, was, that they should make all the money they could, at the same time keeping the national interest in mind and assisting the Canadian people in every way to export the products of fishery, forest, farm, mine, and factory. Canadians, therefore, have reason to be proud that they possess this immense fleet of new ships going to all corners of the world, and making a very creditable showing, to which I shall refer in a moment. But the great feature of a Canadian merchant marine is the fact that this country can say: We want this ship, or so many ships, run on whichever route we think there is a possibility of Canada obtaining trade and thus expanding her export business.

Exports.—The principal exports of Canadian products by the Canadian Government Merchant Marine ships have been:—From Atlantic ports to Malta, Barcelona, India, Ceylon and Java. From Atlantic ports to Liverpool, London, Glasgow, Cardiff and Swansea. From Atlantic ports to the British West Indies, Cuba and South America. To Australia from Vancouver. To Newfoundland from Montreal and Halifax. The exports to Malta, Barcelona, India, Ceylon and Java consisted of iron and steel products, glass, furniture, agricultural implements, rubber goods, automobiles, grain, flour, etc. To United Kingdom ports the exports have been grain, flour, cereals, canned goods, bacon, cheese, apples, pulp, paper, lumber, iron and steel, machinery, implements, etc. To the British West Indies the products exported have been cement, flour, trunks, iron and steel products, paper, machinery, furniture, etc. To South America the exports have been pulp and paper, malt, agricultural implements, dried fish, steel products, lumber, etc. To Cuba exports have consisted mainly of pulp and paper, malt, flour, hay, lumber, fish, potatoes, whiskey, oats and cement. To Australia there have been exported from British Columbia ports, lumber, paper, cement, fish, machinery, rubber goods, etc. From Montreal and Halifax to Newfoundland, there have been exported flour, hay, oats, paper, cheese, cement, etc. The importance of the merchant marine to Canadian trade cannot be too strongly emphasized. Canadian goods to the value of over $50,000,000 have been transported during the year in Canadian-built ships, each named ship with its prefix "Canadian" being the best advertisement for Canada in the principal markets of the world.

Operating Results.—I have now arrived at what, I presume, will be the most interesting part of my statement this afternoon, and that is: What results have been obtained from the operation of these ships during the past calendar year? I will, therefore, proceed at once to give this information to the House. It is as follows:—

Operating Account for 1920.

Gross revenues closed voyages		$10,027,442.77
Operating expenses		8,733,917.22
Operating profit closed voyages		$ 1,293,525.55
Deduct—		
Depreciation	$667,665.46	
Outstanding liabilities	22,000.00	
Incorporation expenses	5,400.00	
		695,065.46
Net earnings closed voyages		$598,460.09
Net earnings on voyages closed since January applicable to 1920		183,000.00
Total net earnings		$781,460.09

These net earnings are before providing for interest, and the above amount of net earnings, $781,460.09 is equal to 2.35% interest on notes given to the Government for the full cost of the ships.

F. S. Cahill, Pontiac, Que., asked:—What does the Government pay for the money? Mr. Ballantyne continued:—The rate of interest varies, depending on the time at which loans are made. When these Government ships are ready to be put into commission, they are turned over to the operating company and charged to that operating company at cost price, which I gave a few moments ago as $191.95 a d.w. ton. The operating company gives the Dominion Government its promissory notes for the ships. The following is a statement of the assets and liabilities:—

Canadian Government Merchant Marine Ltd. and subsidiary companies consolidated balance sheet as at Dec. 31, 1920.

ASSETS.

Fixed assets—		
Ships at cost	$50,005,892.71	
Less depreciation reserve	815,841.32	
		$49,190,051.39
Plant and equipment at cost	$ 27,243.25	
Office furniture at cost	29,128.66	
	$56,371.91	
Less depreciation reserve	2,818.60	
		53,553.31
Total		$49,243,604.70
Current assets—		
Cash in banks and on hand		$ 426,816.02
Accounts receivable		1,750,161.36
Advances to captains, crews and agents		54,605.09
Adjusted losses due by underwriters		67,860.82
Insurance claims, estimated amount recoverable		686,805.51
Interest receivable accrued		4,583.33
Inventories of stores and supplies		44,821.84
Dominion of Canada Victory Loan 1934		500,000.00
Total		$3,535,653.97

LIABILITIES.

Capital stock—	
Authorized 10,000 shares of $100 each, $1,000,000; issued, 4,709 shares of $100 each	$ 470,900.00
Notes payable—	
Due Dominion Government secured by mortgages on ships	49,535,892.71
Current liabilities—	
Accounts payable	1,712,803.03
Open voyages—	
Balances of uncompleted voyages	963,820.65
Surplus	1,004,233.01
Contingent liabilities (non ascertained)	
	$53,687,649.40

As regards current assets, members will, I am sure, note with pleasure the strong liquid position of the operating company. No bank loans are shown, and the company is in an easy position financially.

T. Vien, Lotbiniere, Que., having asked: Are the ships insured? Mr. Ballantyne replied: Yes. Insurance premiums alone for 1920 amounted to over $1,000,000, and they are included in operating expenses. The ships are insured up to 80% of their original cost.

Mr. Vien asked: How is the depreciation calculated? Mr. Ballantyne replied: I have the information here; but it is somewhat technical, and if the member will ask me that question again when we get into committee on the estimates, I shall be glad to give him the details.

Mr. Vien then asked: When we come to that in the estimates, will the Minister be prepared to tell us the current value of the same type of ships in the markets of the world? Mr. Ballantyne continued: I am quite sure that the figures I am giving are absolutely correct. Not only have they been certified to by the company's auditor, but I asked a well known firm of chartered accountants, outside altogether of the operating company, to give me the usual statement that appears when an annual balance sheet is issued. The certificate of these auditors, the well known firm of Marwick, Mitchell & Co., reads as follows:—

"We have audited the accounts of the Canadian Government Merchant Marine, and its subsidiary companies for the year ended Dec. 31, 1920, and have obtained all the information and explanation which we have required. We certify that the above consolidated balance sheet and relative operating and surplus accounts are in our opinion properly drawn up so as to exhibit a true and correct view of the state of the company's affairs as at Dec. 31, 1920, and of its operations for the year ended at that date, according to the best of our information and the explanations given to us, and as shown by the company's books, subject to the explanation that no provision has been made in respect of accrued interest on notes payable due to the Dominion Government for 1920, as the amount of same may be subject to adjustment."

The Outlook.—I want to say a word or two in regard to the present outlook. While there is a business reaction throughout the world, I am under the impression that this is only of a transitory character, and that we can look for a considerable improvement in trade in the very near future. While freight rates may be expected to still further decline, this will be offset by much lower operating costs, and with the acquisition of the Grand Trunk Railway system, this additional mileage added to the lines which the Government now own and operate, will make in all 23,000 miles, and will act, I hope, as a constant feeder to the Government ships.

Shipbuilding conditions throughout the world are quite similar, owing to the lack of demand for tonnage. Canadian shipbuilders, therefore, are experiencing the same depreciation that is being experienced in other countries. Canadians have demonstrated that they can build ships equally as good, and, during the past few years, at as low a cost as the old and experienced yards in the United Kingdom. Freight ships today of 8,400 d.w. tons corresponding to the Government's type would cost in the United Kingdom about £29.10s. a ton, equal to $130 at the present rate of exchange. I have had no need to ask Canadian shipbuilders recently for a price to build steel ships, but I have every reason to believe that the Canadian price would not be any more than $10 or $15 a ton higher than the United Kingdom price which I have just quoted. The Government still has under consideration the question of a subsidy as an aid to stimulate steel shipbuilding in Canada, and it may be that an announcement in that connection will be made by the Finance Minister when he brings down his budget.

Conclusion.—As I have already stated, by July next all the Government ships will have been completed and placed in commission, and Canada will have reason to be proud of her merchant marine modern freight ships.

I first had the privilege of announcing the Government's shipbuilding programme in the House of Commons on April 4, 1918. The Government's ship-

building policy at that time received the unanimous approval of Parliament, and I was particularly pleased on that occasion to receive such warm words of commendation from that distinguished statesman whose word carries such great weight in this House and throughout the country, the member for Shelburne and Queen's (Mr. Fielding). My thanks are also due for the words of commendation uttered on that occasion by the member for Maisonneuve (Mr. Lemieux) and the late member for Prince County, P.E.I., Captain Read.

The creation of a Canadian Government merchant marine has been warmly endorsed by people from one end of the country to the other, and even if these ships in the future are not able to continue to make the good showing that they have done so far, I am satisfied that I am expressing the majority opinion, not only of this House, but of the whole country, when I say that the policy of Canada owning and operating her own merchant marine is fully justified.

I have endeavored to place before the House as briefly and concisely as possible the main features of the Government's programme, both from the construction and operating point of view. Before the end of the present calendar year all construction will be completed, after which the connection of the Marine Department with the programme will cease. The House will not need to be reminded that the programme of ship construction was much more extensive than anything hitherto undertaken by Canada. It was not to be expected that the work could be carried to completion without experiencing some difficulties and disappointments. I am able to report, however, that no serious difficulty was experienced. The aim of the Government throughout was to develop shipbuilding as a self-contained industry. It has been successful to the extent that the boilers, engines, pumps, winches and all the other accessories are nearly all of Canadian manufacture. The House will, I am sure, be glad to know that all these accessories manufactured in Canada, by Canadian workmen, have measured up to the highest standards of excellence and are giving results equally as satisfactory as could be obtained from similar accessories manufactured elsewhere by long established concerns. It is no less satisfactory to know that while the price paid for the construction of ships may be regarded, in the light of present day conditions, as high, they have been substantially lower than those paid for similar work in the U.S., where conditions more nearly resemble those in Canada.

There is a further consideration from which as the Minister primarily responsible for the programme I derive some comfort, and that is, that every contract made, every voucher paid, every letter and telegram exchanged between the Department and contractors is open for the fullest inspection of any member of the House who desires any further information.

It would be difficult, indeed it would be impossible, to measure in any adequate way the national importance of Canada's merchant marine. I am firmly convinced that what these vessels have already accomplished in the way of marketing Canadian products in remote parts of the world is but an indication of greater successes along these lines in the years immediately ahead of us. Canada is no longer a stranger in foreign ports. The maple leaf, struck on the house flag and on the funnels of ships is becoming a familiar sight in the principal world ports.

In the design and construction of the ships, British types have been adopted. Those in commission have splendidly met every requirement and have been commended by men competent to form opinions. The quality of the ships themselves, as well as, in a general way, the types of men serving as officers and crews, are helping in a very special manner to establish for Canada and for Canadian business a favorable position abroad.

It would not be proper for me to conclude this statement without expressing my deep appreciation of the technical officers of the Marine Department who shared with me the great responsibility of constructing this $75,000,000 merchant fleet for Canada. As I stated a moment ago, we had many difficulties to contend with. The war was at its height, material was high, and unskilled as well as skilled labor was hard to obtain. But we managed to build these ships in Canada, and the achievement is a great tribute to the Canadian workman and the Canadian shipbuilder; it is creditable to them that these ships have been constructed so well. The design, of course, was British; but, as I have mentioned, all accessories were made in Canada by Canadian manufacturers, and no serious complaints have reached the Marine Department either in regard to design, construction, or equipment of these ships, down to the minutest detail. In the circumstances, this House and the country generally may feel confident that, given equal opportunities, we can build ships in competition with the world and build them as well. I desire particularly to tender my thanks to the naval architect, C. Duguid, to my very able Deputy, Alex. Johnston, and to all those who assisted me during these years in carrying to a successful conclusion, if I may be permitted to say so, the creation of Canada's large and splendid mercantile fleet.

Ocean, Coast, Lake and River Steamship Officers for 1921.

The following appointments, made by Canadian navigation companies for their various steamships and tugs, have been reported to Canadian Railway and Marine World, in addition to those given in our last issue. The first column contains the names of the ships, the second, those of the captains, and the third, those of the chief engineers:—

Alberta & Arctic Transportation Co., Edmonton, Alta.

Canadusa	W. H. Alexander	.....
D. A. Thomas	J. P.Bucey	H. J. Hutchinson
Distributor	J. Shannon	R. Haws
Lady Mackworth	A. Curry	O. E. Polsin
Slave River	C. Myers	J. Scott

American Yukon Navigation Co., Skagway, Alaska.

Alaska	H. G. Looney	L. M. Dow
Herman	W. F. Hoelscher	C. I. Seabrooks
Meteor	E. Olsen	C. T. Arnold
Reliance	M. Lemley	F. A. Anderson
Seattle No. 3	C. W. Adams	P. B. Hyde
Tanana	J. Oliver	J. T. Kent
Yukon	J. S. McCann	R. W. Kern

Atlantic Towing Co., Halifax, N.S.

La Canadienne	J. W. Fardie	F. Colwell

Cascade Freighting & Towing Co., Victoria, B.C.

Cascade	H. G. Kennaird	G. B. Williams

Canadian National Rys. Car Ferry Service, Moncton, N.B.

Prince Edward Island	J. L. Read	J. K. Sutherland
Scotia No. 1	R. Keating	R. Morrison
Scotia No. 2	L. R. Maguire	R. Anderson

Canadian National Rys., Car Ferry Service, Vancouver, B.C.

Canora	J. Brown	J. E. Blackaller
Germania	J. Colbourne	E. Thorpe
Sebastian	J. McKiernan	D. Martin

Cape Breton Electric Co., Sydney, N.S.

Electronic	I. H. Lewis	C. H. Hanson
Hygeia	A. McLeod	D. E. Reid
Peerless	G. E. Dicks	D. J. Cogan

W. B. and W. W. Climie, Sault Ste. Marie, Ont.

Bon Ami	W. B. Climie	J. Houston

Crescent Shipping Co., Victoria, B.C.

Leebro	J. Hunter	A. Lees

Dartmouth Ferry Commission, Dartmouth, N.S.

Chebucto	C. Ozon	
Dartmouth	M. Murphy	C. E. Pearce
Halifax	F. Williams W. Myers	

Gloucester Transportation Co., Lameque, N.B.

Beaver	P. O. Hache	J. W. Fleiger

Grand Manan Steamship Co., Grand Manan, N.B.

Grand Manan	W. W. Hersey	J. Cowie

International Transit Co., Sault Ste. Marie, Ont.

Algoma	M. Griffith	S. Burgess

Kingston Navigation Co., Kingston, Ont.

Brockville	J. Rathbun	E. W. Sparling
St. Lawrence	W. Bloomfield	D. Leslie

Memphremagog Navigation Co., Georgeville, Que.

Anthemis	T. J. Jackman	F. W. Murray

Midland Transportation Co., Midland, Ont.

Lucknow	C. Linn	J. Gilbert
Luckport	W. Nickolls	R. Isbestor.

Montreal & Cornwall Navigation Co., Cornwall, Ont.

Britannic	A. Anderson	N. Marchand

Morden Transit Co., Midland, Ont.

United Lumberman	A. E. Laking	C. McDonald

Newcastle Steamboat Co., Newcastle, N.B.

Max Aitken	R. Cassidy	R. W. Stewart

Niagara Ferry & Transportation Co., Buffalo, N.Y.

Chicora	D. Wright	J. Murray
Newtown	R. Parsons	W. Miltner
Orleans	M. Lutz	M. O'Connor

North Bay & French River Navigation Co., North Bay, Ont.

Northern Belle	A. M. McKenney	.....

North Bay Steamship Co., Port Hood, N.S.

Kinburn	C. Bourgeois	P. Glavin

Ontario Transportation & Pulp Co., Thorold, Ont.

Linden	R. J. Wilson	L. Vipond
Mary H. Boyce	J. V. Norris	A. Jenkins

Owen Sound Transportation Co., Owen Sound, Ont.

Michipicoten	J. Rutherford	J. Bellmore

Quebec Salvage & Wrecking Co., Quebec, Que.

Gopher	J. Des Lauriers	J. Boulanger
Lord Strathcona	L. D. Morin	R. Casey

Rockport Navigation Co., Kingston, Ont.

Missisquoi	J. A. Carnegie	E. W. Sjarling
Waubic	R. H. Carnegie	J. Gillie

St. Marys Bay Steamship Co., Little River,N.S.

Lottie and Marguerite	E. E. Denton	H. G. Collins

Toronto Harbor Commissioners, Toronto.

Bethalma	W. H. Bemrose	R. Davy
John E. Russell	C. Niece	M. J. Topping
Rat	C. F. Hufford	J. Holland

Trader Steamship Co., Victoria, B.C.

Trader	F. Anderson	A. Hewitt

Walkerville & Detroit Ferry Co., Walkerville, Ont.

Ariel	W. Corr	J. Roach
Essex	J. E. Rathbun	P. McLaren

Westminster Towing & Fishing Co, New Westminster, B.C.

Dauntless	T. F. Williams	F. W. Somerville
Faultless	W. Somerville	R. Abbott
Peerless	W. Ballagh	W. Stevenson
Wireless	J. Doyle	I. Ransom

Windsor & Pelee Island Steamship Co., Pelee Island, Ont.

Pelee	J. N. Sheats	J. R. Ferguson

The Owen Sound Transportation Co. Ltd. has been incorporated under the Ontario Companies Act, with $40,000 authorized capital and office at Owen Sound, Ont., to carry on the general transportation of passengers and merchandise, and a general towing business, and to own and operate steam and other ships of every description. The provisional directors are: W. G. Hay, J. Garvie and J. M. Hay, Owen Sound. The company has taken over the s.s. Michipicoten, owned formerly by the North American Bent Chair Co. Ltd., Owen Sound. The s.s. Michipicoten was built at Detroit, Mich., in 1883, when she was named City of Windsor. She has an oak hull of the following dimensions,—length b.p. 117 ft., breadth 24 ft. 8 in., depth 11 ft.; tonnage, 511 gross, 316 net, and she is equipped with engine of 33 h.p. driving a screw.

General Shipbuilding Matters Throughout Canada.

A. Berquist, Victoria, B.C., is stated to be arranging to build three sailing ships, 125, 90 and 75 ft. long respectively. He took over a considerable quantity of shipbuilding material and plant from the Foundation Co., when it ceased its shipbuilding business in British Columbia.

B.C. Marine Engineers and Shipbuilders Ltd., Vancouver.—The Hudson's Bay Co. is reported to have ordered from this company four small schooners for use on the Mackenzie River delta and for short Arctic cruises. It is stated that they will go north in June on board the auxiliary powered schooner Lady Kindersley, now being built at the same yards for the H.B. Co. The order for the building of the auxiliary powered schooned Lady Kindersley was given in the early part of 1920 and she was intneded for delivery by Oct. 1920, but considerable delay was caused, owing to none delivery of the engines, which were ordered in England. She was launched March 27, the christening being performed by Mrs. T. P. O'Kelly, wife of the Assistant Commissioner, Hudson's Bay Co., Winnipeg. The Lady Kindersley is rigged as a three masted baldheaded schooner, with a jib headed mizzen and top sail for running purposes, and carries a large square sail forward, also being fitted with a triangular shaped top sail. The total area of fore and aft sails is about 10,960 sq. ft. and the approximate total area of all sails 15,610 sq. ft. She is equipped with a 350 b.h.p. semi-Diesel engine for a speed of about 7 knots an hour. Her dimensions are,—length overall 200 ft., length l.w.l. 188½ ft., beam 36 ft., moulded depth 15 ft., draft loaded 12 ft., capacity for freight 700 tons. She will cost approximately $300,000, and is intended for the Hudson's Bay western Arctic service, and will sail from Vancouver through the Behring Sea and Strait, and round Cape Barrow into the Arctic to the Mackenzie River.

Canadian Vickers Ltd., Montreal, launched the s.s. Idefjord Apr. 9, the christening being performed by Mrs. M. Swenson, wife of the President of the Norwegian America Line Agency, New York. This was the first launch from this company's yard this year, and is stated to be the earliest launch in any year on the St. Lawrence River. The Idefjord is one of two ships being built for the Norwegian America Line, Christiania, Norway, and was designed and built under the personal supervision of A. MacFarlane, Naval Architect, New York, assisted by F. H. Bodin, Captain Halvorsen and M. Yggerseth of the Norwegian America Line. She is classed under Norwegian Bureau Veritas register and is a high class cargo steamship, with many special features tending to economical operation. Her dimensions are,—length 365 ft., breadth 49½ ft., depth 29 ft. When loaded she will carry 6,400 tons of cargo on a 23¾ ft. draft. The propelling machinery consists of triple expansion engines, with cylinders 27, 43 and 70 in. diar. by 48 in. stroke, supplied with steam by three Scotch boilers, each 14¾ x 11½ ft., fitted with forced draft, and adapted to burn either coal or oil as fuel, and equipped with superheaters for increased economy of consumption. The engines are fitted with the Michell thrust bearing of which Canadian Vickers Ltd. is the licensee for Canada. The engines will develop sufficient power for a speed of 11½ knots under full load. The hull is reinforced in the bow, for navigation in ice, and is equipped with windlass and winches made by the builders, and with direct acting type steering gear operated by telemotor. In addition to the usual equipment of derricks. The foremast has a powerful derrick, capable of lifting 30 tons. Life saving equipment is according to the requirements of the Norwegian Sea Control, the boat davits being of a patent type. The ship will be ready for operation about the end of May, and she will be followed about May 7 by a sister ship for the same owners, to be named Topdalsfjord.

At a reception, following the launching, P. L. Miller, General Manager, Canadian Vickers Ltd., said that, in the existing conditions of world trade and freight rates, no one could expect shipping companies or private owners to place orders at the present cost of new tonnage. Canadian Vickers Ltd. has no contracts for shipbuilding to follow the launching of its ship 82, the Topdalsfjord, for the Norwegian America line, which will take place about May 7. Present conditions in shipbuilding will probably last for some years, and it is up to labor to put shipbuilding companies in a position to compete for such business as is offering, by reducing their demands, and accepting lower wages. Failure to do this will undoubtedly put Canadian shipbuilding companies out of business. Canadian Vickers Ltd. operations will be very materially reduced by the end of June, and only such organization will be retained as may be necessary to handle ship repairing work in the dry-dock.

Steel Cargo Steamship Glenclova, built for Great Lakes Transportation Co., by Midland Shipbuilding Co.

Collingwood Shipbuilding Co., Collingwood, Ont.—The annual meeting was held at Collingwood, Apr. 4. The directors, who were re-elected, are as follows:—H. B. Smith, President; J. W. Norcross and R. M. Wolvin, Vice Presidents; J. S. Leitch, Managing Director; H. W. Cowan, F. S. Isard, S. Dyment.

J. Coughlan & Sons Ltd., Vancouver, B.C., held its annual shareholders meeting Apr. 20. The directors for this year are: J. Coughlan, President; J. J. Coughlan, Vice President; D. A. McDonald, K.C., Secretary; S. H. Cochrane, C. E. Cochrane and G. D. Brymner.

Halifax Shipyards Ltd., Halifax, N.S. During April, repairs were in progress on the Dominion Steel Corporation's s.s. Turret Court, the Imperial Oil Co.'s s.s. Imperoyal and the Dominion Coal Co.'s s.s. Hochelaga.

W. R. Huntly & Son, Parrsboro, N.S., launched the ocean going steam tug Otis Wack for Gypsum Packet Co., Windsor, N.S., for towing plaster barges to New York. After launching she was towed to Hantsport, where she took on lumber and fittings for ehr cabins, and then to Yarmouth, to have her machinery installed. Her dimensions are,—length 107 ft., breadth 25 ft., depth 13 ft.

Joseph McGill Shipbuilding & Transportation Co., Shelburne, N.S., launched the schooner Canadia, Apr. 5 She has been built to compete in the coasting schooner races, from which the selection will be made of the representative schooner in the international race, which is expected to be an annual affair.

W. C. McKay & Son, Shelburne, N.S., launched the schooner Jennie Elizabeth at the end of March, for fishing service for A. Ritcey and others, of Riverport, N.S. Her dimensions are,—length overall 125 ft., beam 26½ ft., depth of hold 11 ft.

Midland Shipbuilding Co., Midland, Ont.—The s.s. Glenclova, built by this company, which was launched Nov .27, 1920, and delivered to the Great Lakes Transportation Co., Midland, Ont., Dec. 21, 1920, has gone into service. She is built to the highest classification of the British Corporation, and fitted for lake and ocean service, with the usual pumps and auxiliaries, electric light, refrigerator, and all up to date appliances for trade in the south. She is built on the arch system, having three holds, without any obstruction in either, and with a water-bottom extending the full length of the ship, the last section being arranged for fuel oil, if required. Her dimensions are,—length overall 254 ft., breadth 42 ft., depth 16 ft. She is equipped with triple expansion engines, with cylinders 20, 32 and 52 in. diar., by 42 in. stroke, 1,000 i.h.p., at 83 r.p.m., built at Detroit, Mich., in 1889 and formerly in the Great Lakes Transportation Co.'s s.s. Major. Steam is supplied by two new

boilers each 11 x 13 ft., at 180 lb., built by John Inglis Co., Toronto, and fitted with forced draft and a combination fuel system, so that either coal or oil may be used. Her d.w. tonnage for salt water service is 2,875 long tons.

Queensboro Shipyards, New Westminster, B.C., is reported to be negotiating for the lease of two water front lots at North Vancouver, B.C., with the option of purchase, for the establishment of a shipbuilding yard there. Joseph Crane is Manager.

Star Shipyards Ltd., New Westminster, B.C., is building a coal barge for the City of North Vancouver, costing approximately $8,000. E. Mercer is Manager.

Sydney Foundry & Machine Works Co., Sydney, N.S., announced early in April that construction would be started on the new marine railway during the month, and that it was expected to have it completed and ready for the accommodation of ships during July. The water frontage has been surveyed, and soundings completed, and driving of piles started about the middle of April.

Yarrows Ltd., Victoria, B.C., completely overhauled the light cruiser Aurora, and the destroyers Patrician and Patriot, at its Esquimalt plant, during the Canadian Navy's visit to the Pacific coast recently. The greater part of the work was done in the engine rooms, but the two destroyers were also docked, and put in a thoroughly seaworthy condition, before starting on their return journey via the Panama Canal, to Halifax, N.S. The three ships are all fitted with Yarrow water tube boilers. The H.M.C.S. Aurora could easily have been docked at Esquimalt, but it was decided not to dock her until her return to the Atlantic.

The Imperial Oil s.s. Talaralite has been overhauled recently at this yard and a number of engine room repairs undertaken. Other repair work carried out by the company recently covers deck repairs to C.G.S. Malaspina; cleaning, painting and fitting new tail shaft to the Pacific Salvage Co.'s s.s. Algerine; cleaning, painting and minor repairs to the steam tug Mystery; general overhauling of the Consolidated Whaling Co.'s steamships Orion, White, Grant and St. Lawrence; and repairs to the C.P.R. s.s. Princess Beatrice, consisting of damages to the bow due to stranding on Steep Island. The refitting and reconditioning of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert is nearing completion. It was a very extensive job, consisting chiefly of joiner work. The hull has undergone repairs to bottom damage, boilers, propellers, tail shafts, oil fuel tanks, and steering gear. while the engines have been overhauled generally. New masts and funnels have been installed and all staterooms have been built in. It is anticipated that the work will be completed well within the contract time.

Georgian Bay Steamship Services.

The Northern Navigation Co., which withdrew its s.s. Waubic from the Georgian Bay service last year, has decided that it will not renew it this year, and has sold the ship. To deal with the tourist traffic in the Georgian Bay, the Georgian Bay Tourist Co. and the Honey Harbor Navigation Co. are in course of organization. It is stated that the Georgian Bay Tourist Co. will provide a steamboat capable of carrying 400 passengers, to leave Midland daily, on the arrival of a new G.T.R. train, run to San Souci, and return to Midland the next day, again connecting with the train. In addition to this she will make special trips on Friday evenings, in connection with the evening train at Midland, returning to Midland on Sunday evening so that passengers will be able to catch the Monday morning train there.

A second steamboat will convey passengers among Honey Harbor islands.

The Honey Harbor Navigation Co. Ltd. has been incorporated under the Ontario Companies Act, with $40,000 authorized capital and office at Midland, Ont., to own and operate steam and other ships for the conveyance of passengers and merchandise, to act as common carrier and to own and operate wharves, docks, tourist hotels, etc., and also conduct a tourist business on Georgian Bay. The provisional directors— are: N. K. Wagg, H. R. Wagg, and R. R. Wilson, Midland, Ont. We are advised that the company has acquired the s.s. City of Dover, owned formerly by W. F. Colbe, Port Dover, Ont., and operated out of that port. She was built at Port Dover in 1916, and is screw driven by engine of 15 h.p. Her dimensions are, length 74.8 ft., breadth 20.4 ft., depth 7 ft.; tonnage, 81 gross, 55 net.

The Town of Midland has concluded negotiations with the G.T.R. for an improved train service during the summer. An additional train will be put on between Toronto and Midland, calling only at Allandale, and the Town of Midland has agreed to at once extend and increase the platform accommodation for the easy transfer of passengers between the trains and the ships, and to increase the wharfage capacity at the docks, erect shelter and baggage room there, and to operate a steamboat daily throughout the season between Midland and Copperhead. The town also agrees to complete during 1922 the construction of the dock at Midland, to extend the G.T.R. siding, to rebuild and maintain the trestle and track approach thereto, and to erect a frame building 42 x 14 ft. for waiting and baggage room.

A Quebec Shipping Project.

The Quebec Telegraph says that an experiment, which, if successful, will put Quebec on the map as a wheat exporting port and as a distributing center for pulp, is to be shortly tried by a Canadian shipping company. The plan is to ship wheat from Georgian Bay ports to Quebec in ships which can use the canals between Port Colborne and Quebec and reship to the Atlantic ships at Quebec. Arrangements are being made for return cargoes of pulp. In this way there will be a double revenue from the boats, whereas if they ran to Montreal it would be practically impossible to get a paying return cargo.

Ships Registered in Canada During January, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. N.h.p.	Owner or Managing Owner
141629	Almac	Parrsboro, N.S.	Parrsboro, N.S. 1920	60.0	17.2	6.4	62	42	14 Sc.	H. MacAloney, et al., Parrsboro, N.S.
150232	Glenclova	Midland, Ont.	Midland, Ont. 1920	246.0	42.5	18.5	1925	1092	124 Sc.	Great Lakes Transportation Co., Midland, Ont.
130717	Northland Trader (The),	Kenora, Ont.	Fort Smith, Alta. 1906 1919	87.0	16.5	12.2	142	82	8 Sc.	Northern Trading Co., Edmonton, Alta.
150345	Oritani	Montreal . .	Brooklyn, N.Y. 1920	227.3	33.7	13.9	1396	790	150 Sc.	Ormes Steamship Co., Montreal.
138220	Pathfinder	Midland, Ont.	Racine, Wis. 1896	136.0	18.3	10.0	168	57	51 Sc.	James Playfair, Midland, Ont.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
141698	A. W. Chisholm	Lunenburg, N.S.	Schr.	Dayspring, N.S. 1919	116.4	26.3	11.4	175	146	William Duff, Lunenburg, N.S.
141615	C.P.R. No. 8	Victoria, B.C.	Barge.	Okanagan Landing, B.C. 1919	181.5	36.5	5.5	305	305	Canadian Pacific Railway Co., Montreal.
134112	K. N. No.7 (1)	Vancouver, B.C.	Scow.	New Westminster, B.C. 1913	86.3	30.1	8.4	426	426	Kingcome Navigation Co., Vancouver, B.C.
141791	J. C. 18	New Westminster . .	"	New Westminster. B.C. 1917	89.0	29.9	7.2	166	166	Joseph Crane, New Westminster, B.C.
141466	Leone II	Shelburne, N.S.	Bkn.	Shelburne, N.S. 1920	145.0	30.6	11.9	353	287	Joseph McGill Shipbuilding & Transportation Co., Shelburne, N.S.
138440	Ronald C. Longmire	Annapolis Royal	Schr.	Meteghan, N.S. 1920	102.5	27.1	10.1	183	149	W. R. Longmire, Bridgetown, N.S.
53588	Warrenko (2)	Toronto . .	Barge.	Liverpool, Eng. 1864	221.0	26.0	10.9	338	278	W. A. Warren, Toronto.

(1) Formerly R. F. No. 5. (2) Formerly Chicora, recovered wreck.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Delivery of Ship.—In addition to the steamships mentioned in Canadian Railway and Marine World previously, the following has been delivered to Canadian Government Merchant Marine for operation:—

April 9, s.s. Canadian Traveller, Marine Department contract 30, builder's yard no. 2, approximately 8,390 d.w. tons, built by Harbor Marine Co., Victoria, B. S. She was expected to leave Vancouver April 27, for Egypt, with a full cargo of railway ties.

Names of Steamships.—The name for one of the steel cargo steamships, of approximately 8,390 d.w. tons each, for Canadian Government Merchant Marine, the contract for which was given to Prince Rupert Drydock & Shipbuilding Co., and which is being completed by Wallace Shipbuilding & Drydock Co. at Prince Rupert, owing to the former company's bankruptcy, viz., Marine Department contract 42, builder's yard no. 1, has been changed from Canadian Reaper to Canadian Scottish.

Officers of Steamships.—The following masters of steamships have been appointed, or transferred, in addition to those mentioned in previous issues:—Canadian Beaver, Capt. F. J. Smeltzer, heretofore master s.s. Sheba, vice Capt. P. St. A. Robertson, transferred; Canadian Coaster, B. S. Potts, new appointment; Canadian Commander, Capt. J. D. McKenzie, new appointment; Canadian Leader, Capt. M. Robertson, heretofore master Canadian Pioneer; Canadian Miner, Capt. A. E. Sprosen, vice Capt. W. G. Tudor, transferred; Canadian Observer, Capt. W. G. Tudor, heretofore master Canadian Miner, vice Capt. A. Purvis, transferrer; Canadian Pioneer, Capt. P. St. A. Robertson, heretofore master Canadian Beaver, vice Capt. M. Robertson, transferred; Canadian Ranger, Capt. A. Purvis, heretofore master Canadian Observer, vice Capt. J. D. McKenzie, transferred; Canadian Runner, Capt. D. O. Davies, heretofore master Canadian Signaller, vice Capt. W. Wallace; Canadian Signaller, Capt. F. W. Bolton, vice Capt. D. O. Davies, transferred; Canadian Victor, Capt. J. M. Reith, vice Capt. T. R. Coffin, transferred; Sheba, Capt. D. Blpuett, vice Capt. F. J. Smeltzer, transferred.

Costs, Earnings, Etc., of Steamships. J. Archambault, Chambly and Vercheres, Que.; A. W. Chisholm, Inverness, N.S.; W. Duff, Lunenburg, N.S.; L. T. Pacaud, Megantic, Que.; and J. H. Sinclair, Antigonish and Guysborough, N.S.; asked seven series, of seven questions each, in the House of Commons, March 31, which had all evidently been prepared by the same person, or in collaboration, as they were identically worded except as to the names of the ships, which were distributed between the five questioners. Consolidated the questions were as follows: 1. What were the initial costs of the steamships, Canadian Commander, Canadian Conqueror, Canadian Farmer, Canadian Gunner, Canadian Leader, Canadian Miller, Canadian Navigator, Canadian Otter, Canadian Pioneer, Canadian Planter, Canadian Ranger, Canadian Signaller, Canadian Seigneur, Canadian Spinner, Canadian Squatter, Canadian Victor, Canadian Voyageur? When was each ship put into commission? 2. How much was spent in repairs to each ship since built, up to Dec. 31, 1920? 3. What was the gross amount earned by each ship for calendar year 1920? 4. What was the gross amount of expenditure of every description in connection with the operation of each ship for calendar year 1920? 5. What were the net earnings of each ship from the date when first put into commission up to Dec. 31, 1920, after deducting all expenditure of every description? 6. What were the net earnings of each ship for calendar year 1920 after deducting all expenditure of every description? 7. How many tons of coal did each ship consume during calendar year 1920, and what was the average price paid therefor?

The Minister of Marine gave the following information in answer to question 1, viz., name of ship, initial contract cost and when commissioned:—

Canadian Commander	(1)	(1)
Canadian Conqueror	$1,429,190.00	Sept. 30, 1920
Canadian Farmer	718,520.00	April 28, 1920
Canadian Gunner	815,541.25	Nov. 6, 1919
Canadian Leader	(1)	(1)
Canadian Miller	1,577,320.00	Sept. 24, 1919
Canadian Navigator	984,915.00	Nov. 22, 1919
Canadian Otter	(2)	Aug. 18, 1920
Canadian Pioneer	1,513,440.00	May 9, 1919
Canadian Planter	1,579,075.00	May 7, 1920
Canadian Ranger	1,575,816.00	May 23, 1919
Canadian Signaller	814,926.25	Aug. 30, 1919
Canadian Seigneur	1,577,508.00	Aug. 14, 1919
Canadian Spinner	1,577,884.00	Dec. 6, 1919
Canadian Squatter	(2)	Nov. 12, 1920
Canadian Victor	1,433,610.00	Aug. 25, 1920
Canadian Voyageur	947,025.00	Feb. 22, 1919

(1) Not finished. (2) Cost not finally ascertained.

The Minister, in answer to questions 2 to 7 both inclusive, said:—"The information asked for is as to operating details under the Canadian National Rys. board, and is not in the Government's possession. The question as to the desirability in the public interest of securing such, and like information, and making same available, on motion, or on question in Parliament, is to be considered by a special committee of Parliament."

Steamship Recruit. — J. H. Sinclair, Antigonish and Guysborough, asked in the House of Commons March 31:—1. Was the s.s. Recruit of the Canadian Government Merchant Marine, which went aground at Vache Point, St. Lawrence River, rescued and refitted for sea? 2. If so, how much expended in repairs? 3. Where were the repairs made and were public tenders asked for by advertisement? 4. Was the insurance collected from the underwriters? 5. If so, how much was insured and how much was collected? 6. How much was earned by this ship in the year 1920 after deducting all expenditure of every kind? 7. Where is she now? The Minister replied to the first question, "Yes," and, in reply to the others, said:—"The information asked for is as to operating details under the Canadian National Rys. board, and is not in the Government's possession. The question as to the desirability in the public interest of securing such and like information and making same available on motion, or on question, in Parliament is to be considered by a special committee of Parliament."

Quebec's Alleged Unfavorable Treatment.—C. G. Power, Quebec South, asked in the House of Commons, on March 29, whether the Minister of Marine had received any complaints from Quebec mechants, or any persons on their behalf, with regard to discriminatory action against the port of Quebec by Canadian Government Merchant Marine, and if so, whether he intended to take the complaints into consideration. The Minister replied that, so far as his knowedge went, no communications of any kind had reached the Department, charging any such discrimination, but that he would look into the matter, and, if it transpired that any correspondence had reached the Department, he would inform Mr. Power.

Ships for Great Lakes.—The following questions were asked in the House of Commons recently by J. E. Armstrong, East Lambton, M.P., and answered by the Minister of Marine:—

Q. "How many ships now in service or under construction by the Dominion Government are capable of passing through the canals and doing business on our inland waters?" A. "Seventeen."

Q. "Does the Government intend placing any or all of the ships built and owned by it, and capable of being operated on our inland waters, during the present season? If not, will the Government give the reasons for not using the said boats?" A. "The question of determining the routes upon which the ships shall ply and the business that they shall engage in, is in the hands of the Canadian Government Merchant Marine."

Canadian Railway and Marine World was informed April 21 that the Canadian Government Merchant Marine management had not come to any decision as to whether any of the ships operated by it would be sent to the Great Lakes.

Montreal Sailings. — The following dates have been announced:—

Atlantic Service.

Liverpool service, from Montreal:—Canadian Raider, May 4; Canadian Navigator, May 18; Canadian Conqueror, June 1; Canadian Trapper, June 29; Canadian Mariner, June 15; Canadian Victoria, July 13; Canadian Conqueror, cold storage, July 27.

London service, from Montreal:—Canadian Trapper, May 11; Canadian Squatter, May 25; Canadian Rancher, June 8; Canadian Raider, June 22.

Glasgow service, from Montreal:—Canadian Otter, May 21; Canadian Aviator, June 11; Canadian Navigator, July 2.

Avonmouth service, from Montreal:—Canadian Commander, cold storage, May 4.

Cardiff and Swansea service, from Montreal:—Canadian Trooper, May 14; Canadian Hunter, June 25.

India and Far East service, from Montreal:—Canadian Leader, May 11; B.I.S.N. steamship, June 11; Canadian Pioneer, July 11; B.I.S.N. steamship, Aug. 11.

Australia and New Zealand service, from Montreal:—Canadian Spinner, May 28; Canadian Commander, cold storage, June 25; Canadian Ranger, July 23.

Rio de Janeiro, Santos, Brazil and Buenos Aires service, from Montreal:—Canadian Seigneur, May 28; Canadian Explorer, June 23; Canadian Miller, July 20; Canadian Planter, Aug. 17.

Barbados, Trinidad & Demerara service, from Montreal:—Canadian Trader, May 7; Canadian Coaster, May 21; Canadian Observer, June 7; Canadian Gunner, June 21; Canadian Harvester, July 5.

Nassau, Kingston and Belize service, from Montreal:—Canadian Fisher, May 3; Canadian Forester, May 24; Canadian Fisher, June 14; Canadian Forester, July 5.

Havana, Cuba, service:—Canadian Miner, May 19; Canadian Sealer, June 3; Canadian Adventurer, June 17; Canadian Miner, July 1.

Charlottetown, Prince Edward Island and St. John's, Newfoundland, service, from Montreal, via Charlottetown:—Canadian Sapper, leave Montreal May 6, leave Charlottetown May 11; leave Montreal May 27, leave Charlottetown June 1; leave Montreal June 17, leave Charlottetown June 22; leave Montreal July 8, leave Charlottetown July 14.

Pacific Coast Service.—Canadian Government Merchant Marine is inaugurating immediately a service between Vancouver and Vancouver Island, points in British Columbia and Seattle, Wash., San Francisco, and Wilmington, California. The service will be performed

by the steamships Canadian Rover, Canadian Farmer and Canadian Beaver, 3,890, 3,954 and 3,972½ d.w. tons each respectively. Sailings will be every 10 days.

New Zealand Service.—W. A. Beddoe, Canadian Trade Commissioner, Auckland, N.Z., has written the Trade and Commerce Department as follows:—

"The establishment of a line of steamships between Canada and New Zealand from Canada's west coast has been a great boon and impetus to trade, but the conditions in Australia have been so unsettled that the ships, upon arriving there, have been tied up, seriously interfering with the mail and trade service. Recently the Canadian Government Merchant Marine has started a service between Vancouver and New Zealand which has been welcomed in the latter country, and when conditions become normal this service will be an important factor in the developing of Canada's western trade. The fact that the Canadian Government Merchant Marine will run ships from Eastern Canada direct to New Zealand has also been warmly welcomed. There is a line from there to New Zealand, which is supposed to run every month, but the service has not been regular for some time, and the Canadian Government Merchant Marine, having entered the above route, may be expected to give a regular dependable service. The result then will be that goods from Eastern Canada can be shipped direct to New Zealand, thus obviating long railway haulage. New Zealand is particularly patriotic, and it is generally recognized in this Dominion that trading within the Empire conduces to a better understanding of the overseas Dominions, the one with the other, and draws them closer together, also that the reciprocal preferential trade between the overseas Dominions tends to solidify and enrich the British Empire."

Collingwood Shipbuilding Co., Kingston, Ont.—The launching of the steel cargo steamship Canadian Coaster, Marine Department contract 58, builder's yard no. 16, approximately 3,890 d.w. tons, for Canadian Government Merchant Marine, on March 24, was mentioned in our last issue, the christening being performed by Miss Nettie Kay, niece of H. C. Welch, Manager, the ceremony taking place on the 25th anniversary of his marriage. We have since been advised that when launch, the ship was well advanced in construction, the boilers and engines having been installed, and the cabin and other interior work being practically completed. She is of the 'tween deck type, with the following dimensions,—length b.p. 251 ft., breadth moulded 43½ ft., depth moulded 26 ft. The propelling machinery consists of triple expansion inverted condensing type engines, with cylinders 18, 30 and 50 in. diar. by 36 in. stroke, supplied with steam by 2 Scotch boilers, each 14 ft. diar. by 10¾ ft. long, at 180 lb., and fitted with forced draft, all supplied by Collingwood Shipbuilding Co., Collingwood, Ont. She has been specially built and fitted for the West Indian service, and is expected to be delivered during May.

Halifax Shipyards Ltd., Halifax, N.S., which is building two steel cargo steamships for Canadian Government Merchant Marine, viz., Canadian Cruiser and Canadian Constructor, Marine Department contracts 38 and 39, builder's yard nos. 3 and 4, each approximately 10,500 d.w. tons, advises us that it expects to launch the Canadian Cruiser early in June, and the Canadian Constructor during July.

Harbor Marine Co., Victoria, B.C., delivered the steel cargo steamship Canadian Traveller, Marine Department contract 30, builder's yard no. 2, approximately 8,390 d.w. tons, to the Marine Department, and she was transferred to Canadian Government Merchant Marine for operation April 9.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—It is expected that the steel cargo steamship Canadian Reaper, Marine Department contract 42, builder's yard no. 1, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, will be launched May 12, by Mrs. C. W. Peck, wife of Lt. Col. C. W. Peck, V.C., M.P. The name of the ship has been changed to Canadian Scottish, at Lt. Col. Peck's request, to commemorate the Scottish regiment which he led during the war. The keel for this ship was laid Sept. 27, 1919, and she was nearly ready for launching some time ago, but the bankruptcy of the builder prevented this. Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., has the contract for completing the Canadian Scottish and the sister ship, Canadian Thrasher, the name of which, it is said, may also be changed. It is expected that the latter ship will be ready for launching about the middle of August. The work on both ships is being supervised by Henry A. Butt, overseer for Marine Department.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—See Prince Rupert Drydock & Engineering Co.

New York and Quebec Steamship Service.

Furness Withy & Co. has arranged to operate its s.s. Fort St. George, a sister ship of its s.s. Fort Victoria, now on the Bermuda service, on a special service between New York, the Saguenay and Quebec, in connection with its New York and Bermuda service, making at least four voyages during the season. The first sailing of this service will be made from New York, July 2, returning from Quebec, July 8, the minimum rate being $100 each way, plus tax. The general itinerary of the cruises will be as follows:—Leave New York Satutrday, spend Sunday at sea, arrive at Halifax, N.S., Monday morning, where a stopover of about 8 hours will be made, allowing passengers ample time for a trip to Grand Pre, the center of the Evangeline country; leave Halifax Monday, pass through the Gut of Canso and Northumberland Straits Tuesday, pass Perce Rock Wednesday morning and along the south shore of the St. Lawrence Wednesday, arrive at the mouth of the Saguenay River Thursday morning, and proceed up the river about 12 miles to Eternity Cove, return to the St. Lawrence and arrive at Quebec in the evening of the same day; leave Quebec Friday afternoon, proceed up the Saguenay River as far as Cape Trinity, near Eternity Cove, arriving there Saturday morning, return to the St. Lawrence, pass along the Gaspe coast, Perce Rocfl, and through Northumberland Straits and the Gut of Canso, arrive at Halifax, N.S., Tuesday morning, leave there Tuesday afternoon, spend Wednesday at sea and arrive at New York Thursday morning. The s.s. Fort George was built in 1913 and is 14,000 tons gross, and was formerly named Wandilla and operated in the Australian trade by the Adelaide Steamship Co. She is being refitted for her new service.

Welland Ship Canal Contracts.

Tenders were received by the Railways and Canals Department, Ottawa, up to April 5, for work on section 5, Welland Ship Canal, the bulk of which will consist of dredging, as advertised in Canadian Railway and Marine World for February. The contract for this section was let originally to Canadian Dredging Co., Midland, Ont., which carried on the work until May 2, 1917, when it was suspended on account of the war. In Dec. 1918, another contract was given the company, to proceed with the work on a cost plus basis. Up to the time of writing (April 20), no tender had been accepted.

We are advised that it is the intention to call for tenders for the completion of sections 1, 2 and 3, the work on which is being done at present on a cost plus basis, by Dominion Dredging Co., Baldry, Yerburgh & Hutchinson, and Doheny, Quinlan & Robertson, respectively. Section 4 is not under contract.

The Gulf Transportation Co. Ltd. has been incorporated under the Dominion Companies Act, with $50,000 authorized capital and office at Quebec, Que., to own and operate ships for the transportation of freight and passengers, and to act as common carrier.

Lighthouse Keepers' Bonuses. — The Minister of Marine stated in the House of Commons recently, in answer to a question by J. F. Fafard, L'Islet, Que., that the question of granting a bonus to lighthouse keepers for 1920 was under consideration.

Ships Added to and Deducted From the Canadian Register During January, 1921.

	Steam.			Sailing		
		—Tonnage—			—Tonnage—	
	No.	Gross	Registered	No.	Gross	Reg'red
Added.						
Built in British Possessions	10	2,307	1,353	5	1,182	1,053
Purchased from foreigners	2	1,564	847	....	.....	.....
Registered anew	2	241	168	1	426	426
Other ships	....	.....	.....	1	338	278
Totals	14	4,112	2,368	7	1,946	1,757
Deducted.						
Wrecked or otherwise lost	10	228	157	24	3,504	3,273
Broken up or unfit for use	41	1,309	895	50	2,111	2,046
Sold to foreigners	7	7,787	4,626	1	53	50
Trahsferred to United Kingdom	....	.....	.....	1	496	453
Transferred to British Possessions	1	3	3	....	.....	.....
Registered anew	1	110	59	2	183	174
Other ships	....	.....	.....	1	439	379
Totals	60	9,437	5,740	79	6,786	6,375

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to he built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., hridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., h. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" " "	67	*8,408	180.	1,513,440	2.d., p., h and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., h. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., h. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 8, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., h. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., h. and f'c's'le	"	9	Feh. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., h. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., h. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feh. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., h. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., h. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., h. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., h. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feh. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., h. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., h and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., h and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., h and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., h and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,899.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., h and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	Apr. 9, 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., h. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., h and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feh. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., h and f'c's'le	"	11	Aug. 8, 1920	Dec, 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., h and f'c's'ie	"	11	Aug. 19, 1920	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., h and f'c's'le	"	11	Sept. 26, 1919	Feh. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 81, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., h. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	.....	.....
43	Feh. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., h and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., h. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., h. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., h. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., h. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., h. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., h. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., h. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	.....
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	.....
54	Feh. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., h. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	Mar. 17, 1921	.....
57	Mar. 13, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	2.d., p., h. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., h. and f'c's'le	"	11	May 6, 1920	Mar. 24, 1921	.....
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., h. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., h. and f'c's'le	"	11	May 14, 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	8,890	182.50	709,925	2.d., p., h. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	.....
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., h. and f'c's'le	"	11	Jan. 6. 1921	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,890	167.50	1,405,325	2.d p., h. and f'c's'ie	"	11	Jan. 6, 1921	.....	.....
							$79,296.80						
							$72,818,073.19						

Dominion Marine Association's Activities.

The Naval Service Department advises that the Association's recommendation, to the effect that existing Canadian legislation on the subject of radiotelegraphy on the Great Lakes is satisfactory and sufficient, will be accepted by the Department, and that no further action will be taken at present towards enacting regulations on the lines of the Imperial Act in Great Britain, which is of considerably wider application.

The Association has asked the Dominion Government for a modest grant, in support of a school of engineering at Queen's University, Kingston, Ont., similar to the School of Navigation, which already receives a small grant. The new school is in operation, and attended by a large number of students, who receive regular training, and, in addition to that given by ordinary schools, have the advantage of lectures from the University's engineering staff.

The Association is continuing its opposition to the compulsory payment of pilotage dues below Montreal, and now has the Shipping Federation of Canada's support in this matter. It is also maintaining its attitude against the imposition of sick mariners dues in Quebec Province, which entails payment of the heavy tonnage tax in U.S. ports on ships arriving there from Quebec, and it has again protested against the reimposition of inspection fees, of which the ships were relieved in 1903.

J. E. Armstrong, East Lambton, Ont., has once more introduced in the House of Commons a bill to place steamships under the Board of Railway Commissioners' jurisdiction. It is practically the same as in 1920, except that it is now proposed to be confined to ships operating between Canadian ports, on inland waters only. This is the seventh appearance of the bill in one form or another, and opposition is being expressed from all quarters of the country. The Association is still emphatically opposed to the measure, as subversive of the first principle which should govern shipping in the way of freedom and free competition, and its General Counsel, Francis King, has issued a memorandum voicing the Association's objections.

The Association's executive committee has asked the Minister of Marine that the definitions of the eastern boundaries of Canadian inland waters, in the Canada Shipping Act, parts 2 and 4, be assimilated, and that a line further east be adopted, running from Cape Gaspe to the east end of Anticosti Island, and thence to the north shore of the St. Lawrence. The definition in the Act relating to Masters and Mates, part 2, sec. 72 (g), is "'Inland waters of Canada' means all inland waters of Canada, other than Lakes Ontario, Erie, Huron (including Georgian Bay), and Lakes Superior and Winnipeg, and includes all bays, inlets and harbors of or on the said lakes and bays." In part 4, relating to seamen, the definition in sec. 326 (c) is "'Inland waters of Canada' includes all the rivers, lakes and other navigable waters in Canada, except salt water bays, arms of the sea, and gulfs on the sea coast, and includes the River St. Lawrence as far seaward as a line drawn from Cape Chatte on the south shore to Point des Montes on the north shore." The development of pulpwood trade in the lower river is gradually extending the activities of suitable inland shipping farther down the river, and it is very desirable that, so far as consistent with safety, the boundaries which were fixed some time ago, with reference to quite different conditions, should be extended to conform to the trade conditions of today and in the near future. There seems to be no sufficient reason for the distinction made in the two definitions quoted above, and the adoption of the more easterly boundary for both parts of the act would be of material advantage, but, in the Association's opinion, the continual extension of the trade farther east, and particularly along the north shore, renders it very desirable that the boundary should be moved as far east as possible, and it is believed that the extension mentioned in the first sentence of this paragraph, to include Anticosti, would not be at all inconsistent with the requirements of safety, or with any of the other considerations necessarily involved in fixing definition of inland waters for the purposes in question. The Association has therefore asked for the introduction of a bill to amend the act accordingly. The Marine Department is not, apparently at the moment, inclined to extend the boundaries farther east, as the subject requires consideration from all points of view. It is probably admitted, however, that there is no good reason for the distinction in the present boundaries and it is quite probable that assimilation and extension eastward will take place.

The Association's executive committee has expressed to the Marine Department its opinion of the Trade and Labor Congress' legislative programme before the Dominion Parliament, one section of which recommends amendments to the Canada Shipping Act. The committee considers that the establishment of a regular pilotage district between Montreal and Kingston is absolutely unnecessary, and would serve no good purpose. No difficulty has arisen, owing to the non establishment of the district, and its establishment would be disadvantageous rather than advantageous. The regular lines in these waters, Canada Steamship Lines, Keystone Transportation Co., etc., only engage, as masters of their ships plying in these districts, men who are competent pilots for the waters, and as the masters are trained, the engagement of special pilots is not necessary. The Congress' proposal for additional "safeguards" in the "manning" of ships of over 500 tons is not understood by the committee, which considers that the Association's members man their ships as efficiently as possible. The Association favors the fullest and most complete opportunity for certificated men to protect their rights in the Wreck Commissioner's courts, and does not object to their request for the right to appeal to another tribunal. It is, however, pointed out that an appeal lies to the Minister, for a re-hearing "by the court by which the case was heard in the first instance," but it is considered that this provision may not be proof sufficient to satisfy all the requirements in every case. The proposal for revision of the procedure does not explain itself sufficiently to enable the Association to express its views. The committee believes that the assessors in these wreck investigations should be appointed or nominated by the Shipping Federation of Canada, or by the Dominion Marine Association, according to the enrollment of the ship in question. The right to leave of absence to attend conventions of workers organizations is not a matter for legislation, but rather for individual owners and employes. The Association is definitely opposed to legislation requiring the named qualifications of knowledge and experience for sailors and deckhands, and believes that such legislation would greatly embarrass shipping and serve no good purpose. The Association sees no argument in support of the proposal for legislation defining a month as 28 days, for the purpose of payment of wages.—The committee has asked that further opportunity be afforded to the Association to examine the particulars of the proposals made, and to hear the arguments, if any, in support of the proposals, before any legislation on matters of such importance to ship owners is considered seriously.

Direction Finding Stations for Atlantic and Pacific Coasts.

The attention of masters of all ships fitted with radiotelegraph apparatus is called to the fact that the Naval Service Department has established a radiotelegraph direction finding station, near Red Head, on the east side of the entrance to St. John, N.B., harbor, about four miles from the center of the city, the exact location being 1.93 miles 67 deg. 25 min. (n. 88 deg. 55 min. e. mag.) from Partridge Island lighthouse, and named St. John, N.B., Direction Finding Station. The call sign of the station is V A R and the wave length used in transmitting and receiving is 800 meters. It is completely equipped with sending and receiving apparatus, and cooperates with the other direction finding stations along the coast, in giving ships their positions, and independently, it affords direct bearings to ships in the Bay of Fundy.

This station is the fourth link in the chain of direction finding stations extending from Cape Race to the Bay of Fundy, has been in service since March 1, and, from reports received, has proved of great assistance to ships navigating the Bay of Fundy.

The Naval Service Department's estimates for the year ending March 31, 1922, submitted to the House of Commons recently, provide for the erection of a radiotelegraph direction finding station, similar to those already in operation on the Atlantic coast, at some point in the vicinity of San Juan Bay, or Estevan, B.C. The exact position for the erection of the station is still under consideration, as some difficulty has been experienced in finding a suitable site.

Atlantic, Gulf & Mediterranean Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with $250,000 capital stock and office at Montreal, to own and operate steam and other ships, wharves, drydocks, railway and ship terminals, etc., and to carry on the business of common carriers of passengers and goods. The company is to be deemed a private one, under the Dominion Companies Act and its amendments. The incorporators are: J. E. Grivell, E. M. Jackson, B. M. Rogers, P. Schramm and H. G. McKeil, Montreal.

Additions to Canadian Pacific Railway Steamship Fleet.

The directors' report, for the calendar year 1920, contains the following:—Four steamships for Atlantic and Pacific Service, contracted for previously, are being built for the company, viz., Empress of Canada, Montrose, Montcalm, and Montclare. The Koenig Friedrich August has been bought. An additional ship for British Columbia Coast Service, required because of the loss of the Princess Sophia and Princess Irene, and the sale of the Princess May and Princess Margaret, is under construction. The estimated cost of the six ships is $31,175,000, of which $18,733,138 was paid up to Dec. 31, 1920. The estimated capital requirements on this account for the year, and including the amount required for the completion of the payments on the Koenig Friedrich August, bought, amount to approximately $12,200,000. Your approval will be asked to the issuance and sale of a sufficient amount of consolidated debenture stock to meet the expenditure for these ships. During the year, the s.s. Sardinian, built in 1875,

The s.s. Empress of Canada is for the Pacific, and the steamships Montcalm, Montrose and Montclare for the Atlantic service.

Wage Reductions by British Shipbuilders.

London, Eng., press cablegram, April 20.—Another big industrial crisis has been averted by the acceptance of wage reductions in the British shipping industry. At a conference, which closed at Carlisle April 19, the workmen's representatives agreed to recommend wage cuts of 15% for piece workers and 6s. a week for time workers, these being the amounts embodied in wage advances last year. A previous meeting between employers and union leaders had ended in a deadlock. The Labor Minister, on being appealed to, suggested a further conference, and on this occasion a frank production of shipbuilding accounts elicited the impressive fact that the single alternative to the employers' proposals was the closing down of shipyards in many important centers. At present 30% of the workmen engaged in the industry are unemployed or working alternate weeks. This abnormal depression, however, is partly due to the coal shortage consequent on the miners' stoppage.—Copyright, Toronto Star.

The Glen Transportation Co. Ltd.

This company, the incorporation of which was announced in a recent issue, will operate steamships on the Great Lakes and elsewhere. James Playfair, President and General Manager, Great Lakes Transportation Co., Midland, Ont., is President, and A. E. Mathews, President and General Manager, Mathews Steamshhip Co., Toronto, is General Manager. For the present, three steamships will be operated, Glenafton, Glencadam and Glenclova.

The s.s. Glenafton is being built by Port Arthur Shipbuilding Co., Port Arthur, Ont., is of approximately 3,000 d. w. tons, and is a steel, bulk, canal sized ship of the single deck, poop, bridge and forecastle type, with the following dimensions,—length overall 259 ft., breadth moulded 42½ ft., depth moulded 21 ft. She is equipped with triple expansion engines with cylinders 20, 30 and 56 in. diar. by 42 in. stroke, supplied with steam by two Scotch marine boilers, fitted with oil burning apparatus, 14½ ft. diar. by 11 ft. long, at 190 lb. She is classified under British Corporation regulations, and will have a speed of 10½ knots an hour. The keel was laid Oct. 20, 1920, and she was launched March 30.

The s.s. Glencadam, which was bought by Great Lakes Transportation Co. from George Hall Coal Co. last year, was formerly the F. P. Jones, and was built at Wyandotte, Mich., in 1913. She is of steel, built on the channel system, with steel tank top where no wooden ceilings are fitted, 3 watertight and 2 non watertight bulkheads, steel boiler house, steam pump wells and electric light. Her dimensions are,—length b.p. 244 ft., breadth moulded 43 ft., depth moulded 21 ft.; tonnage, 1,706 gross, 1,059 net. She is equipped with triple expansion engines, with cylinders 18, 29 and 48 in. diar. by 40 in. stroke, 900 i.h.p. at 85 r.p.m., and supplied with steam by two Scotch boilers, each 12 ft. diar. by 11½ ft. long at 170 lb.

The s.s. Glenclova was built recently by Midland Shipbuilding Co., Midland, Ont., for the Great Lakes Transportation Co., and is described and illustrated under "General Shipbuilding Matters Throughout Canada," on another page of this issue.

Immigration via C.P.R. Steamships to St. John, N.B.

Despite the strengthening of restrictions against immigration into this country, and the continuation of the ruling that all new settlers must show $250 in cash and their railway fare to their destination before being admitted, new settlers continue to arrive in large and increasing numbers. During January, February and March 9,187 new colonists entered St. John via the C.P.R. ships. These numbers would have been considerably larger, shipping men aver, if the $250 requirement had been dropped to the former $50 rate, as it was thought recently would be done. In fact, steamship officials state that many hundred intending immigrants cancelled their bookings upon learning that the high rate was to be maintained.

The C.P.R. records for the three months are as follows:—During January, five of the company's steamships arrived at St. John, with 3,856 passengers, of whom 1,450 were new colonists for Canada and 1,307 for the United States. In February, six steamships arrived with 5,022 passengers, of whom 2,045 were new colonists for Canada and 1,430 for the U. S. In March nine steamships arrived with 9,851 passengers; 5,962 being new colonists for Canada and 509 for the U.S.

Lower St. Lawrence Steamship Service.

As a part of the rehabilitation of local steamship services, which were seriously interfered with, and in some cases, entirely suspended, by the war, it is announced that arrangements have been completed for a service between Montreal and Quebec, and other ports on the north shore of the St. Lawrence as far as Harrington Harbor, Saguenay County, and to the Gaspe Peninsula, and on to Paspebiac on Chaleur Bay.

The Clarke Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with $1,000,000 authorized capital, and office at Ottawa, to carry on the business of transportation of passengers, mail and merchandise; towing, wrecking and salvaging, in any navigable waters within or bordering upon Canada; and to build, own and operate ships, docks, drydocks, wharves, warehouses, marine and railway terminals, passenger facilities and accommodation. It is announced that the company has acquired two steamships of approximately 1,000 gross tons, one of which will make Montreal its terminus, calling at Quebec, and at ports on the south shore as far as Paspebiac, while the other will run out of Quebec, calling at ports on the north shore as far as Harrington. The first named service will be fortnightly and the second every 10 days. The company, which has a contract to carry mail on both routes, is under the operating management of Bouchard Bros., who are stated to be in Great Britain arranging for the purchase of a steamship for the Gaspe route.

The company is reported to have bought the s.s. Shearwater, which was offered for sale by tender, in Nov. 1920, by the Naval Service Department, and is also reported to have bought a recently built steamship in England, named Nova Zembla. The s.s. Shearwater was built in England in 1899, with steel hull, wood sheathed, and is fitted with a single screw, two bladed propeller, triple expansion, convertible, surface condensing, reciprocating engines of 1,400 i.h.p., and 4 water tube Belleville boilers, with a working pressure of 260 lb. Her dimensions are,—length 300 ft., beam 33 ft., draft 12.5 ft., displacement 980 tons. She was expected to be on the route between Quebec and Gaspe ports by the end of April.

Dominion Government Steamship Laurentian.—The Minister of Marine gave the following information in the House of Commons recently, in answer to questions by A. B. Copp, Westmoreland, N.B.: The s.s. Laurentian is owned by the Government, having been bought in April 1917 from Canada Steamship Lines, for $50,000. She was out of repair and tied up at St. John for four months, and during that time 22 of the crew remained aboard, their wages per day being $47.99. The ship was repaired between May 29 and Oct. 30, 1920, by New Burrell Johnson Iron Co., and others, the cost being $48,639.43. Prior to the purchase, the ship was under charter to the Customs Department, the sums paid being: 1911-12, $7,043.24; 1912-13, $8,000; 1913-14, $7,300. The Laurentian was offered for sale to the Marine and Fisheries Department in 1911, by Geo. T. Davie & Son, no price being named.

Gaston, Williams & Wigmore exporters and importers, New York, N.Y., have been placed under receivers by the Federal District Court. The liabilities are given as approximately $6,000,000. The assets consist of stock in 25 subsidiary companies, located at different points throughout the world, the largest of these being, it is said, Gaston, Williams & Wigmore Ltd. of Canada, steamship owners. The cause of the company's failure is reported to be a fall in the value of its stock holdings, and heavy losses are said to have been sustained when the present Russian Government repudiated claims the firm had for supplies furnished to the Imperial Russian Government and its successor, the Kerensky Government.

Operation of Canadian Canal Boats in New York State.

An Ottawa press dispatch stated recently that the New York State Attorney General had given an opinion that its revised statutes forbade the use of the state canals to Canadian built boats, and that the Ottawa Transportation Co. would be the principal one to be affected by the ruling. Canadian Railway and Marine World communicated with the Attorney General of New York State, Hon. C. D. Newton, and ascertained that a committee, representing owners of U. S. boats operating on the New York State barge canal had, through their secretary, Wm. Guindon, complained to the Superintendent of Public Works at Albany, who referred the matter to the Attorney General. The latter's Deputy, E. J. Mone, replied on March 28 as follows:—

"I am not aware of any statutory provision authorizing any state officer to prevent the navigation on the barge canal or other navigable waters of this state of a canal boat or tug boat, for the reason that it was built in Canada, or for the reason that it is owned or operated by Canadians or other than citizens of the United States. And I entertain grave doubts that any valid state legislation could be enacted to accomplish this result. I am inclined to believe that such legislation would contravene the provisions of the commerce clause of the Federal constitution. However, this might depend upon the form of the legislation, and, inasmuch as I am presented with no specific proposition, I prefer not to express any definite opinion on the question at this time. If any such legislation is seriously contemplated, I will be pleased to give the matter further and more careful consideration.

"I find, however, in the provisions of title 50 of the U.S. Revised Statutes, entitled 'Regulation of vessels in domestic waters,' certain provisions which, it seems to me, cover the situation and operate to forbid the operation on the canals and canalized rivers of the state (which, as I regard it, constitute navigable waters of the U.S.) of foreign owned canal boats and steam tug boats. The general purport of this legislation is to forbid vessels which are not enrolled or licensed, as therein provided, navigating on the navigable waters of the U.S. And no vessel can be enrolled unless it be owned by a citizen, or citizens, of the U.S., or a corporation created under the laws of any of the states

"A seeming exception to this provision thereof (Sec. 8,058 U.S. Comp. Stat.) is incorporated in Sec. 8,062, which authorizes the enrollment of 'any steam boat, employed, or intended to be employed, only in a river or bay of the U.S., owned wholly or in part by an alien resident within the U.S. . . . as if the same belonged to a citizen of the U.S. . . .' on giving a bond 'conditioned that the boat shall not be employed in other waters than the rivers and bays of the U.S.' (Secs. 8,062-3.)

"It appears that the provisions of title 50 do not operate to require the enrollment of canal boats which are employed on the internal waters or canals of the state (and not 'employed in trade with the Canadas') which are not propelled by sail or by internal motive power of their own (Sec. 8,145).

"Sec. 8,146 provides that: 'The provisions of title 50 of the Revised Statutes of the U.S. shall not be so construed as to require the payment of any fee or charge for the enrolling or licensing of vessels, built in the U.S. and owned by citizens thereof, not propelled by sail or by internal motive power of their own, and not in any case carrying passengers, whether navigating the internal waters of a state or the navigable waters of the United States, and not engaged in trade with contiguous foreign territory, nor shall this or any existing law be construed to require the enrolling, registering or licensing of any flat boat, barge or like craft for the carriage of freight, not propelled by sail or by internal motive power of its own, on the rivers or lakes of the U.S.' But this provision is held to relate solely to vessels 'built within the U.S. and owned by citizens thereof' and not to extend to foreign craft, even when owned by an American citizen. (Opinions of Attorney General, U.S., Vol. 16, pg. 563).

"I am persuaded that these provisions do not operate to authorize the navigation upon the navigable waters of the U.S. of canal boats which are not owned by a citizen of the U.S. The clear policy and purport of the Federal legislation, as I read it, is to the contrary, viz., that no freight carrying vessels may be navigated upon the navigable waters of the U.S. except as they are authorized so to do by the provisions of title 50. I find no such provision relating to canal or tug boats owned by Canadians or built in Canada.

"As a result of a rather hasty examination of this congressional legislation I am inclined to the belief that canal boats built in Canada, or owned by Canadians, may not be lawfully navigated upon the canals or canalized rivers of the State of New York. If my understanding of the law is correct it is incumbent upon the Secretary of Commerce, who is charged with the duty of enforcing the provisions of these Federal regulations, to take steps to prevent the continued operation of this character of craft on the canals of this state. I would suggest that the committee representing the owners of boats operating on the barge canal, which has communicated with you, communicate to the Secretary of Commerce a full and precise statement of the facts, including the names of the boats, the operation of which is complained of, and the owners thereof, with a request that he take steps to prevent their continued operation. I will be pleased to render to it any assistance within my power, but I think that orderly practice requires that the matter be first taken up with the Federal authorities. I am sending a copy of this communication to Wm. Guindon, secretary of, and representing, the complaining boat owners."

The Attorney General's Deputy wrote again on April 5 as follows:—"I learn that my letter of March 28 with respect to Canadian canal boats navigating the barge canal has been construed to mean that Canadian built canal boats or tugs could, under no circumstances, navigate the canals or internal waters of this state, and specifically that they could not lawfully carry cargo from a point in the State of New York over the canal and connecting waters to Montreal or other Canadian ports. I did not intend to be so understood. It was my understanding that the practice complained of was the employment of canal boats, or tugs, built in Canada, or owned by Canadians, to carry cargo from one point or place to another on the barge canal; and and I intended to express the opinion that this was forbidden by the Federal statutes to which I referred. I am not aware of any congressional legislation forbidding the employment of such boats on the canals or internal waters of this state in carrying cargo from a New York to a Canadian port or vice versa, provided they do not undertake to carry cargo from one point or place to another within this state, and accordingly am of the opinion that such use on the canals or interior waters of the state of Canadian built, or owned, canal boats, would be lawful. I regret that the unguarded general language employed in my former communication has led to this misunderstanding."

The opinions given above really raised no new point. It is simply the old question of the so-called U.S. coasting law, under which goods or passengers cannot be carried from one U.S. port to another in a ship foreign to the U.S. Similarly foreign ships cannot carry goods or passengers from one Canadian port to another. A Canadian ship, however, may carry between two ports on different sides on the International Boundary. No Canadian ship owners claim the right to carry, for instance, from Buffalo to New York along the Erie Canal, and while, theoretically, a Canadian ship would have the right to carry say, from Fort William, Ont., to New York via the Great Lakes and the Erie Canal, a ship which could do this profitably and safely, having regard to the size of competing lake carriers, the dangers of lake navigaton, the canal draft, and the height of the bridges, has not yet been devised. The Dominion Marine Association has always taken the view that the New York State canals should be open to Canadian boats, but as far as the Erie Canal is concerned, the question is purely academic and of no practical moment. The U.S. senator who led the forces against the St. Lawrence improvement scheme at the International Commission's first Buffalo hearing, about a year ago, claimed that the canal was free and open to any Canadian boat. Francis King, General Counsel, Dominion Marine Association, asked him whether he thought a boat which could weather the storms of Lake Superior with a grain cargo could negotiate the low bridges, and the high sills, of the canal, and get through to New York. The Senator stated, in reply, that he knew of plenty of boats whose smoke stacks would operate on hinges, and when pressed further he had the colossal nerve, or infantile ignorance, to suggest collapsible deck houses. This caused a lot of ironical laughter, and Mr. King made his point, which was that through carriage is impossible from the head of the lakes to New York, except in specially designed boats, with lighterage at Buffalo, and that carriage from Buffalo to New York only, would probably contravene the coasting law.

Algernon Rock Pier.—The Minister of Marine stated in the House of Commons recently, in answer to J. F. Fafard, L'Islet, Que., that it is not the intention to put an aga gas apparatus on the pier at Algernon Rock at present.

Atlantic and Pacific Ocean.

Canada Steamship Lines s.s. Manola, which arrived at Montreal, Apr. 19, from St. John's, Nfld., was the first ship to enter the port from the sea this season.

The s.s. Vandolite, an oil tank steamship, built at New York and launched at the end of March for the Standard Oil Co. of New Jersey, will, it is reported, be operated this year by Imperial Oil Ltd., Toronto.

Canadian Pacific Ocean Services is reported to have closed two offices in London, and one in Liverpool, Eng., due to the arrangements made by which the C. P.R. has been appointed as its Traffic Agent, as mentioned in our last issue.

Canadian Pacific Ocean Services' s.s. Empress of Asia arrived at Victoria, B. C., Apr. 19, having crossed the Pacific Ocean from Yokohama in 8 days 21 hr. 38 min., which is stated to be a record, the usual time taken being over 9 days.

The C.P.R. s.s. Empress of France, which arrived at St. John, N.B., Apr. 15, is said to have established a record between Liverpool and St. John, completing the trip of 2,903 miles in 6 days 8 hr. and 42 min., an average of 19.01 knots an hour.

The Edgewood Shipping Co.'s schooner Edgewood was burnt at Port Antonio, Jamaica, Apr. 18, while bound from St. Thomas, Danish West Indies, for Mobile, Ala. She was owned and registered in Montreal, and was built at Quebec, Que., in 1918, her dimensions being,—length 191.1 ft., breadth 36.8 ft., depth 15.5 ft., tonnage 699 registered. She was insured for $120,000.

Canadian Robert Dollar Steamship Co.'s s.s. M. S. Dollar, which arrived at Vancouver, Apr. 12, from New York, completing her first round-the-world trip under the Canadian flag, is stated to be the first Canadian registered ship sailing out of Vancouver to have made such a voyage. She sailed from Vancouver Oct. 27, 1920, for the Orient, and then proceeded via the Suez Canal to New York.

The Houston Line, which is operating a steamship service between Montreal, South America, India and the Far East, and for which McLean Kennedy Ltd. is Canadian agent, has bought the new steamships Itajahy, Parthia and Patria, each with 7,000 d.w. tons capacity. It is stated that they are to be renamed Hesione, Hesperides and Hesperus respectively. The Hesperus is scheduled to sail from Montreal about May 15.

The Williams Line, of New York, is reported to be considering the inauguration of a steamship line between Montreal and Vancouver, via the Panama Canal. The company owns the steamships Willcasino, Willdomino and Willkeno, three of the steel cargo steamships of the "War" series built in Canada for the British Government under orders from the Imperial Munitions Board. It also operates a steamship service out of New York to U.S. Pacific ports.

A New York press report stated recently that wage reductions were being put into effect on British steamships calling there and that certain members of crews of some steamships which sailed from New York recently had already had their wages reduced from $50 to $30 a month, and that they were prepared to strike on reaching England, provided others would join them. The Cunard Line, which was said to be the one affected, is reported to have stated that nothing was known at its New York office of such a reduction.

The Canada Line, which operated a direct steamship service from Montreal to Continental ports, will, it is announced, resume the service this year, and it was expected that the first sailing on the renewed service would be from Rotterdam, Apr. 26. The services will be from Antwerp and Rotterdam to Quebec and Montreal, and from Montreal to Cherbourg, Antwerp and Rotterdam, alternating with Montreal, Quebec, Hamburg, Danzig and Libau. The steamships to be used are named Samland and Maasdam, each about 9,000 tons gross, with accommodation for third class passengers only.

A Montreal press dispatch says that at a meeting in New York, April 21, of steamship companies operating to French Atlantic ports, Belgium, Rotterdam and Hamburg, which was attended by the Franch Line, it was decided to lower the rates that were tentatively adopted 10 days previously. The French Line is said to have balked at the tentative rates, contending that shippers were entitled to the lowest rates that the carriers could afford and that it would not agree to conform to the rates that had been in force for the past two weeks. The result was that the rates were reduced 30% on an average.

The s.s. Minnekahda, owned by the American Line, called at Halifax, N.S., Apr. 2, on her first voyage eastward from New York as a passenger steamship in immigrant service. She was built in Great Britain in 1917, and was immediately taken into war service as a freight steamship. On the conclusion of the war she was transferred to the U.S. register and is said to be the largest British built ship ever transferred to the U.S. flag. She has been fitted up with accommodation for 2,500 third class passengers, no other class being carried. Her gross tonnage is 17,200, and it is said that her cost approximated $7,000,000.

The Cunard Lines' s.s. Royal George will, it is announced, be used at Cherbourg, France, by the Cunard Line and the White Star Line jointly, for handling emigrant traffic, prior to shipment out of that port. The s.s. Royal George is well known on the St. Lawrence route, being one of the two large passenger steamships acquired by Canadian Northern Steamships Ltd., to form the nucleus of its Atlantic fleet, which was sold subsequently to the Cunard Co. She was originally named Heliopolis, and was built for the Mediterranean tourist trade. While in service on the St. Lawrence route she held the record for the trans-Atlantic run and has seen considerable war service. Her sister ship Royal Edward was torpedoed in the Dardanelles during the war.

Canada Steamship Lines has, according to a Montreal press dispatch made an arrangement with a Norwegian steamship company, under which a joint line of 12 steamships will be operated between Montreal and Liverpool, and Montreal, Havre and London, under the name of Intercontinental Transport Ltd. The steamships have, it is said, all been arranged for, and it is stated that they will be renamed after various counties in Ontario. Sailings will be provided out of Montreal weekly, the destination alternating between Liverpool and Havre-London. The first sailing is scheduled for May 14, by the s.s. Porsanger, which was built by Canadian Vickers Ltd., Montreal, in 1918, for Norwegian owners. Her dimensions are,—length overall 394½ ft., depth moulded 30 ft., d.w. tonnage 7,000, gross tonnage 4,670, load draft 24 ft.

Maritime Provinces and Newfoundland.

The Reid Newfoundland Co.'s s.s. Kyle, from Port aux Basques, Nfld., was the first steamship to arrive at North Sydney this year, viz., on March 28.

The Canadian National Rys. car ferry steamship Prince Edward Island will go to Halifax, N.S., about May 10, for overhaul and repairs, and will be off her route for about a month, during which time her place will be taken by the car ferry steamship Scotia No. 1.

St. John, N.B., harbor revenue for 1920 was $178,847, against $147,405 for 1919. During 1920, 254 steamships and 44 sailing ships entered and cleared the port, compared with 264 steamships, 60 sailing ships in 1919. At the city wharves 172,312 tons of general cargo, 318,208 tons of grain, and 49,270,000 ft. of lumber were handled.

The s.s. Impoco, owned by Imperial Oil, Ltd., Toronto, stranded on Blonde Rock, near Yarmouth, N.S., during heavy weather, Apr. 6, and it is believed will be a total loss. She was built at Grangemouth Eng., in 1913 and was screw driven by engine of 157 h.p. Her dimensions were:—Length 249.5 ft., breadth 43.1 ft., depth 19.7 ft., tonnage 2,257 gross, 1,383 net.

The British s.s. City of Colombo, which ran aground at Digby Neck, in the Bay of Fundy during March, and which was regarded as a total loss, may possibly be salved. During the early part of April she was reported to be resting on an even keel, with holds 1, 2 and 3 forward full of water and the engine room dry, and with the greater part of the cargo safe, at any rate temporarily. She is reported to have two large holes in the hull forward.

The s.s. Stadium, which stranded near Cap Blanc, Miquelon, about March 18, broke up subsequently and sank, becoming a total loss. The crew returned to St. John's, Nfld., later in the month. The Stadium was owned by F. H. Ellis & Co., St. John, N.B., and was bought recently from C. T. White & Son, East Apple River, N.S. She was built at Shelburne, N.S., in 1912, and was screw driven by engine of 28 h.p. Her dimensions were, length 78.6 ft., breadth 20.6 ft., depth 9 ft.; tonnage, 118 gross, 49 net.

The Newfoundland Supreme Court has awarded the Danish s.s. Storborg $50,000 for salvaging the s.s. Delco, in the open sea, near Malin Head, about 1,000 miles from St. John's, Nfld., in January. The service began Dec. 31, 1920, and continued for 14 days, when the two ships reached St. John's. No help was rendered by the Delco's engines, and the weather at times was very rough, accompanied by snow or fog, and involved considerable risk to both ships during the towing. The Delco had lost all the blades of her propeller, before being picked up by the Storborg, and had drifted considerably to the northward of her course. The value of the Delco's cargo was $575,000. The amount awarded is to be apportioned according to the law of the country of the Storborg's domi-

cile, but the court considered that a liberal share of the award should be assigned to the masters, officers and crew of the Storborg, whose skill and care were so well bestowed and whose risks and labors were so largely increased during the tow.

Province of Quebec.

The Public Works Department received tenders to Apr. 27 for dredging at Rimouski.

The ferry s.s. Francois C., operating between Berthier and Sorel, has been overhauled and repaired at the Dominion Government shipyard, at Sorel, and was replaced in service Apr. 2. Her capacity has been considerably increased and a deck has been provided with accommodation for 12 automobiles.

The House of Commons passed an act to extend the time for the payment of debentures issued by Montreal Harbor Commissioners, due July 1, 1921, for $2,000,000,to July 1, 1946, and for the payment of another issue of $2,000,000 due July 1, 1926, to July 1, 1951.

The s.s. Duchess of York, owned by the King Edward Park Co., and operated between Montreal and St. Helens Island, was overhauled during the winter at Sorel and fitted with new paddle wheels, dining room, and 22 sleeping berths. She is expected to be in operation on the route about May 5, and during the summer will be used for excursions to St. Anne de Beaupre, Oka, Ile Maleeine, etc.

Canada Steamship Lines has announced the placing in service of its s.s. Manoa, sailing from Montreal, June 11 and each 17 days thereafter, along the south coast of the St. Lawrence, past the Gaspe coast and Perce Rock, calling at Charlottetown, P.E.I., and thence to St. John's, Nfld. The s.s. Manoa, which is about 6,000 tons, has undergone a thorough overhauling and refitting during the winter. She was entered formerly in trans-Atlantic service between Montreal, Plymouth, Havre and Bordeaux.

Judgment was delivered in the Exchequer Court at Montreal, Apr. 14, dismissing an appeal on behalf of the s.s. Samuel Marshall, from a judgment of the Admiralty Court, dismissing an application to be allowed to give security on an appeal from a judgment rendered Feb. 17, dismissing a motion on behalf of the ship to quash a warrant of arrest and to annul the sale of the ship, on the ground that the officer who made the arrest and conducted the sale, a Superior Court bailiff, was not an Admiralty Court marshal and had not right to act as such. The court held that the reasons for the judgment of the lower court were sound in law, and must be confirmed. The s.s. Samuel Marshall was owned formerly by Central Coal Co., Brockville, and sold to joint owners at Montreal and Three Rivers, Que., a few years ago.

Ontario and the Great Lakes.

Welland Canal was officially opened to navigation Apr. 15, the first ship to pass through being the Mathews Steamship Co.'s s.s. Easton.

Mathews Steamship Co. was fined $750 in Toronto police court recently, for not supplying to the city assessment department a record of shareholders, and of dividends paid, within the time required by law.

The Public Works Department received tenders to Apr. 27 for rental to the Department of completed floating plant and equipment, for cleaning up the waterway in front of the town of Sault Ste. Marie, Ont.

Canada Steamship Lines' s.s. Macassa arrived at Toronto, early on Apr. 4, from Hamilton, being the first ship to enter the harbor from an outside point for the year. The captain, G. J. Corson, received the harbor master's hat.

The Toronto Ferry Co.'s s.s. Clark Bros. was adamaged by fire at Toronto Apr. 21, while tied to a wharf. She was built at Toronto in 1890, practically rebuilt in 1901, and is screw driven by engine of 11 h.p. Her dimensions are,—length 80 ft., breadth 16.2 ft., depth 5.5 ft., tonnage 92 gross, 38 net.

Lock tenders on the Welland Canal were somewhat agitated recently over a new Government regulation providing a retiring age of 65 for civil servants, but the Minister of Railways and Canals is reported to have stated that they may continue in the service as long as they are capable of performing their duties.

The Rockport Navigation Co., Kingston, Ont., will operate a ferry service between Kingston, Ont., and Cape Vincent, N.Y., between May 15 and Nov. 15 twice daily, and during early spring and late autumn once daily, except Sundays, with its steamships Missisquoi and Waubic. Capt. J. A. Carnegie is President, Capt. R. H. Carnegie, Manager, and Mrs. Jas. Gillie, Cecretary-Treasurer.

The s.s. Bon Ami, owned by T. C. and C. D. L. Sims, Little Current, and for several years operated in mail service to Manitoulin Island, has been sold to W. B. and W. W. Climie, Sault Ste. Marie, Ont. She was built at Manitowoc, Wis., in 1902, when she was named Mariposa. She is screw driven by engine of 24 h.p., and has the following dimensions, — length 105, breadth 24.5 ft., depth 8 ft.; tonnage, 245 gross, 142 net.

The Detroit & Windsor Ferry Co. is stated to be planning improvements at an approximate cost of $1,000,000, including a new ferry steamboat, the extension of the dock about 40 ft. into the river, and the building of a new pier at the foot of Ferry Ave., Windsor. The fares question is still being discussed between the company and the city, but it is expected that the present rate of 7 tickets for 25c. will remain in force until the end of 1921, and that after that, the rate will be 6 tickets for 25c. under a 10-year franchise.

An application for an injunction against the Detroit & Cleveland Navigation Co., to prevent it discontinuing its steamship service on Lake Huron, has been filed in the U.S. Federal Court at Detroit, Mich. The company announced recently that the provisions of the seamen's law made the operation of the line unprofitable and that the service would be discontinued. The application for the injunction states that the company is a common carrier and that arbitrary discontinuance of the service would be contrary to law.

Canada Steamship Lines commenced its steamship services on its Northwest Division, covering Montreal, Toronto, Hamilton and Lake Superior, Apr. 26. The ships utilized on these services for the present are, Beaverton, Canadian, Edmonton, Glenellah, Kenora, Mapleboro, Maplebranch, Maplebrook. The Glenellah is expected to be the first ship to load grain at Fort William for Montreal. The company's sailings from Montreal to Quebec commenced Apr. 25, and from Quebec to Saguenay Apr. 30. The Montreal and Three Rivers service started Apr. 8 and the company's first service of the season was the sailing of the s.s. Macassa from Toronto to Hamilton, Apr. 2.

J. F. Sowards, Kingston, Ont., has bought the s.s. Maplegrove from Canada Steamship Lines, and has had her name changed to Jed. The s.s. Maplegrove was built at Maine City, Mich., in 1889, and was named Cherokee. She has an oak hull, and is of the well deck type, with diagonal strapping on frames, steel arches, with bow sheathed for ice. She underwent considerable repairs in 1913. Her dimensions are,—length b.p. 208 ft., breadth mouled 35¾ ft., depth moulded 14 ft.; tonnage, 1,177 gross, 636 net. She is equipped with a fore and aft compound engine, having cylinders 25 and 50 in. diar. by 40 in. stroke, 575 i.h.p., at 86 r.p.m., supplied with steam by a firebox boiler 11 ft. 4 in. diar. by 16 ft. long, at 124 lb.

The Rockport Navigation Co., Kingston, Ont., has bought the s.s. Waubic from the Northern Navigation Co., as reported in our April issue. She will be operated on a regular route between Kingston, Ont., and Cape. Vincent, N.Y. She was built at Collingwood in 1909, and has a steel hull with 4 watertight and 2 non watertight bulkheads, and steam pump wells. Her dimensions are, length b.p. 135 ft., breadth moulded 25 ft., depth moulded 9 ft.; tonnage, 504 gross, 244 net. She is classed 100 on the Great Lakes Register for Georgian Bay and adjacent waters. She is equipped with triple expansion engines, having six cylinders, two 10 in., two 16½ in., and two 27 in. diar. by 15 in. stroke, 650 i.h.p., at 15 r.p.m., supplied with steam by a single Scotch boiler 12½ ft. diar. by 10½ ft. long, at 180 lb.

The Kingston Navigation Co., which has bought the steamships Brockville and St. Lawrence, will operate the former between Kingston and Belleville, calling at Amherst Island, Picton and other way ports, and also between Belleville and Presqu'ile Point. The s.s. St. Lawrence will be run between Kingston and Ogdensburg, Kingston and Picton, and Kingston and Alexandria Bay, calling at way ports. Both ships were owned formerly by Canada Steamship Lines. The s.s. Brockville was built at Toronto in 1898, and has a wooden hull of the following dimensions,—length b.p. 105 ft., breadth moulded 21 ft. 5 ins., depth moulded 5 ft. 7 in.; tonnage, 191 gross, 88 net. She is equipped with fore and aft compound engine, with cylinders 9 and 18 in. diar. by 14 in. stroke, 140 i.h.p. at 165 r.p.m., supplied with steam by a firebox boiler 4¾ ft. diar. by 8 ft. long, at 165 lb. The s.s. St. Lawrence was built at Clayton, N.Y., in 1884, and has a composite hull, with dimensions,—length b.p. 154 ft., breadth moulded 21 ft., depth moulded 7 ft.; tonnage, 312 gross, 188 net. She is equipped with beam condensing engine, with cylinder 32 in. diar. by 72 in. stroke, 350 i.h.p. at 38 r.p.m., supplied with steam by a firebox boiler 8 ft. diar. by 16 ft. 2 in. long, at 87 lb.

Glen Transportation Co. Ltd. has been granted supplementary Dominion letters patent, increasing its capital stock from $500,000 to $1,000,000, by the creation of 5,000 shares of $100 each.

Manitoba, Saskatchewan and Alberta.

An Edmonton, Alta., press dispatch states that R. Cunningham, Assistant Engineer, Dominion Public Works Department, has suggested that the Saskatchewan River be utilized for the transportation of coal eastward. He is reported to have stated that the river is navigable for such transport to northern Saskatchewan points, and even to Lake Winnipeg, and contrary to general impressions, is navigable all the way, giving a channel with an average depth of water throughout. With the use of light draft barges, dredging would not be necessary, and in the present condition, the river is in the same class as the Athabasca and Peace Rivers, so far as navigability is concerned. He considers that there is sufficient traffic in the 410 miles to Prince Albert to pay the first cost of a tug and several barges out of the first year's operations, based on $1 a ton for freight, and with that rate nearly doubled, he claims that it would be possible to deliver coal to Prince Albert at a lower cost than if hauled by rail.

British Columbia and Pacific Coast.

The name of the steamship Bowena, owned formerly by Terminal Steam Navigation Co., and now by Union Steamship Co. of British Columbia, Vancouver, has been changed to Cheam.

The Pacific Steamship Co.'s s.s. Governor collided with the U.S. Shipping Board's s.s. West Hartland, off Point Wilson, near Port Townsend, March 31, after having made a call at Victoria, B.C.

The North Vancouver municipal ferries committee's chairman is reported to have stated that a contract must be let for the construction of a new ferry by August. Ferry no. 2 has been practically condemned, though its life may be prolonged somewhat by reducing the load unit allowed.

An Ottawa press dispatch of April 13 states that W. S. McMichael, Chief General Inspector of Customs, who is at present in Europe, is studying the question of free port zones, as in operation at Copenhagen, Hamburg, etc., and that on his return to Canada, he will report to the Minister of Customs, who will later proceed to Vancouver to hear representations as to the creation of a free port zone there.

Arrangements are reported in progress in Vancouver, B.C., for the running of a special passenger excursion steamship from Vancouver this summer, to several European ports, via the Panama Canal, and returning to some Atlantic port, where passengers would entrain for Vancouver. The single fare is quoted at $300, and $550 for the round trip. It is stated that this will be the first time that a passenger steamship has sailed from Vancouver to a European port.

Upper Traverse Light.—The Minister of Marine stated, in the House of Commons, recently, in answer to J. F. Fafard, L'Islet, Que., that Alfred Fournier, lightkeeper at Upper Crossing, St. Roch, officially known as Upper Traverse, resigned April 30, 1920, and that Gustave Fournier had been appointed to succeed him.

Mainly About Marine People.

Capt. John Alward, a former Great Lakes ship master, and for the last 25 years, in Toronto Ferry Co.'s service, died at Toronto, Apr. 2, aged 78.

G. M. Bosworth, Chairman, Canadian Pacific Ocean Services, returned to Canada, Apr. 19, on the s.s. Empress of Asia, after a business trip to the Orient.

Michael Henry, who was Assistant Superintendent, Welland Canal, for about 15 years, and was superannuated in 1911, died at Port Dalhousie, Apr. 17, aged 72, from pneumonia.

Capt. Sir James Charles, C.B., who arrived at New York recently, in command of the Cunard Line s.s. Aquitania, is commodore of the company's fleet, and is completing 41 years of service at sea, 26 of which have been with the Cunard Co. He has served on several of the Cunard ships, many of which are now gone, and, during the war, was in charge, at different times of the Saxonia, Ausonia, Mauretania and Carmania, and after the signing of the armistice, took command of the Aquitania, when she was utilized for returning Canadian and other troops. He was made a Companion of the Order of the Bath in 1911, for services in connection with the British mercantile marine; Companion of the Order of the British Empire in 1919, and a Knight of the same order shortly afterwards. He has the R.N.R. decoration, and is senior captain on the active list of the Royal Naval Reserve.

William B. Elsworth, whose appointment as Manager of Marine Department, Imperial Oil Ltd., Toronto, was announced in our last issue, was born at Bayonne, N.J., March 3, 1869, and entered transportation service in 1900, prior to which he was from 1897 to 1898 in Standard Oil Co.'s service, Bayonne, N.J.; and from 1899 to 1900, in Imperial Oil Co.'s service, Sarnia, Ont. From 1900 to 1906, he was in charge of operation of oil tanks on the Great Lakes, Imperial Oil Ltd., Sarnia, Ont.; 1906 to 1916, Superintendent of Refinery, same company, Sarnia, Ont.; 1916 to 1918, Superintendent of Refinery, same company, Halifax, N.S.; 1918 to 1919, General Superintendent of Refineries, same company, Toronto; 1919 to 1921, Superintendent of Operations, Marine Department, Standard Oil Co., New York, N.Y.

Capt. R. O. Jones, who is retiring in May from White Star-Dominion Line's service, after having been with the company for 37 years, has been on the St. Lawrence route for about 31 years, and was, for about 12 years, master of the company's s.s. Canada. He has served on the steamships Dominion, Kensington, Canada, Megantic, Laurentic, Belgic, Adriatic and Celtic. During the war, he carried large numbers of British, Canadian and U.S. troops, and commanded the s.s. Northland, one of the first steamships to sail from Great Britain with troops for Gallipoli. He also commanded a steamship which took troops from Great Britain to South Africa, during the Boer war, in 1899.

J. E. Lunan, heretofore Steamship Inspector (Boilers and Machinery), has been appointed Steamship Inspector (General), Marine and Fisheries Department, Montreal.

Sir Frederick Orr-Lewis, President, Canadian Vickers Ltd., Montreal, was expected to sail from England for Canada on April 26, by the s.s. Empress of Britain.

James B. Stewart, Steamship Inspector (Boilers and Machinery), has been appointed Steamship Inspector (General), Marine and Fisheries Department, Toronto.

A. D. Swan, M.Inst.C.E., Montreal, who is consulting engineer for the Vancouver Harbor Works, is in England, and is expected to return to Montreal in June.

Major W. G. Swan, D.S.O., Chief Engineer, Vancouver Harbor Commission, has been elected President of the Association of Professional Engineers of British Columbia, succeeding D. O. Lewis, who resigned on removing to Toronto, where he is now Assistant Engineer, Maintenance of Way, Eastern Lines, Canadian Northern Ry.

M. W. Tingley, Comptroller, International Mercantile Marine Co., retired April 1, after 48 years service. He entered steamship service with the American Line at Philadelphia, Pa., in 1873, and was Auditor of that line when it was taken over in 1903 by the I.M.M. Co., of which he was appointed Comptroller.

French Steamships to be Sold.

The French High Commission, New York, is offering for sale five 1,000 tons full powered coal, wooden barges now lying in Louise Basin, Quebec, and named Bouxwiller, Bouzonville, Brumath, Cattenon and Cernay respectively. They were built by National Shipbuilding Corporation, Three Rivers Shipyards Division, Three Rivers, Que., and have the following dimensions, — length overall 204½ ft., length b.p. 195 ft., beam moulded 39 ft. 8 in., beam extreme 40½ ft., depth of hold 15 ft., draft loaded 16 ft., d.w. cargo capacity 1,400 tons, coal bunker capacity 130 tons, coal consumption 13 tons, speed 9½ knots. They are each equipped with two vertical, inverted, direct acting, compound engines, developing 275 i.h.p. at 175 r.p.m., and supplied with steam by two Scotch marine boilers, each with two furnaces, working pressure 180 lb. The ships are equipped with electric light and radiotelegraph apparatus. The auxiliary equipment includes steam steering engines, steam windlass, 6 cargo winches, single drum, double 7 x 12 in. cylinders, 2 feed water tanks, 1,500 gall. each, 2 drinking water tanks with combined capacity of 1,000 gall. and the usual independent pumps, etc. The ships are described as nearly completed, and tenders were invited for their purchase in their present condition, and also completed and ready for sea, with first class classification of Bureau Veritas. These ships were ordered by the French Government, March 12, 1919, from the National Shipbuilding Corporation, Wilmington, Del., and the contract was transferred to Three Rivers Shipyards, Three Rivers, Que., a subsidiary. Both of these companies went into liquidation before the ships were completed, and there was considerable litigation before they were handed over to the French Government.

Lake Superior Chart. — A new and more complete edition of the chart from Caribou Island to Michipicoten Island, no. 110 of Canadian Hydrographic Survey, corrected to Apr. 1921, has been issued. It may be obtained from the Hydrographic Survey, Naval Service Department, Ottawa, for 15c.

New Atlantic Ocean Passenger Depot at St. John, N.B.

With the completion of the construction of the new immigration building at West St. John, N.B., the C.P.R.'s ocean passenger landing accommodation at that port is said to be second to none on the Atlantic seaboard, for convenience of handling and comfort of passengers. The problems of handling heavy ocean passenger business in severe winter weather, in confined space and amid old fashioned buildings, have been successfully overcome, in a manner which is unique as to arrangement and yet entirely suitable for the purpose.

Before the war, westbound ocean passenger steamships called at Halifax, where immigration and customs officers were picked up and examinations of cabin passengers and their baggage were carried out on board ship, during the remainder of the run to St. John. Facilities for examination of steerage passengers only were provided at St. John, and consisted of an immigration examination hall, built as a second story over one of the wharf sheds, and a small immigration building and baggage room in alphabetically arranged sections, steerage and cabin baggage separately. Offices are provided on the same floor for railway baggage staff, customs officers and steamship staff, also a large lockup room for held-over baggage. After examination, the baggage is loaded on cars on one side of the shed, and passengers are entrained from the opposite side. Sliding doors are provided at intervals. The building is electrically lighted, and steam heated to a comfortable temperature even when a number of doors are open. City baggage is taken out for team delivery from the end of the shed close to the street, and the baggage is taken into the shed in the first instance from the opposite end on electric trucks. The trucks take theb aggage from the bottom of the ship's gangway, in the wharf shed across the intervening tracks, over removable bridges.

Passengers are landed from the ship's gangway on to the floor of wharf shed 3. Previously they were allowed to mingle with their friends and onlookers at the foot of the gangway, and find their

New Atlantic Passenger Depot, St. John, N.B.

close by. With the returning tide of passenger business since the war, and the greatly increased European immigration movement, were coupled a change of routing of C.P.O.S. steamships, which made St. John the first port of call, and also a very greatly increased stringency in both Canadian and U.S. customs and immigration regulations. The result was that the facilities at St. John were found to be entirely inadequate; custom examination of baggage was obliged to be carried out on the floor of the open wharf shed, with great hardship to passengers and officials. In the early winter of 1919-20, a steam heated baggage shed was erected, parallel to and in the rear of the wharf shed, upon a site which had previously been occupied by cattle pens and tracks. Work was started on Nov. 15, 1919, and the new building was ready for use in two months, on Jan. 15, 1920. This building is 500 x 60 ft., with covered platforms on both sides. Three lines of tracks are located immediately in the rear of the wharf sheds, the tracks being on a 15° curve at their westerly end. This baggage shed was built to conform to these tracks, and also to the curvature required for new passenger entraining tracks on the opposite side. The building, therefore, varies in width from about 37 ft. at the ends to 60 ft. for the middle portion. Ample accommodation is provided for all baggage from the largest class of steamships to be spread on the floor of the shed at the one time, way through this shed, across an open space and up a flight of steep stairs into the immigration examination hall on the second floor of adjacent shed 4. After their examination they had to find their way back again to their baggage in shed 3 alongside of the ship. With the coming into effect of more stringent regulations by the immigration department, temporary portable wooden fences were set up parallel to the side of wharf shed 3 next to the dock, and passengers are made to proceed along the passageway thus formed, to the end of the shed, and thence up an inclined covered passageway across the open space and into the end of the immigration hall. This passageway has an incline of 1 in 5, is provided with handrails and the floor is covered with rubber matting. In the immigration hall separate examination rooms are provided for both Canadian and U.S. services. After successfully passing this examination the passengers emerge into a railway ticketing hall, where tickets can be obtained for both the Canadian Pacific and Canadian National Railways, and telegrams sent. Refreshments can also be bought for the train journey by those who do not wish to make use of dining cars. After this, the passengers enter another covered passageway which leads them across the tracks at high level and then down an inclined rampway into the middle of the baggage shed.

In cases where a ship docks on the night tide, the baggage is taken ashore and placed in the baggage shed before passengers are landed the following morning, and then baggage can be claimed, examined and checked as soon as ticketing is completed. But when a ship docks in the day time, some time elapses before all baggage is placed in the shed, and the first passengers through the immigration inspection have to wait until the baggage shed is ready. Last autumn the need for a modern waiting room was met by the construction of a large waiting room over one end of the baggage shed, which can be reached from the covered passageway across the tracks. This room is 113 x 52 ft., provided with seats around the walls, in the form of three sides of a square in each structural bay, with seating capacity for 300 persons. Lavatory accommodation of modern sanitary type is provided and also a nursery, fitted with cots and chairs. The nursery is operated by the Red Cross Society and children's food can be prepared on an electric stove. Children's clothes can be washed, and a drying rack is available in the women's lavatory. Hot water is provided to all lavatory basins and all rooms are steam heated and electrically lighted from pleasing fixtures. The waiting rooms are sheathed with Dougas fir natural finish and are well lighted with large windows. Emergency exit is provided by an inclined rampway to the ground outside.

The tide of European immigration this winter very soon showed that immigration accommodation was required on a large scale. On Dec. 21 1920, work was started on the construction of immigration quarters over the balance of the baggage shed, 360 x 60 ft., and was completed Feb. 15, 1921, a period of forty-eight working days. These new quarters are reached from the second examination room in the upper floor of shed 4, by means of an open bridge across the intervening tracks at high level. The entrance from this bridge is into a large recreation room. A separate passageway leads off to the women's quarters. In the men's quarters a large dormitory 80 x 30 ft., and a small dorimtory 55 x 20 ft., are provided for foreign men with lavatories adjacent and a small dormitory, 47 x 13 ft., for British men with separate lavatory room. A disinfecting and bath room is also provided. A dining room 55 x 30 ft., and a kitchen 38 x 30 ft. are provided on the same floor. A central corridor 8 ft. wide leads to an emergency exit, with a rampway to the ground from the end of the building. The

women's quarters have a dormitory 67 x 30 ft. for foreign women, and one 24 x 30 ft. for British women, and separate lavatories are provided to each. A matron's room 10 x 10 ft., storerooms and an emergency exit to waiting room outside ramp, complete these quarters. All interior walls of the building are covered with Pedlar metal, painted grey, floors are hardwood except in lavatories, where they are tile. Men's lavatories are equipped with automatic syphon eduction range closets, and the women's with automatic flushometer seats and bowls. Self closing bibs are provided to all basins for hot and cold water. Hot water is supplied from a tank equipped with steam coil and heat regulating valve. Fire lines and hose are located in the corridors throughout. The building has accommodation for 500 persons.

The rapidity and ease with which passengers can now be handled, and the continuous onward movement through the different processes incidental to landing at a national border port, will result in the elimination of a great deal of the distress and vexatious delays and confusion which so often make hard the lot of the returning citizen, tourist or immigrant, and will make the landing in Canada at the port of St. John in winter an experience no longer to be dreaded, and avoided, if possible. Everything is done that is possible for the comfort and convenience of travellers.

The work was carried out by the C.P.R. under direction of its New Brunswick District staff. J. A. Grant & Co., St. John, were the contractors. The cost of the work will be borne by the C.P.R. and the Dominion Immigration Department.

The s.s. Theodore F. Reynolds, which has been placed in the molasses trade between the West Indies and U.S. and Canadian ports recently, is owned by Theodore F. Reynolds Corporation, and operated by Sugar Products Co., a subsidiary of the Pure Cane Molasses Co., New York, of which last named company the Pure Cane Molasses Co. of Canada is also a subsidiary. She was built at Duluth, Minn., in 1920, and is of the steel tank type with propelling machinery amidships. She is classed 100 A1 at Lloyd's and has the following dimensions,—length overall 261 ft., length b.p. 251 ft., beam moulded 43½ ft., depth moulded 22 ft. 2½ in., draft design 21 ft.; tonnage, 2,359 gross, 1,423 net. The propelling machinery consists of triple expansion engines, with cylinders 19, 32½ and 54 in. diar. by 40 in. stroke, 1,250 i.h.p. at 85 r.p.m., supplied with steam by two Scotch boilers, each 13 ft. diar. by 11 ft. long, each equipped with two corrugated furnaces, with a grate area of 50 sq. ft., heating surface of 50 sq. ft., working pressure 190 lb. The propeller has 4 blades and is right hand, 14 ft. diar., 12 ft. 5 in. pitch. The ship's capacity is cargo tanks, 3,071 tons, based on 25 cu. ft. per ton of molasses; fuel tanks, 501 tons of oil, ballast tanks, 263 tons.

Canadian Northern Ry. Ships.—The Minister of Marine gave the following information in the House of Commons recently, in answer to questions by L. J. Papineau, Beauharnois, Que.:—On Oct. 1, 1917, the Canadian Northern Ry. owned and operated four steamships and two barges. The Canadian Northern Ry. now owns and operates 6 steamships and 2 barges, viz., Germania, 105.90 gross tons; Sebastian, 102.8 gross tons; Canora, 3,382.66 gross tons; Dalhousie City, 1,255 gross tons; Garden City, 637 gross tons; Northumberland, 1,255.46 gross tons; barges—C.N.P. No. 1, 676.67 gross tons; C.N.P. No. 2, 676.67 gross tons; C.N.P. No. 3, 676.67 gross tons.

The Royal Mail Steam Packet Co., in conjunction with the Holland-America Line, is operating a joint service of steamships from Vancouver and other North Pacific coast ports to London, Liverpool, Hull, Rotterdam, Amsterdam, Antwerp, Hamburg, and Havre, the service being given by the steamships Eemdijk, Kinderdijk and Moerdijk, with monthly sailings. Additional ships are under construction. As soon as all the ships are available, a fortnightly service will probably be given. It is intended to equip the fleet with refrigerator and cool chambers for such commodities as apples, fish, butter, cheese, etc.

Lake Freights for Grain.—Cleveland, Ohio, press dispatch, April 19.—Grain tonnage is in fair demand at 2c. from head o fthe lakes and Lake Michigan ports to Buffalo and cargoes are taken as fast as they are offered. A big steamship was named today to load at Fort William, and another with a ship of medium size were placed in Lake Michigan trade. All the cargoes will be loaded this month. Canadian boats are reporting for cargoes pretty fast at Fort William. Stocks at the latter port are heavy, but according to reports sales are small and much of the grain is still in the farmers' hands.

St. John, N.B., Harbor Expenditure.—The Minister of Public Works gave the following information in the House of Commons recently, in answer to questions by J. F. Fafard, L'Islet, Que.:—The expenditure by the Public Works Department at St. John harbor, from 1900 to 1920, was $14,283,857.94. The exact amount to be spent this year cannot be stated at present. In 1920-21, the expenditure was $1,233,941.23. The item placed in the estimates for 1921-22 is $1,250,000.

Freight Rates on Great Lakes.—W. E. Burke, Director of Transportation, Canada Steamship Lines, is reported to have stated recently that rates on all classes of freight on the Great Lakes, on that company's ships, are lower this season than those quoted during last autumn. This change in favor of the shipper is due to the decrease in operating costs which the company has effected, and it is looking forward to increased business, owing to the saving that can be made by the movement of freight by water.

Shipping Prices in Great Britain.—At an auction of steamships in London, Eng., recently, on behalf of the Allies Reparation Commission, none of the oil tank steamships offered were sold, and it is reported that only one steamship put up was actually disposed of, the auctioneer describing it as a gift and not a sale. The price offered for oil tank steamships was about £1 a ton, whereas not many months ago people were willing to pay as much as £40 a ton for similar ships.

Montreal Pilotage Dues.—A Montreal press dispatch states that the Montreal District pilots are petitioning the Marine Department for an increase in pilotage dues on ships entering the port of Montreal. The rate at present payable on ships coming to Montreal from Quebec is $4 a foot draft for ocean ships; $3.50 for coasting ships, and $3.25 for inland ships. The increases asked would make the fees $5, $4 and $3.50 respectively. A similar application was refused last year.

Immigrants' Landing Tax.—The Quebec Harbor Commissioners propose to charge steamship companies 50c. a head on each immigrant landed by them at Quebec. The steamship companies are opposing the proposal, on the ground that any such tax is a matter for the Dominion Government, and in their opinion would, apart from the principle involved, divert many immigrants to U.S. ports, whence they could enter Canada free of the tax.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

May 11.—Railway Accounting Officers' Association, Atlantic City, N.J.; E. R. Woodson, 1,116 Woodward Bldg., Washington, D.C.

May 23 to 26.—Master Boiler Makers' Association, St. Louis, Mo.; H. D. Vought, 95 Liberty St., New York.

May.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

June 8.—Railway Accounting Officers Association, Atlantic City, N.J.; E. R. Woodson, 1116 Woodward Building, Washington, D.C.

June 15, 16.—American Railway Asosciation, Mechanical, Chicago, Ill.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 20.—American Association of Freight Agents; R. O. Wells, Illinois Central Rd., Chicago, Ill.

June 20.—American Train Dispatchers' Association, Kansas City, Mo.; C. L. Darling, Northern Pacific Ry., Spokane, Wash.

Aug. 24 to 26.—American Association of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, Kansas City, Mo.

Sept. 20 to 22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry., Sterling, Ill.

Oct. 4 to 6.—Maintenance of Way Master Painters' Association, Buffalo, N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except, June, July and August.

Canadian Traffic League—A. H. Thorpe. 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Offices, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canada Machinery Corporation, Galt, Ont., has removed its Toronto sales office to 721-2 Bank of Hamilton Building, 65 Yonge St., from Brock Ave. subway.

Diamond State Fibre Co. of Canada, which has its head office and works in Toronto, has opened a branch office at 84 St. Francois Xavier St., Montreal, in charge of J. A. Regan.

Flannery Bolt Co., Pittsburg, Pa., has issued a booklet "About a Real Locknut."

National Steel Car Corporation, Hamilton, Ont.—Letters patent have been issued under the Dominion Companies Act changing the name of National Steel Car Co. Ltd. to Hamilton Car Co. Ltd. This has caused some confusion, the impression having got abroad that the name of the National Steel Car Corporation, which took over the National Steel Car Co.'s plant, etc., when that company got into difficulties, had been changed. R. J. Magor, President, National Steel Car Corporation, has issued a statement in which he says in part:—It is not the National Steel Car Corporation that has changed its name, but the National Steel Car Co. Ltd. This procedure is nothing more or less than the carrying out to a final conclusion the original undertaking entered into in Dec. 1919, when the directors of the old company, after being instructed by the stockholders, entered into an agreement to sell their assets to the promoters of the new corporation. Therefore the name was disposed of, but they could not wind up the old company in a moment but had to continue it in existence until all its affairs were wound up and the assets distributed; so all they have actually done has been to carry out the terms of this agreement, which provides for the name of the old company being changed to the Hamilton Car Co. It was done at this particular time because, as I understand, a committee of the old stockholders is working on the distribution of the old company's assets; also in order to avoid confusion due to the similarity of the names, particularly as far as the stock transfer is concerned, it was necessary and desirable that there should not be two concerns with names so much alike. It is the old original National Steel Car Co. that has changed its name to the Hamilton Car Co., in accordance with agreement entered into Dec. 1919; and the National Steel Car Corporation has been operating, and expects to continue to operate, under its own name and in accordance with its incorporation declarations of Dec. 1919.

G. & J. Weir (Canada (Ltd.), which is a subsidiary of G. & J. Weir, Glasgow, Scotland, and for which Peacock Bros., Montreal, are sole agents for Canada, is building a foundry at Ville la Salle, near Montreal, to manufacture oil fue pressure pumps, oil fuel transfer pumps, service pumps for ballast, fresh water and general purposes, turbine driven circulating pumps, dual air pumps, direct acting feed pumps, turbo feed pumps, etc.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

The Strauss Bascule Bridge Co.

Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.
Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.
New York Office: 30 Church St.

Ontario Jockey Club
TORONTO

SPRING MEETING
MAY 21st to 28th

The Sixty-Second Running of The King's Plate of 50 Guineas with $7,500 added—the oldest fixture run continuously on this continent.

Saturday, May 21st, at 4 p.m.

RACING - STEEPLECHASING

Col. Wm. Hendrie, *President.* W. P. Fraser, *Sec'y-Treas'r.*

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the
CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

THE CANADA SOUTHERN RAILWAY COMPANY.

St. Thomas, Ont., May 7th, 1921.

The Annual General Meeting of the Shareholders of The Canada Southern Railway Company, for the election of Directors, and other general purposes, will be held at the Company's Head Office, in the City of St. Thomas, Ontario, on Wednesday, the 1st day of June, 1921, at 11 o'clock in the forenoon.

EDWARD F. STEPHENSON,
Secretary.

THE TORONTO, HAMILTON & BUFFALO RAILWAY COMPANY.

Hamilton, Ontario, April 30, 1921.

Notice is hereby given that the Annual General Meeting of the Shareholders of this Company, for the election of a Board of Directors, and for the transaction of such other business as may lawfully be brought before the meeting, will be held at the office of the Company, corner James and Hunter Streets, in the City of Hamilton, Province of Ontario, on Tuesday, May 31st, 1921, at 11 o'clock in the forenoon.

EDWARD F. STEPHENSON,
Secretary.

DEPARTMENT OF THE NAVAL SERVICE.

SALE OF WIRE ROPE.

Sealed tenders addressed to the undersigned, and endorsed on the envelope "Tender for Wire Rope," will be received up to noon of Thursday, the 19th day of May, 1921, for the purchase of Wire Rope at Halifax Dockyard.

Tender forms and samples, together with particulars as to terms and quantities, may be obtained on application to the undersigned, or to the Naval Store Officer, H.M.C. Dockyards, Halifax, N.S.

G. J. DESBARATS,
Deputy Minister of the Naval Service.
Ottawa, Ont., April 21, 1921.

Unauthorized publication of this advertisement will not be paid for.

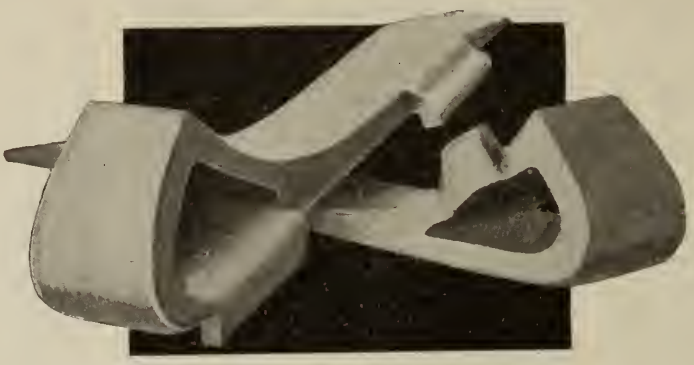
Ships For Sale

Two steam vessels, suitable for tug, passenger or freight coaster, built 1918, Lloyd's classification, electric lights, two complete baths, twenty passenger berths, if desired. Ninety-four feet overall, eighteen feet beam, draws nine feet. 200 h.p. compound engines, 12 by 24, 16 inch stroke, anchors, steam windlass and compasses included. Price low for quick sale. One or both may be inspected at Quebec, Canada. Address: Brown Corporation, Portland, Maine, U.S.A.

It Pays

to carry an advertisement in the Canadian Railway and Marine World every issue of the year because you obtain proportionately better **Results**

AVOID DELAYS

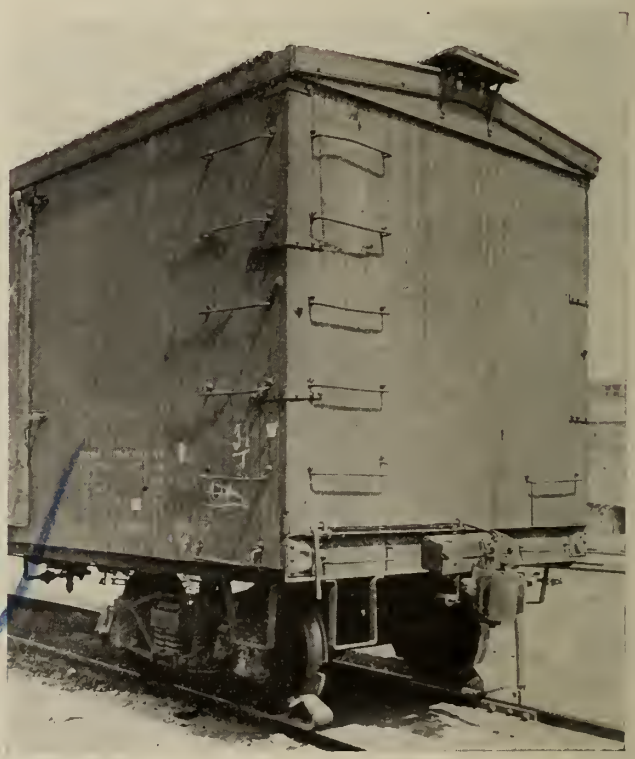


with

Q&C SKID SHOES

ALL
LAST AD.

For minor breakdowns due to defective trucks Q & C Skid Shoes will be found invaluable. The delay of sending for wrecker is avoided and chaining is unnecessary. Q & C Skid Shoes will slide wherever a wheel will roll and will pass any switch, frog or crossing and around all curves. Used as standard equipment on locomotives and in cabooses.



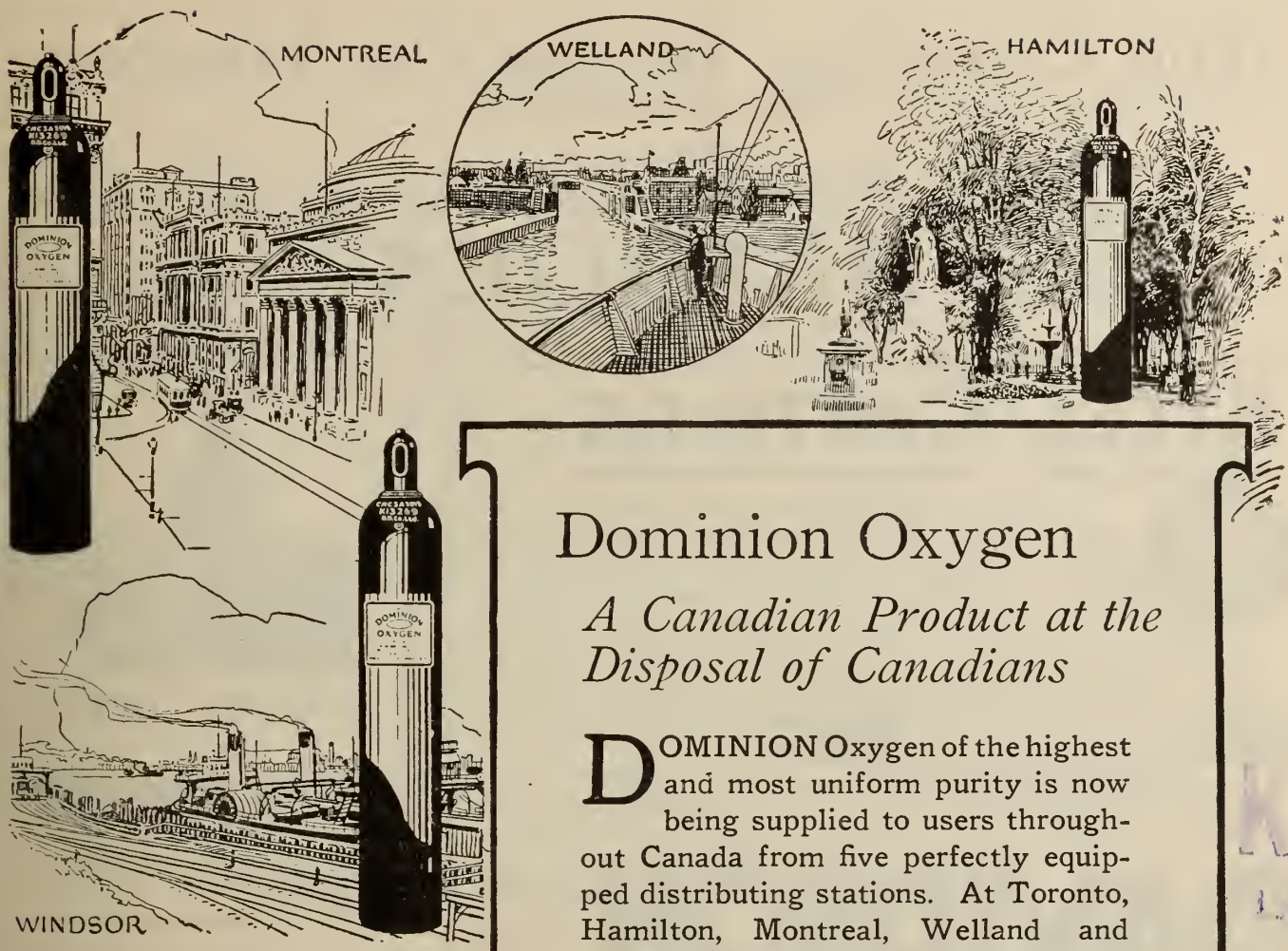
MADE IN CANADA

The General Supply Co. of Canada, Ltd

MONTREAL
TORONTO

356-360 Sparks Street
OTTAWA

WINNIPEG
VANCOUVER



Dominion Oxygen

A Canadian Product at the Disposal of Canadians

DOMINION Oxygen of the highest and most uniform purity is now being supplied to users throughout Canada from five perfectly equipped distributing stations. At Toronto, Hamilton, Montreal, Welland and Windsor are efficiently organized forces whose business it is to insure prompt delivery of your oxygen requirements.

Wherever your location, whatever quantity of Dominion Oxygen you may need—your order will be filled on the day it is received. It is through such service that the Dominion Oxygen Company Limited has secured the generous patronage of Canadians, which it hopes to continue to merit.

DOMINION OXYGEN COMPANY, LIMITED

Hillcrest Park, Toronto

Hamilton, Montreal, Welland, Windsor

D-17

The Canadian Bridge Co., Limited

Walkerville, Ontario

Locomotive
Turntables
Roofs
Steel Buildings

Manufacturers of

Railway and Highway

BRIDGES

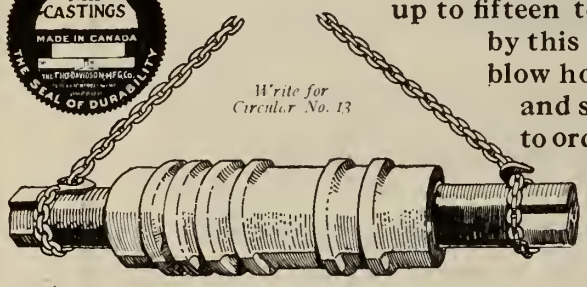
Montreal Office in New Birks Building

Structural
Iron Work
of all
Descriptions

STEEL CASTINGS

DAVIDSON'S STEEL CASTINGS MADE IN CANADA THE THOS. DAVIDSON MFG. CO. THE SEAL OF DURABILITY

Write for Circular No. 13



Made by the Acid Electric process up to fifteen tons. Castings made by this process are free from blow holes, easy to machine, and superior in every way to ordinary Steel Castings.

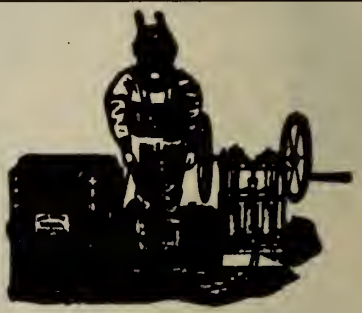
Castings supplied for shipbuilding, cars, locomotives, all classes of machinery, etc.

The Thos. Davidson Mfg. Co. Limited

Head Office: MONTREAL
Branches: TORONTO and WINNIPEG

DAVIDSON

Steel Foundry Division: Lachine Canal Turcot



JOHN DATE

Manufacturer of

Diving Apparatus

For Sale or Hire

Brass Founder and Coppersmith
13-15 Concord St., Montreal.

FORGINGS

SEND PRINTS FOR PRICES

CANADA FOUNDRIES & FORGINGS, LIMITED
WELLAND, ONT.

Rails, Cars, Locomotives

and Contractors' Equipment

IMMEDIATE SHIPMENT

John J. Gartshore

58 Front Street West
TORONTO

Car Closets

Flush or Dry

DUNER CO. 101 S. CLINTON ST. CHICAGO

NORTHERN CRANES

MADE IN CANADA

Electric Traveling Cranes, Electric Gantry Cranes, Hand Cranes, Electric Hoists.

Write for Estimates.

NORTHERN CRANE WORKS, Ltd.
Walkerville, Ont.

IMPERIAL BANK OF CANADA

Capital Authorized	$10,000,000
Capital Paid Up	7,000,000
Reserve Fund	7,500,000

Head Office: Toronto.

Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.

Sterling and New York Exchange bought and sold.

Savings Department: Interest allowed on deposits at best current rates.

Branches throughout the Dominion of Canada.

It Pays

to carry an advertisement in the Canadian Railway and Marine World every issue of the year because you obtain proportionately better **Results**

Engineers and Contractors

VIVIAN T. BARTRAM
Railroad
and
Harbour Works
Head Office
Bank of Toronto Bldg. TORONTO

ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.
Robert W. Hunt & Co., Limited
Consulting and Inspecting Engineers
Chemists and Metallurgists
Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.
Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.
REPORTS ON PROPERTIES AND PROCESSES.
Head Office and Laboratories:
McGill Building, - - - - - - MONTREAL, QUE.
Branches: TORONTO VANCOUVER LONDON, ENGLAND

ANGUS SINCLAIR, C. E.
Railway Contractor
OFFICE: EXCELSIOR LIFE BUILDING,
Adelaide and Toronto Sts., Toronto

CANADIAN BRONZE LIMITED
Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITTS. Miscellaneous Brass Castings for Railroads.
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Roger Miller & Sons Limited
Engineers and Contractors
Docks Harbors Breakwaters
Canals Foundations Industrial Plants
Head Office: Lumsden Bldg., - TORONTO.

General Railway Signal Company of Canada, Limited
Consulting Railway Operating Engineers
Reports, Freight and Passenger Yards and Terminals, Single Track Capacity, Side Track Location, Interlocking and Block Signal Design and Construction.
Head Office - Lachine Quebec

DOMINION TOWING & WRECKING CO., LIMITED
Tug Strathmore
" Strathbell
Harbour Tug Service
Lighter Strathbuoy—Capacity, 700 tons.
Equipped for all kinds of Towing, Wrecking, Etc.
Sand and Gravel supplied for Concrete Work, Rock and Soil Filling for Cribwork.
Dock Telephone, South 184: Head Office, South 2383. JOHN BELL, General Manager, 509 Grain Exchange, Fort William, Ont.

MILLER BOILER WASHING SYSTEM—FOR LOCOMOTIVES
Washout Water at 120°. Refill Water at 200°.
F. W. MILLER HEATING CO.
McCORMICK BUILDING - - - - - CHICAGO, ILLINOIS

Malleable Castings High Grade Material First Class Service
Galt Malleable Iron Co., Limited - GALT, ONT.

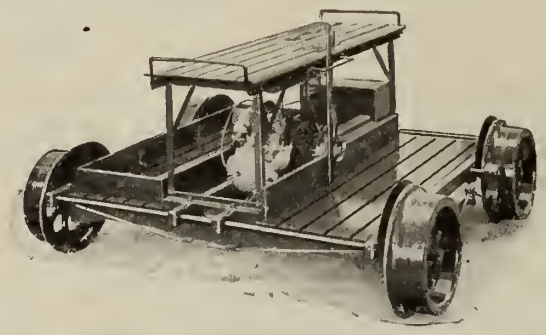
KALAMAZOO MOTOR CARS

Sturdy and Dependable

The Kalamazoo line of motor cars is complete and provides designs for every railroad service.

We make the car for a twenty man crew, as well as the one man inspection car.

Some models are arranged for the transportation of tools and materials and are capable of drawing a trailer carrying five tons additional load.

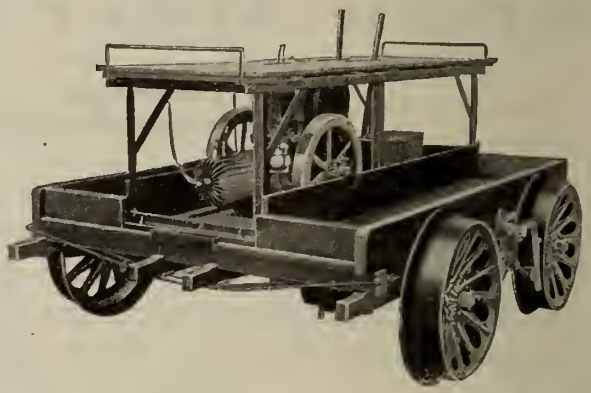


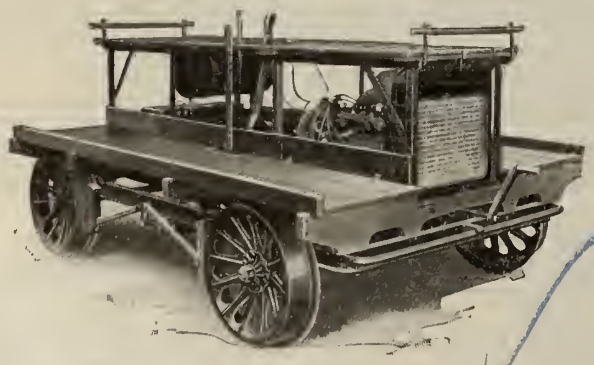
Kalamazoo No. 16 Motor Car

This car is especially designed for use of roadmasters, inspectors, signal maintainers, etc. It is equipped with magneto ignition, free engine clutch and step starter. While there is plenty of room for three or four persons, it is strictly a one man car when it comes to handling and removing it from the tracks.

Kalamazoo No. 17 Motor Car

This car is designed for the use of light section gangs of not over eight men and tools. It has ample power to handle loads and is simple in construction and operation, runs equally well in both directions, and is light enough to be removed from the rails by two men.





Kalamazoo No. 25 Motor Car

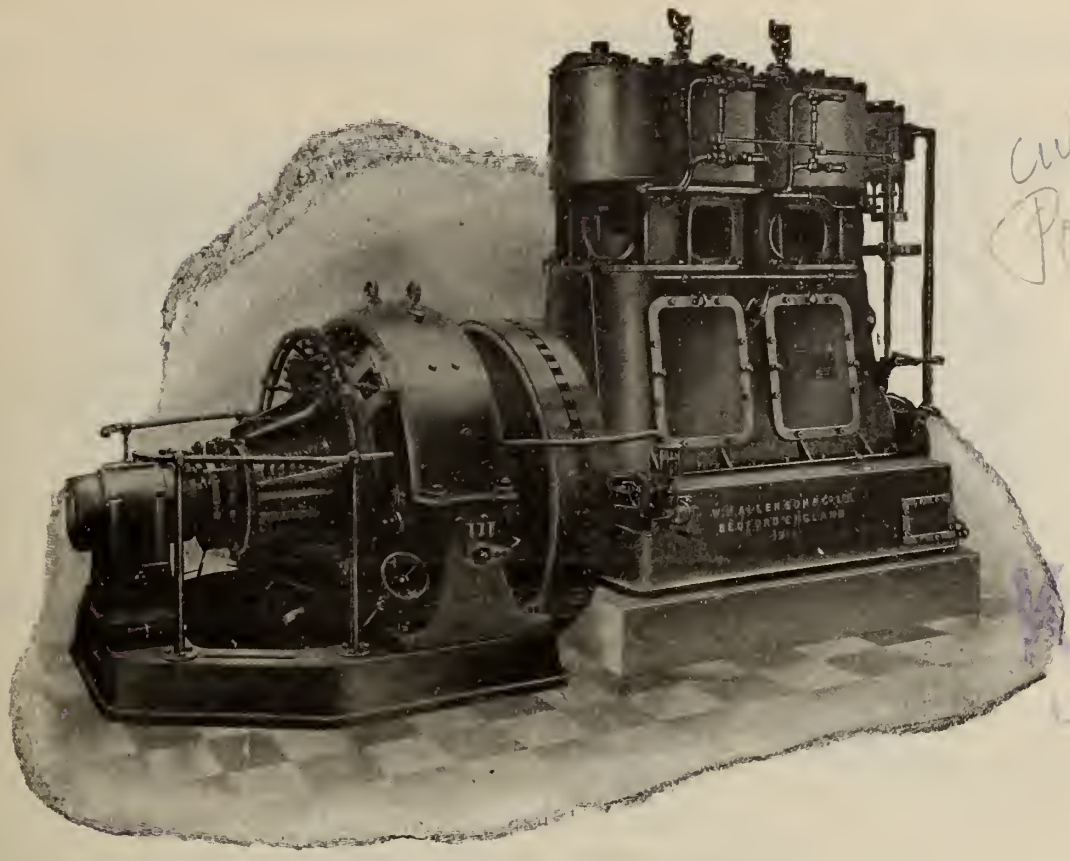
This is the ideal car for section gangs, trouble gangs, bridge gangs and hump crews. It is equipped with powerful motor capable of continuous operation while at work where the ordinary section motor car is not suited. Can also be used for drawing a trailer.

All Kalamazoo motor cars are equipped with through running axles and Hyatt Roller Bearings.

Kalamazoo Railway Supply Company

Kalamazoo, Michigan., U.S.A.

Canadian Representatives: **Kelly Powell Co. Ltd., Winnipeg.**
Wonham, Bates & Goode Trading Corp., Montreal.



British-Built Engines

Eminently Suitable For All Purposes

If you are in the market for an "open" or "enclosed" steam engine, write our nearest branch for detailed specifications of

Allen "Open" and "Enclosed" Engines

They represent 40 years of experience in the design, manufacture and application of these classes of engines and embody all the best elements of engineering practice.

As a dependable and economical source of power you cannot afford to overlook Allen Engines.

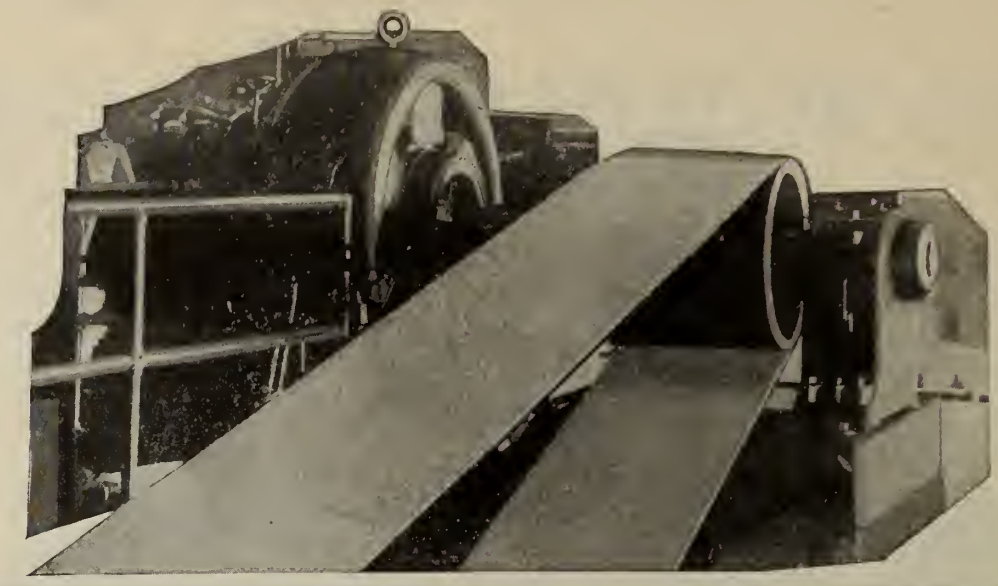
If it isn't here —write us

- Fairbanks-Morse Dynamos
- Allen Steam Engines
- Fairbanks-Morse Oil Engines
- Electrical Supplies
- Transmission
- Boiler Room Equipment
- Pump House Equipment
- Valves, Pipe and Fittings
- Durable Packing
- Palmetto Packing
- Fairbanks Scales
- Sheffield Motor Cars

The Canadian Fairbanks-Morse Co., Limited

Canada's Departmental House for Mechanical Goods.

Halifax	**Ottawa**	**St. Catharines**	**Winnipeg**	**Calgary**
St. John	**Toronto**	**Windsor**	**Regina**	**Edmonton**
Quebec	**Hamilton**	**Fort William**	**Saskatoon**	**Vancouver**
Montreal				**Victoria**



The Right Belt

Freedom from costly repairs and wasteful power leakage—due to inefficient transmission—is the result of the right belt in the right place.

This is why Dominion Friction Surface Belting is in such wide use throughout the Dominion. Without any obligation to you, our nearest service branch will gladly send an experienced belting man to help solve your transmission problems.

Dominion Rubber System

Service Branches:

Halifax	Toronto	Kitchener	Brandon	Edmonton
St. John	Hamilton	North Bay	Regina	Calgary
Quebec	London	Fort William	Saskatoon	Lethbridge
Montreal	Ottawa	Winnipeg	Victoria	Vancouver

DOMINION RUBBER SYSTEM PRODUCTS

Belting

Transmission: "Dominion," "Keewatin," "Para."

Conveyor: "Rockproof," "Canadian," "Hiheat"

Elevator: "Dominion," "Rockproof."

Agricultural: "Dominion," "Star."

Grain Elevator: "Metcalf Standard," "Grain King."

Hose

Air: "Kushion Kover," "4810 Airtite," "Star."

Steam: "Indestructible," "Rockproof," "Para."

Water: "Indestructible," "Para," "Kushion Kover," "Star."

Suction: "Para," "Star," "Trade."

Garden: "Canadian," "Dominion,"

Packing

Sheet: "Join-Tite," "Star," "Importers."

Rod: "Cabestos," "Valve-Bestos," "Canadian."

Valves: "Montreal," "Commereial" "Canadian."

Miscellaneous

Mats, Matting and Flooring.

Moulded Goods.

Plumbers' Specialties.

Hard Rubber Goods, Tubing.

Rubber Covered Rolls, Deckle Straps.

Friction Tape, Splicing Compound.

DOMINION RUBBER SYSTEM AND ASSOCIATED COMPANIES

For Fireproof, Durable Buildings

There are specific

PEDLAR'S "PERFECT" SHEET-METAL PRODUCTS

For

Both Inside and Out

The ideal interior finish for railway stations is Pedlar's Metal Ceiling and Wall Finish. This material cannot burn, will not rot, crack or fall away. It can be kept perfectly clean and sanitary throughout many years by merely washing with soap and water. And it possesses exceptionally attractive artistic qualities. From every conceivable standpoint Pedlar's Metal Ceiling and Wall Finish is a true economy.

For the outside walls and the roofs of freight sheds and all other structures, both large and small, of similar character, use Pedlar's Galvanized Iron Siding. This is a perfect steel sheet, deeply corrugated and thoroughly galvanized, that will not only withstand the weather, but which is more like an added support than an encumbrance to the framework.

We are also manufacturers of Pedlar's "Perfect" Culverts and Railway Drains; Pedlar's "Perfect" Steelcrete, Rib Fabric, Ferro-Dovetail Plates, Skylights, Ventilators, etc.

Write for Complete Reference Catalog R. M.

The Pedlar People Limited

(Established 1861)

Executive Office and Factories: Oshawa, Ont.
Branches: Montreal, Quebec, Halifax, St. John, Ottawa, Toronto, Winnipeg, Calgary, Vancouver.

For the Good of the Service Use—

NATIONAL STEEL TRAP DOOR AND LIFTING DEVICE
RESISTO and TUCORK INSULATION
FLEXOLITH COMPOSITION FLOORING
TUCO PRESERVATIVE FOR FLOOR PLATES
NATIONAL STANDARD ROOFING
IMPERIAL CAR WINDOW SCREENS

TUCO PRODUCTS CORPORATION, 30 Church St., New York City

CANADIAN OFFICE:

Consolidated Equipment Co., 263 St. James Street, Montreal.

DYNAMO GENUINE BABBITT

for

Street Car Journal Bearings

Manufactured by

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG

performance on the job COUNTS

Over 23,000 Fairmont Motors in Operation--

KILL Why-

LAST AD.

Check up the Fairmont motors and motor cars on your road—compare their work, their operating cost and the length of time they have been on the job, with that of any other section car motor or motor car.

Fairmont motors are increasing the efficiency and decreasing the up-keep cost on maintenance work on nearly every railroad system in America.

Twelve years' success—over 23,000 Fairmont motors in operation. These facts, backed by performance on the job, has placed the name Fairmont first among railway motors and motor cars.

We have some maintenance records which will be of value to you. Write us for your copy.

Fairmont Gas Engine & Railway Motor Car Co.

Fairmont, Dept. D5 Minnesota.

WM. A. GOOLD 39 Charlotte St., Winnipeg, Canada
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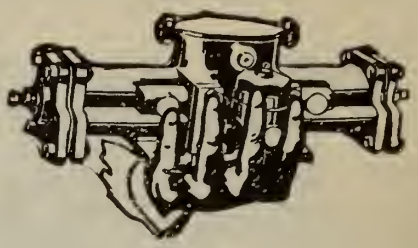
Fairmont Ball Bearing Motors



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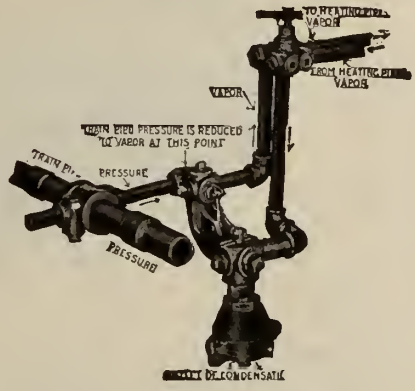

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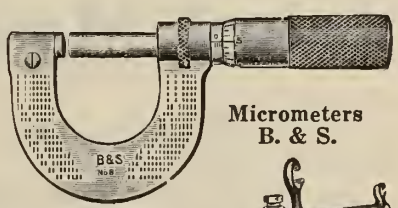

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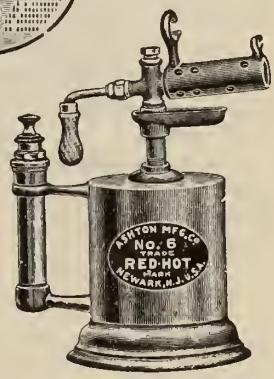

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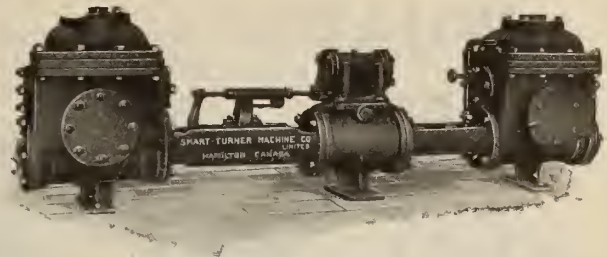

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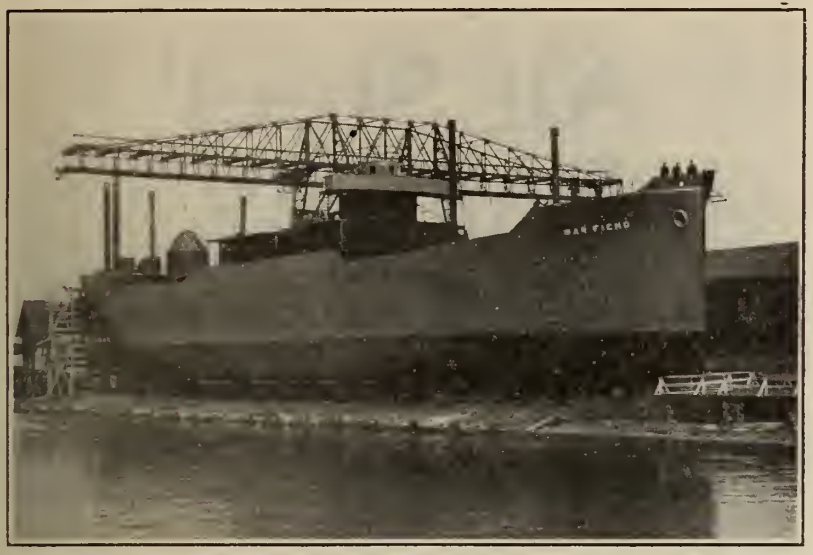

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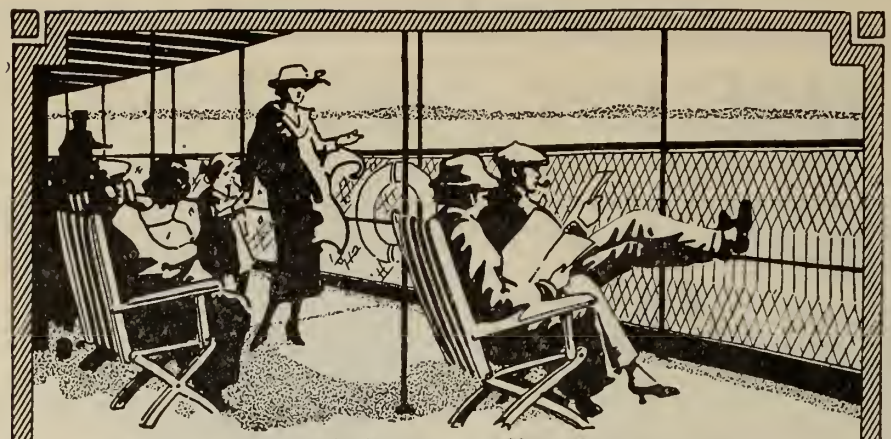

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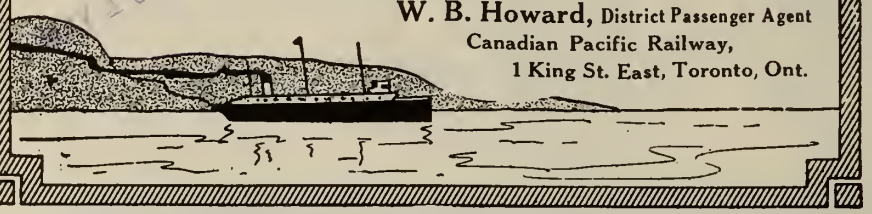

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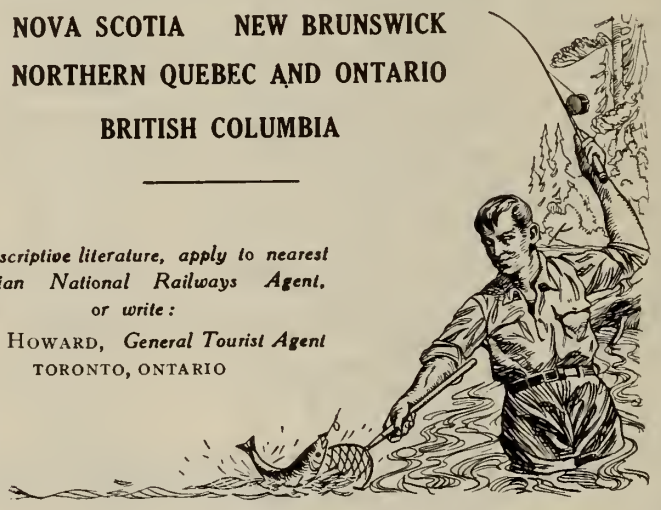

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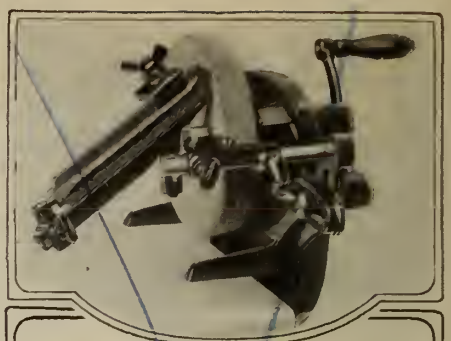

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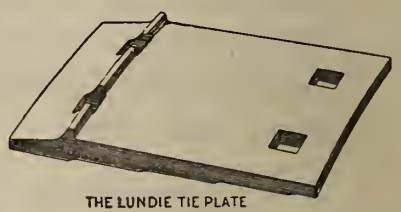

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Canadian Ramapo Iron Works
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TRAPS, STEAM
Safety Car Heating & Lighting Co.
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Standard Car Truck Co.
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Canadian Fairbanks-Morse Co.
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American Steel Foundries
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Diamond State Fibre Co. of Can.
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Pyle-National Co.
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VENTILATORS, CAR
Railway & Power Eng. Corp.
VESSELS (See Shipbuilders)
WASHERS
Steel Co. of Canada
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Diamond State Fibre Co. of Can.
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B. J. Coghlin Co.
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Canada Iron Foundries Ltd.
Canadian Steel-Tire & Wheel Co.
Consolidated Steel Corporation
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Consolidated Steel Corporation
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Ontario Specialties Ltd.
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WINCHES, SHIP
Canadian Vickers Ltd.
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B. J. Coghlin Co.
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Northern Electric Co.
Standard Und. Cable Co. of Can.
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WIRE, BRASS, IRON AND STEEL
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Alphabetical List of Advertisers

A

Algoma Steel Corporation 113
American Manganese Bronze Co. 114
American Steel Foundries 2
*Associated Business Papers Inc. —
*Association of Manufacturers of Chilled Car Wheels ..... —

B

Babcock & Wilcox 111
Barrett Co. 12
Bartram, V. T. 103
Berry Bros. 109
Bertram, John, & Sons Co. 4
Bowser, S. F., Co. 36
Bradstreet Company 122
Brown Hoisting Machinery Co... 3
Buffalo Brake Beam Co. 30
Butterfield & Co. 109

C

Canada Foundries & Forgings Ltd. 102
Canada Grip Nut Co. ..... —
Canada Iron Foundries, Ltd. 110
Canada Machinery Corporation... 27
Canada Steamship Lines, Ltd. 29
Canadian Bridge Co. 102
Canadian Bronze Co. 103
Canadian Chicago Bridge & Iron Co. 118
Canadian Clothel Refrigerating Co. Ltd. 38
Canadian Consolidated Rubber Co. 106
Canadian Fairbanks-Morse Co. .. 105
Canadian Gold Car Heating and Lighting Co. 125
Canadian Government Merchant Marine, Ltd. 5
Canadian Johns-Manville Co. 112
Canadian Mead-Morrison Co. 123
Canadian National Carbon Co. 112
Canadian National Railways 122
Canadian Pacific Railway 120
Canadian Pacific Ry. Colonization Department 120
Canadian Porcelain Co. 27
Canadian Railway and Marine World 128
Canadian Ramapo Iron Works Ltd. 110
Canadian Steel-Tire & Wheel Co. 32
Canadian Vickers, Ltd. 117
Canadian Westinghouse Co. 39
Carr, C. E. A., Co. 116
Carter White Lead Co. of Canada 125
*Chase, L. C., & Co. ..... —
Coghlin, B. J., Co. 116
Collingwood Shipbuilding Co. 35
Commercial Acetylene Supply Co. 26
Consolidated Steel Corp. 11
Corbet Foundry & Machine Co. 99
Crane Limited 102

D

Date, John 102
Davidson, The Thomas, Mfg. Co. 102
Davis Boring Tool Co. 18
Davis-Bournonville Co. 127
Dearborn Chemical Co. of Canada 10
Diamond Saw & Stamping Works 118
Diamond State Fibre Co. of Canada 41
Dominion Brakeshoe Co. 109
Dominion Bridge Co. 36
Dominion Coal Co. 120
Dominion Foundries & Steel, Ltd. 31
Dominion Iron & Steel Co. 115
Dominion Oxygen Co. 101
Dominion Steel Products Co. 124
Dominion Towing & Wrecking Co. 103
Dominion Wire Rope Co. 21
Duner Co. 102

E

Engineering & Machine Works of Canada 1

F

Fairmont Gas Engine & Railway Motor Car Co. 108
Flannery Bolt Co. 28
Franklin Railway Supply Co. of Canada 35

G

Galena Signal Oil Co. 15
Galt Malleable Iron Co. 103
Gartshore, J. J. 102
General Railway Signal Co. of Canada 103
Grand Trunk Railway 37
Griffin & Brinkerhoff 120

H

Halifax Shipyards Ltd. 24
Hamilton Bridge Works Ltd. 110
Hart-Otis Car Co. 21
Holden Co. 34
Hopkins, F. H., & Co. 21
Hoyt Metal Co. 107
Hunt, Robert W., & Co. 103
Hunt-Spiller Mfg. Corporation ... 28

I

Imperial Bank of Canada 102
*Imp. Guar. & Accident Ins. Co. —
Independent Pneumatic Tool Co. —
Inglis, John, Co. 40
International Correspondence Schools . . .. —
International Machinery & Supply Co. 114

J

Joliette Castings & Forgings Ltd. 115

K

Kalamazoo Railway Supply Co... 104
Kennedy, The William, & Sons, Ltd. 2
KeYoke Railway Equipment Co... 9
Kidston, A. G., & Co. 25
Krauser, Webb G. 14

L

Lewis, Rice, & Son 111
Lincoln Electric Co. 8
Lundie Engineering Corporation. 124
*Luther Grinder Mfg. Co. 122

M

McAvity, T., & Sons 23
Marconi Wireless Telegraph Co... 114
Metal & Thermit Corporation ..... —
Midland Shipbuilding Co. 117
Miller, F. W., Heating Co. 103
Miller, Roger, & Son 103
Miner, W. H. 22
Montreal Locomotive Works, Ltd. 26

N

National Lock Washer Co. 6
National Pneumatic Co. 108
Nichols, G. P., & Bro. 124
Nicholson File Co. 41
Northern Crane Works Ltd. 102
Northern Electric Co. 19
Norton, A. O., Ltd. 38
Nova Scotia Steel & Coal Co..... 24

O

Ohio Brass Co. 16
Orton & Steinbrenner Co. 112
Ottawa Car Mfg. Co. 31

P

Page-Hersey Tubes, Ltd. 37
Page & Jones 122
Peacock Bros. 7
Pedlar People, Ltd. .....34 and 107
Piper, The Hiram L., Co. 122
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 39
Pyle-National Co. 113

Q

Q & C Co. 100

R

Rail Joint Co. of Canada 113
Railway & Power Engineering Corp. 17
Ramsay, A., & Son, Co. 124
Reid Newfoundland Co. 30
Robb Engineering Works 22

S

Safety Car Htg. & Ltg. Co..... 33
Sinclair, Angus 103
Slater, N., Co. 117
Smart-Turner Machine Co. 115
Standard Car Truck Co. 116
Standard Underground Cable Co. of Canada 120
Star Brass Works 40
Steel Co. of Canada ..... —
Strauss Bascule Bridge Co. 99
Superheater Co. 13
Symington Co., The T. H. 23

T

Taylor & Arnold Engineering Co. 32
Templeton Kenly Co. ..... —
Tuco Products Corporation 107
Turnbull, Harvard, & Co. 33

U

Union Draft Gear Co. 14
Universal Draft Gear Attachment Co. 14

V

Vapor Car Heating Co. of Canada 111

W

Woolery Machine Co. 29
*Yarrows, Ltd. 25

Y

*Alternate months.

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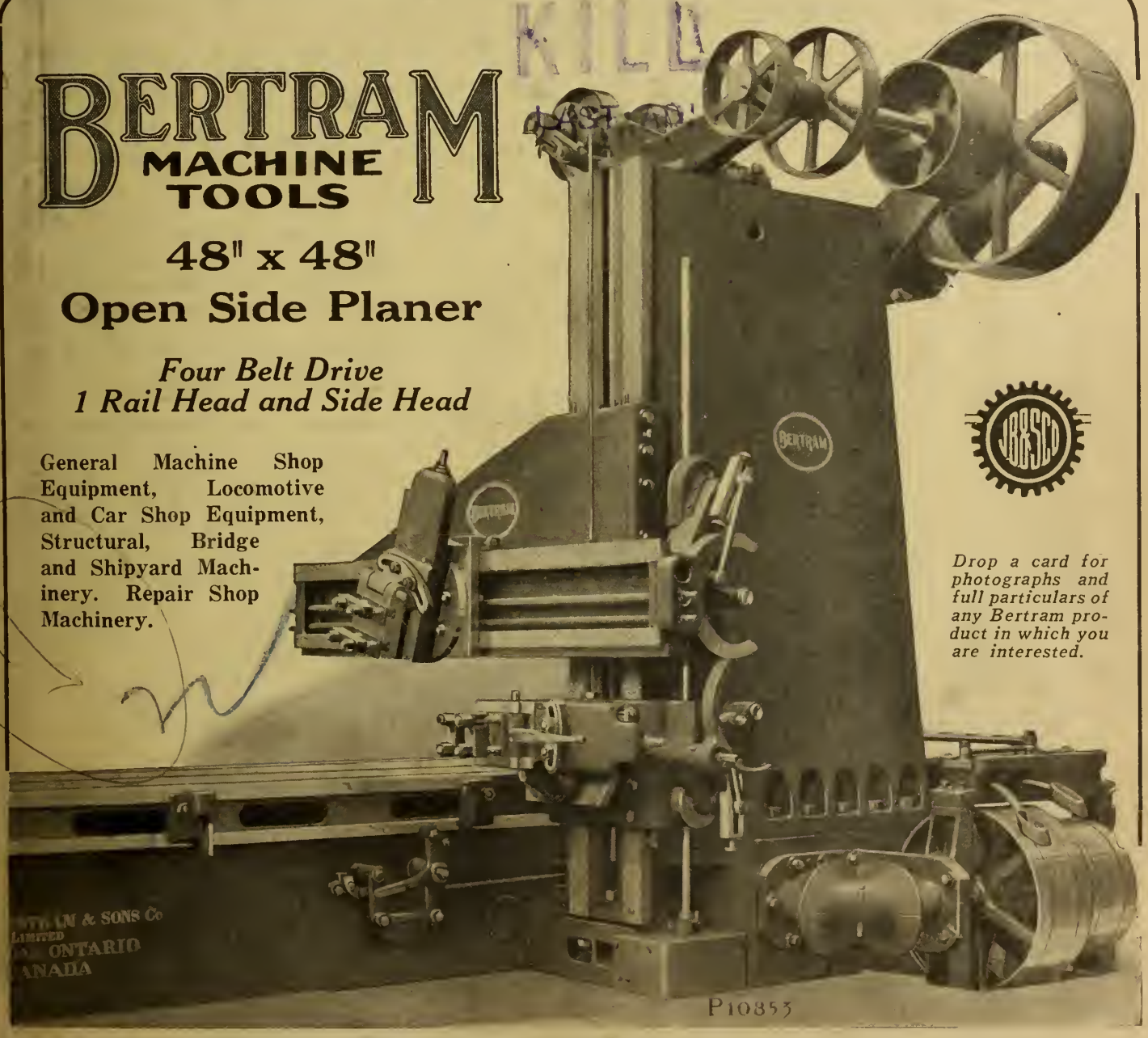

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Steam Railway and General, Page 289. Electric Railways, Page 318. Marine and Shipbuilding, Page 327.

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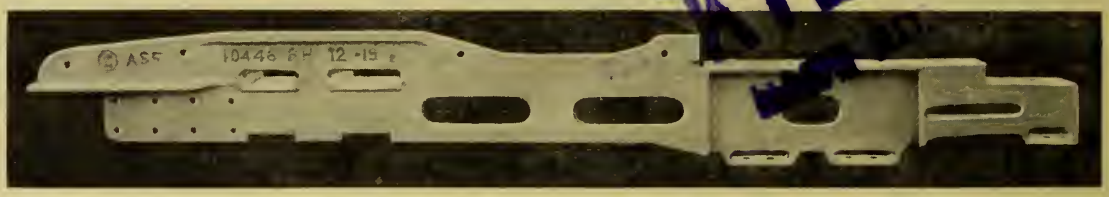

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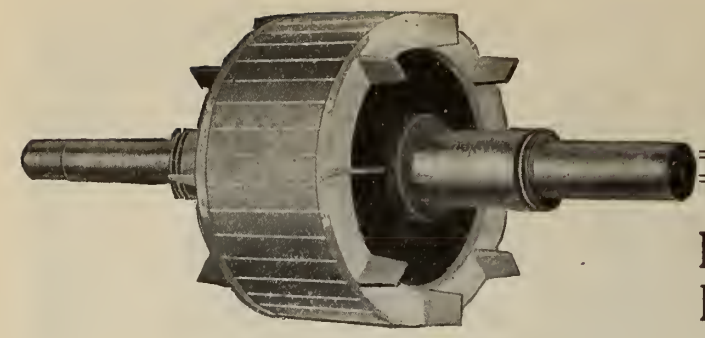

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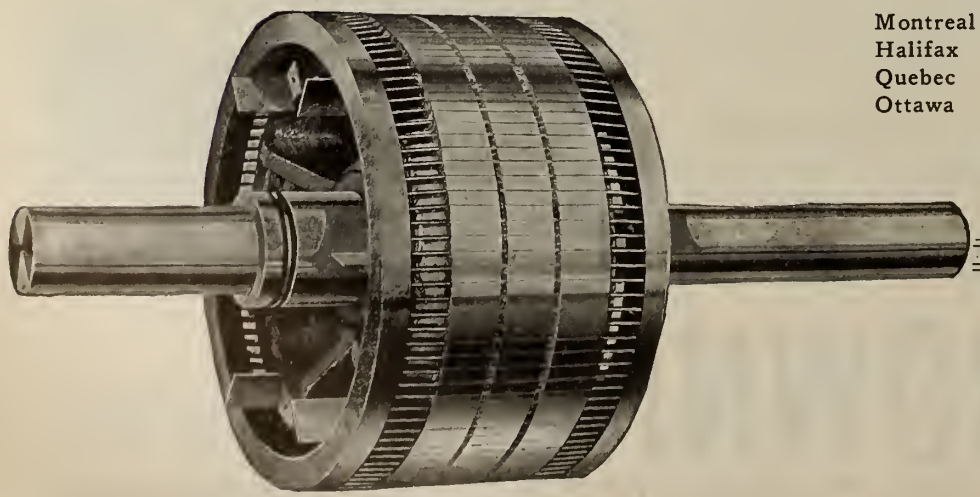

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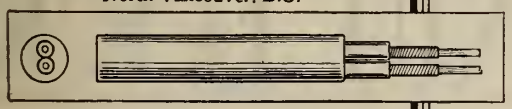

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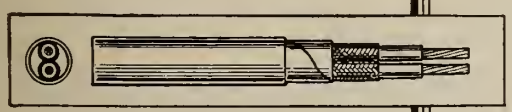

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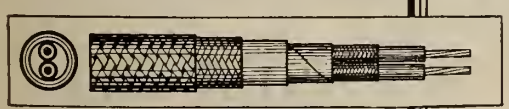

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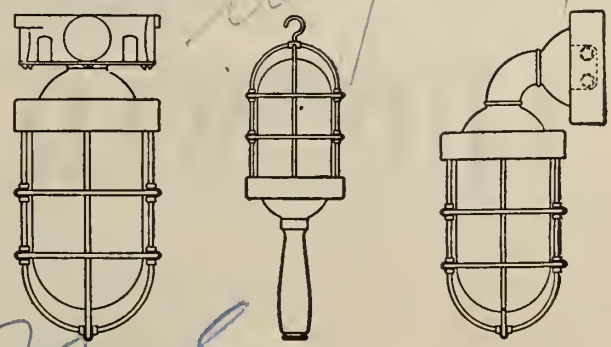

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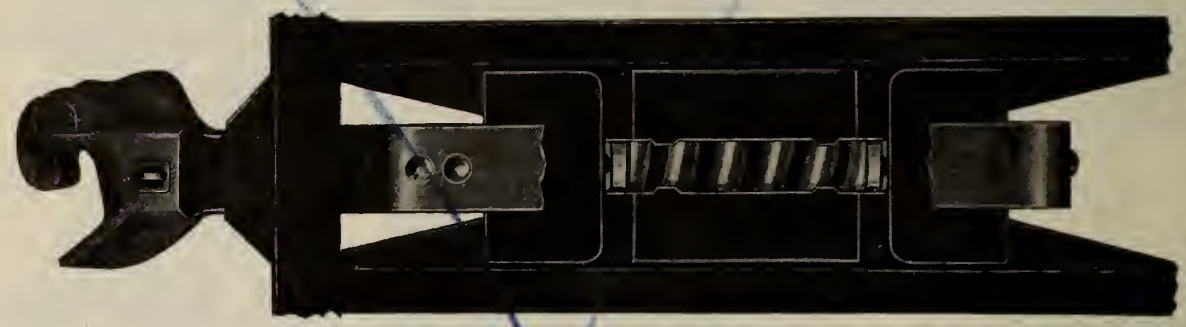

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How to Know Good Roofing—

You can't determine roofing quality from appearances and you can't judge economy by price, because the *real* cost of a roof is its *cost per year of service*.

But there is one sure way to select good roofing. *Look at the label before you buy!* If it reads "Barrett Everlastic" you are perfectly safe. You are sure of a moderate-priced roof that will give many years of satisfactory service—a roofing backed by a company with seventy-five years of "Know-how."

Everlastic "Rubber" Roofing is the biggest value in roll roofing on the market. It is made of the best grade of waterproofing materials, is low in cost, easy to lay, and durable.

You can't go wrong if you buy Everlastic—it has proved its worth on thousands of steep-roofed commercial buildings all over the Dominion.

Made in three weights: light (1-ply); medium (2-ply); and heavy (3-ply). Rolls contain 108 sq. ft. Nails and cement with each roll.

Everjet Industrial Paints

Paints used on boilers and machinery should be made especially for those purposes.

Everjet Boiler Paint and Everjet Machinery Paint—two of the famous Barrett Everjet Industrial Paints—have been developed by our laboratories after the most exhaustive experiments and practical tests. The base is the same as our famous Barrett Specification Pitch.

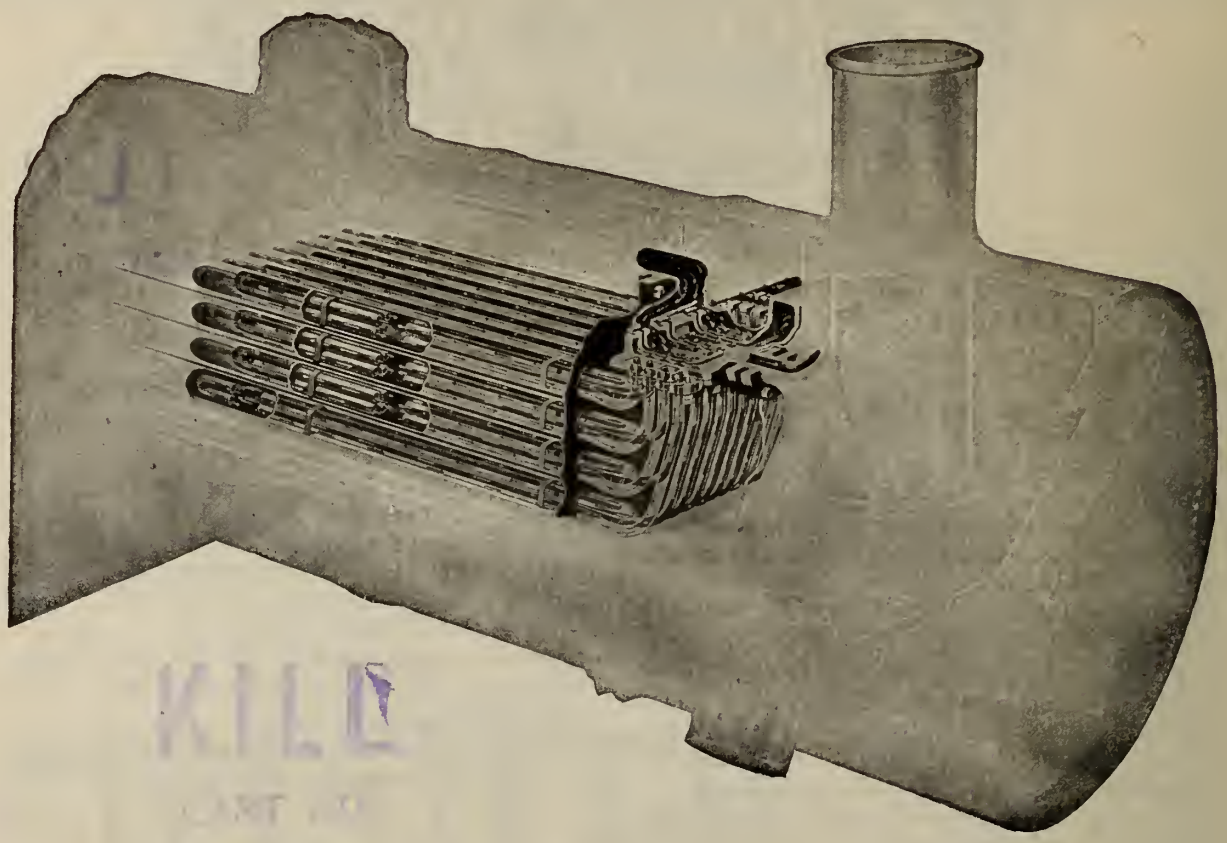
They are quick drying, durable, inexpensive, and positively proof against water, steam, acids and alkalies.

Other Everjet Industrial Paints are—Dipping Paint, Smokestack Paint, Bridge Paint and Penstock Paint—each unequalled in its class.

The Barrett Company LIMITED

Montreal Toronto St. John, N. B.
Winnipeg Vancouver Halifax, N. S.

TYPE "A" SUPERHEATERS



To Assist You in the Proper Maintenance of Your Superheater Locomotives

Type "A" Superheaters greatly increase the economy and capacity of any locomotive worth operating. Therefore, any locomotive worth operating is worth superheating.

The Type "A" Superheater, being a highly developed product, will stand a great deal of abuse and still operate, but abuse or carelessness of enginemen or shopmen in operating a superheated locomotive will hinder the locomotive in its capacity for doing its work.

In our Bulletins 4-A and 8 are contained valuable suggestions for the proper maintenance of Type "A" Superheaters, suggestions which if followed will enable you to obtain the maximum results from your superheated locomotives.

Our service department will co-operate in every possible way to assist you.

The Superheater Co., Limited

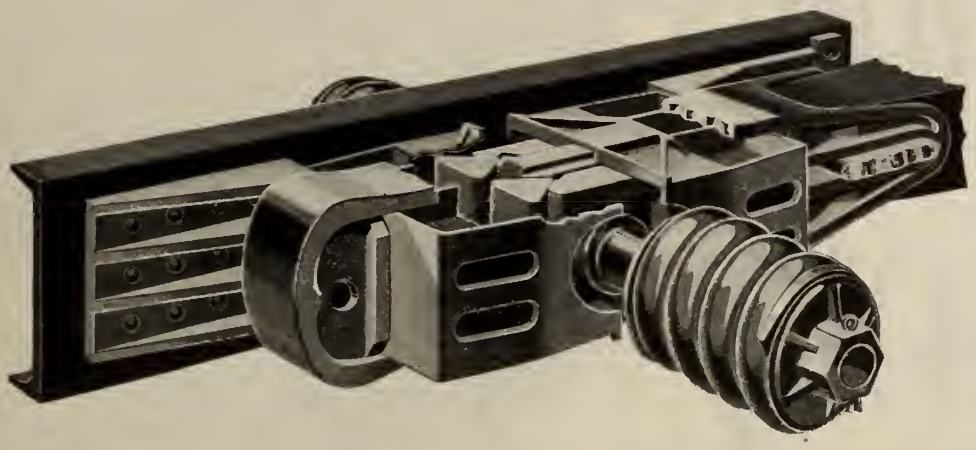
Transportation Building, MONTREAL

Works at Sherbrooke, Quebec

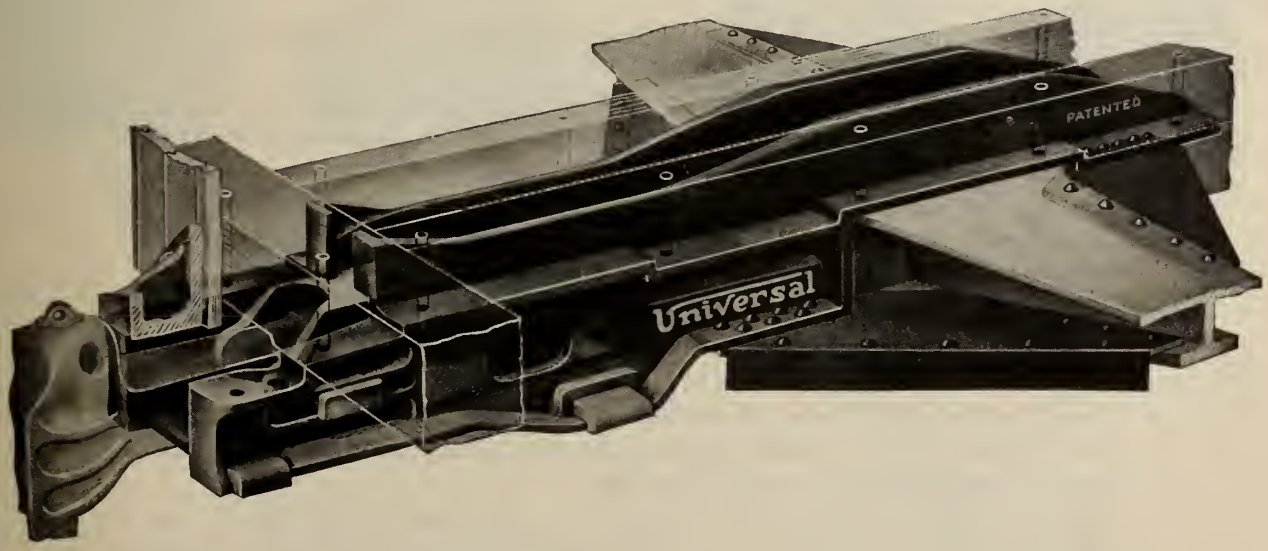
Designing Engineers and Manufacturers of Steam Superheaters and Pipe Coils for all purposes; Feedwater Heating Equipment for Locomotive and Marine Service.

MADE IN CANADA

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING
CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER
Transportation Building, MONTREAL

Strong Facts

GALENA OILS are generally accepted as the highest grade lubricants possible to manufacture.

GALENA OILS are in daily use by the great majority of the railroads and traction lines of Canada, the United States and the large railroad systems of Europe and South America.

GALENA OILS are backed by a record of fifty years of matchless performance, with proven results of safety, efficiency and economy.

GALENA OILS are "all the year 'round" oils, compounded scientifically to meet all conditions of temperature and all requirements of severe service.

GALENA OILS are of unfailing uniformity, ever dependable and ready to prove themselves by actual test, hundreds of which have demonstrated their superiority.

GALENA OILS are compounded by exclusive "GALENA" processes from special stocks, made to meet quality specifications.

GALENA QUALITY is more than mere "quality". It is the recognized standard of perfect lubrication wherever wheels turn.

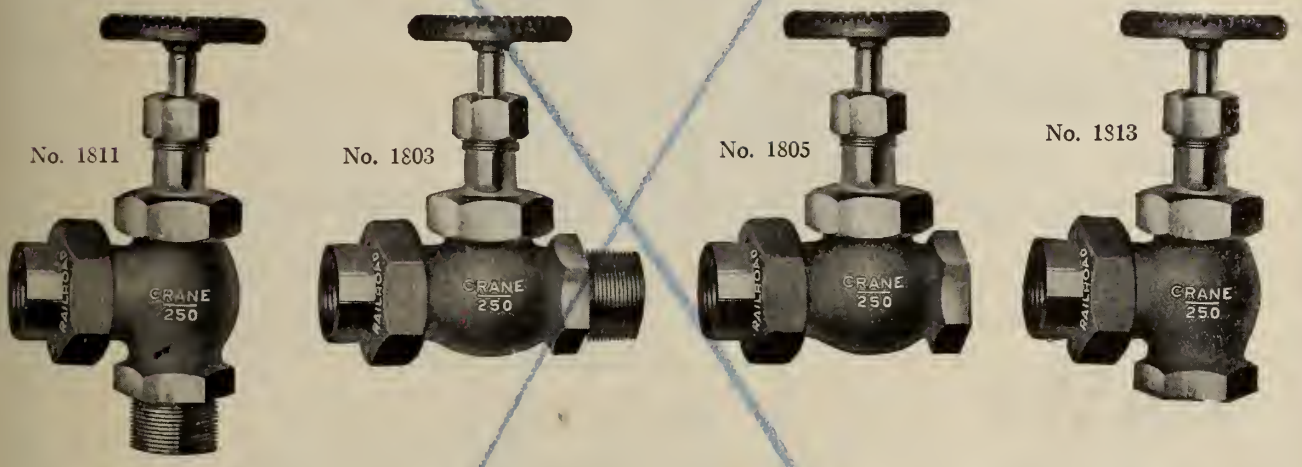
GALENA SERVICE is the most efficient of its kind in the business world—an organization of mechanical experts with years of practical experience in every phase of oil lubrication, at the service of customers.

GALENA PRESTIGE has reached all parts of the world. The leadership of Galena Oils has been won by merit alone, through ability to give positive results in greater mileage, lower cost and more efficient operation.

Galena-Signal Oil Company of Canada, Limited

Toronto - Montreal

CRANE
Regrinding Cab Valves



For Locomotive Service

These valves have extra strong stems, deep stuffing boxes, with glands in the stuffing boxes, and malleable iron wheels. The malleable iron union nut is strong and rugged. All parts are interchangeable. Recommended for 250 pounds working pressure.

The union connection ON THE VALVE saves joints.

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

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LIMITED
HEAD OFFICE & WORKS
1280 ST. PATRICK STREET
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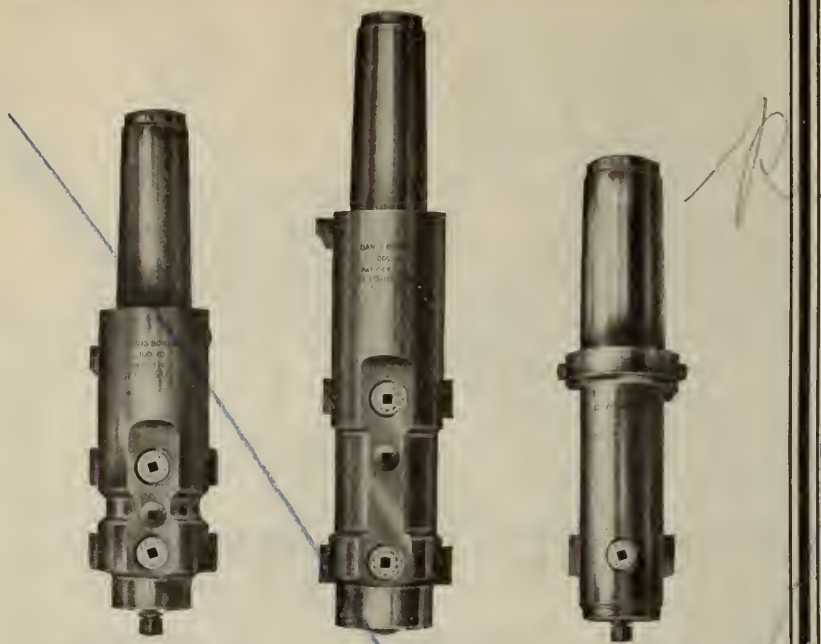
Sales Offices:
QUEBEC, SHERBROOKE, HAMILTON, VICTORIA.

CRANE-BENNETT
Limited
Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
MANCHESTER, BIRMINGHAM.

3



DAVIS Expansion Car Wheel Boring Tools

A Universal Standard

The universal adoption of the Davis System of scientific car wheel boring and fitting, represents the evolution of correct wheel practice—the gradual advance from the methods previously employed, to the present high state of perfection.

The efficiency of boring all new wheels to fit standard gauges, while turning axles to corresponding standard sizes, and the economy of boring all wheels, on repair work, to fit the axle instead of needlessly turning down a good axle to fit the wheels, is very evident in the Davis System.

And, Davis Expansion Car Wheel Boring Tools form the basis of the entire System. Cutters are expanded to compensate for wear, by a practical micrometer adjustment, graduated in .001, which enables the operator to maintain a standard or bore odd sizes with extreme accuracy.

These efficient tools are the adopted M.C.B. Standard for correct wheel boring and fully 98% of all car wheels are bored with them. Made in three styles shown above, in a number of sizes, and can be applied to any make wheel borer.

Let us explain how the Davis System of wheel boring will help you—how it will increase production, improve the quality of your work and reduce your wheel boring costs at least 25%.

Write our Railroad Dept. Today for full Particulars.

DAVIS BORING TOOL CO.

Incorporated,

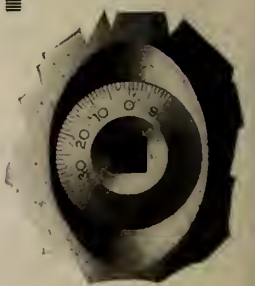
Forst Park Blvd., near Spring Ave.,

St. Louis, Mo., U.S.A.

Canadian Agents:

WILLIAMS & WILSON
Montreal, Quebec.

JNO. BERTRAM & SON,
Dundas, Ontario.



Micrometer Adjustment

POLE LINE HARDWARE

THAT STANDS THE TEST OF TIME AND WEATHER

WIRES
(Copper and Galvanized)

RIVETS
NUTS and BOLTS

WASHERS

SCREWS

THE STEEL COMPANY OF CANADA LIMITED

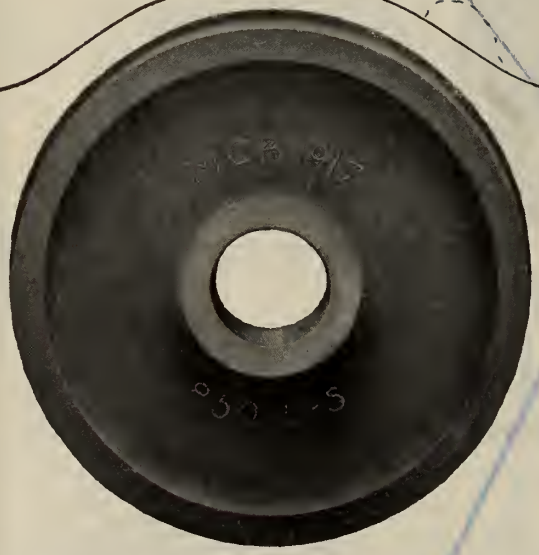
HAMILTON
MONTREAL

POLE STEPS

GUY CLAMPS

CROSS ARM BRACES

ETCETERA



49 *The map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels*

Chicago	3	Boston	Huntingdon W Va
St Louis	2	Detroit	Wilmington, Del
Buffalo	4	St. Paul	Houston, Tex
Pittsburg	2	Kansas City, Kan	Hannibal Mo
Cleveland	2	Denver	Reading, Pa
Amherst N.S.		Tacoma	Baltimore
Montreal		Rochester, N.Y.	Richmond, Va
Mich. City, Ind		Savre, Pa	Ft. William, Ont
Louisville		Berwick, Pa.	St. Thomas, -
Mt Vernon, Ill.		Albany	Hamilton,
Ft. Wayne, Ind		Toronto	Ramapo, N.Y.
Birmingham		New Glasgow N.S.	Marshall, Tex
Atlanta		Madison, Ill.	Los Angeles
Savannah			Council Bluffs

AMERICAN RAILROAD ASSOCIATION STANDARDS

650 lb. wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy Years

Where

CHILLED IRON WHEELS

are made for Railway and Street Car Service

Capacity 20,000 per day
25,000,000 in Service

Association of Manufacturers of Chilled Car Wheels

1847 Mc Cormick Bldg.
CHICAGO

66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

Canadian Government Merchant Marine, Limited

REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S., in Winter.

To the United Kingdom, Liverpool, London, Glasgow, Cardiff, Swansea, etc.
To Barbadoes, Trinidad and Demerara.
To Havana, Cuba, and Jamaica.
To South America, Rio de Janeiro, Santos, Montevideo and Buenos Aires.
To India, Dutch East Indies and Straits Settlements via Mediterranean.
To Australia and New Zealand via Panama Canal.
To St. John's, Newfoundland.

From Vancouver, B.C.

To Sydney and Melbourne, Australia.
To Auckland, Wellington, Dunedin, and Lyttleton, New Zealand.
To China and Japan.
To India and Straits Settlements.

Pacific Coastal Service.
Sailings every ten days.
From Vancouver and Vancouver Island ports.
To Seattle, San Francisco and Wilmington.

REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
To Nassau, Bahamas, Kingston, Jamaica, and Belize, British Honduras.
Superior First Class Accommodation. Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.
F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.
R. B. TEAKLE, General Manager, W. A. CUNNINGHAM, General Freight Agt., 230 St. James Street, Montreal, P.Q.

Canadian National Railways

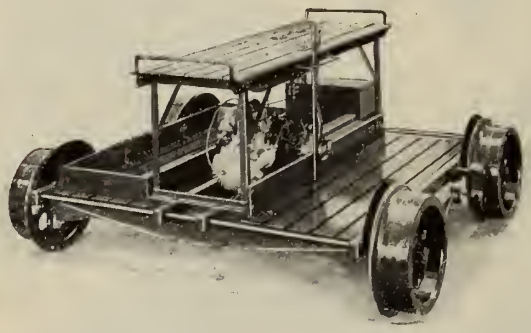
KALAMAZOO MOTOR CARS

Sturdy and Dependable

The Kalamazoo line of motor cars is complete and provides designs for every railroad service.

We make the car for a twenty man crew, as well as the one man inspection car.

Some models are arranged for the transportation of tools and materials and are capable of drawing a trailer carrying five tons additional load.

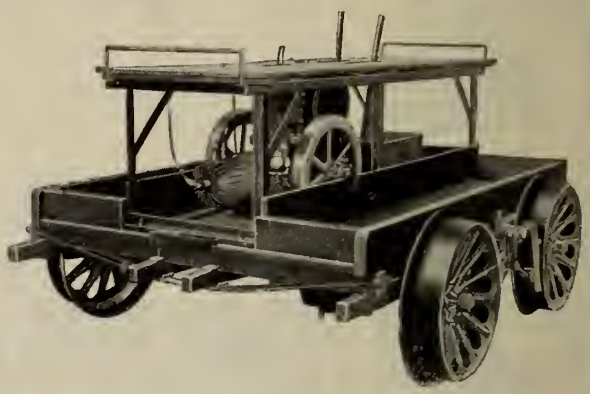


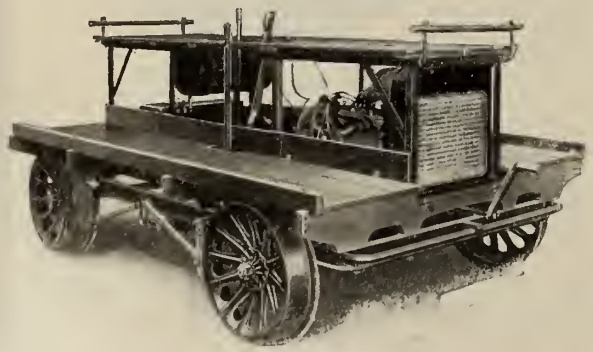
Kalamazoo No. 16 Motor Car

This car is especially designed for use of roadmasters, inspectors, signal maintainers, etc. It is equipped with magneto ignition, free engine clutch and step starter. While there is plenty of room for three or four persons, it is strictly a one man car when it comes to handling and removing it from the tracks.

Kalamazoo No. 17 Motor Car

This car is designed for the use of light section gangs of not over eight men and tools. It has ample power to handle loads and is simple in construction and operation, runs equally well in both directions, and is light enough to be removed from the rails by two men.





Kalamazoo No. 25 Motor Car

This is the ideal car for section gangs, trouble gangs, bridge gangs and hump crews. It is equipped with powerful motor capable of continuous operation while at work where the ordinary section motor car is not suited. Can also be used for drawing a trailer.

All Kalamazoo motor cars are equipped with through running axles and Hyatt Roller Bearings.

Kalamazoo Railway Supply Company

Kalamazoo, Michigan., U.S.A.

Canadian Representatives: **Kelly Powell Co. Ltd., Winnipeg.**
Wonham, Bates & Goode Trading Corp., Montreal.

DWIGHT P. ROBINSON & COMPANY, INC.

ANNOUNCES
THE OPENING OF ITS CANADIAN OFFICE
IN THE

DOMINION EXPRESS BUILDING

145 ST. JAMES STREET
MONTREAL

Complete Service
in the design and construction of

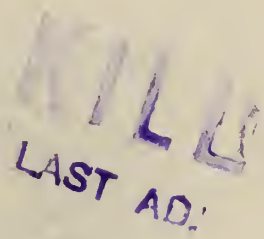
SHOPS
FOUNDRIES
STEEL MILLS
CHEMICAL PLANTS
FACTORY BUILDINGS
GASOLINE EXTRACTION PLANTS

STEAM POWER STATIONS
HYDRO-ELECTRIC DEVELOPMENTS
TRANSMISSION SYSTEMS

RAILROAD SHOPS
LOCOMOTIVE TERMINALS
PASSENGER TERMINALS

HOUSING DEVELOPMENTS
OFFICE BUILDINGS
HOTELS
HARBOR DEVELOPMENTS

DWIGHT P. ROBINSON & CO.
INCORPORATED
With which is Consolidated
WESTINGHOUSE, CHURCH, KERR & CO., Inc.



Our services are available for both design and construction or construction alone from the plans of other engineers

DWIGHT P. ROBINSON & COMPANY
INCORPORATED
With which is consolidated
WESTINGHOUSE, CHURCH, KERR & CO., Inc.
ENGINEERS AND CONSTRUCTORS
145 ST. JAMES STREET
MONTREAL

NEW YORK CHICAGO YOUNGSTOWN DALLAS LOS ANGELES

CANADIAN VICKERS LIMITED

Shipbuilders, Engineers, Boilermakers and Repairers

MONTREAL, CANADA

25,000-TON FLOATING DOCK, 600 FEET LONG
Operated in One or Two Sections.

Norwegian Cargo Steamer "LOCH TAY"

Makers Under License Best British Designs:—
WINCHES, WINDLASSES, ASH HOISTS,
STEERING GEARS, TELEMOTORS

Immediate Deliveries from Stock

Cables:
VICKERS, MONTREAL

A Railway for Ideas

TWO busines concerns with the same physical equipment and opportunities may enter the field at the same time. Yet, within a year, one may forge far ahead of its competitor. You have seen it happen many times. Why? Because one had *better ideas.*

Business failures are nearly all failures of ideas. The ability to acquire and use the right ideas is the measure of success or failure.

For every idea you originate, thousands are originated by others. For every idea you *believe* may work, thousands are tested in the laboratory of experience.

LIST OF MEMBERS

Each has subscribed to and is maintaining the highest standards of practice in its editorial and advertising service.

Advertising and Selling
American Architect
American Blacksmith
American Exporter
American Funeral Director
American Hatter
American Machinist
American Paint Journal
American Paint and Oil Dealer
American Printer
American School Board Journal
Architectural Record
Automobile Dealer and Repairer
Automobile Journal
Automotive Industries

Bakers Weekly
Boiler Maker
Boot and Shoe Recorder
Brick and Clay Record
Buildings and Building Management
Building Supply News
Bulletin of Pharmacy

Canadian Grocer
Canadian Machinery & Mfg. News
Canadian Railway & Marine World
Candy and Ice Cream
Chemical & Metallurgical Engineering
Clothier and Furnisher
Coal Age
Coal Trade Journal
Concrete
Cotton

Daily Metal Trade
Distribution and Warehousing
Domestic Engineering
Dry Goods Economist
Drygoodsman
Dry Goods Reporter

Electric Railway Journal
Electrical Merchandising
Electrical Record
Electrical World
Embalmers' Monthly
Engineering and Contracting
Engineering and Mining Journal
Engineering News-Record

Factory
Farm Implement News
Farm Machinery—Farm Power
Fire and Water Engineering
Foundry (The)
Furniture Journal
Furniture Manufacturer and Artisan
Furniture Merchants' Trade Journal

Gas Age
Gas Record
Grand Rapids Furniture Record

An idea developed in New York is of no use to a Californian unless he hears about it. That is why there must be "railways" for ideas, channels for the exchange of constructive thought.

Business Papers are the "IDEA RAILWAYS" which bring you the best ideas in the world interpreted in terms of your particular kind of business. They are hardly less important than the railways of iron and steel. Without *"Idea Railways"* to effect a "meeting of minds" no sales could take place, no goods could be shipped.

A Shipment for You

Think of the money this service makes for you — saves for you. Conceive, if you can, of the increased expense and the crushing handicap which would be imposed upon both you and the concerns from which you buy, were your "Idea Railways" to be abolished.

The advertisers in these pages are progressive merchandisers, using the economical sales methods, made possible by this particular "Idea Railway". It pays to do business with people of this character.

OU are invited to consult us freely about Business Papers or Business Paper Advertising

LIST OF MEMBERS

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Hardware Age
Hardware and Metal
Heating and Ventilating Magazine
Hide and Leather
Hospital Management
Hotel Monthly
Hotel Review
Illustrated Milliner
Implement and Tractor Age
Implement & Tractor Trade Journal
Industrial Arts Magazine
Inland Printer
Iron Age
Iron Trade Review
Lumber
Lumber Trade Journal
Lumber World Review
Manufacturers' Record
Manufacturing Jeweler
Marine Engineering
Marine Review
Millinery Trade Review
Mill Supplies
Mining and Scientific Press
Modern Hospital
Motor Age
Motorcycle and Bicycle Illustrated
Motor Truck
Motor World
National Builder
National Petroleum News
Nautical Gazette
Northwest Commercial Bulletin
Northwestern Druggist
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Oil Trade Journal
Plumber and Steam Fitter
Power
Power Boating
Power Farming Dealer
Power Plant Engineering
Price Current—Grain Reporter
Printers' Ink
Railway Age
Railway Electrical Engineer
Railway Maintenance Engineer
Railway Mechanical Engineer
Railway Signal Engineer
Retail Lumberman
Rubber Age and Tire News
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Southern Hardware & Implement Journal
Sporting Goods Dealer
Starchroom Laundry Journal
Tea and Coffee Trade Journal
Textile World Journal
Welding Engineer
Woodworker

THE ASSOCIATED BUSINESS PAPERS, INC.

JESSE H. NEAL, Executive Secretary

Headquarters: 220 West 42nd Street - - New York City

And Now—
Toronto Printers May Strike

THE present agreement between printers in book and job offices and employers in Toronto expires May 31. The minimum wage paid is $35.20 per week (increased voluntarily a year ago by the employers from $32.00, although the agreement had a year then to run). This wage covers a 48-hour week.

The International Union is demanding a week of 44 hours as the basis for all wage scales, and the Toronto unions are demanding a wage of $44.00 per week for 44 hours, $8.80 more per week for 4 hours less work.

This means an increase of from 73 cents per hour to $1.00 per hour, or over 36%.

Publishers and other employing printers feel that under present conditions of business and the admitted decreasing cost of living, the increased wages and shorter hours demanded by the International Union are unreasonable.

This is acknowledged by many of the thoughtful, loyal printers employed in the Toronto offices, who believe that the International Union has blundered in its demand that local unions shall not sign new agreements except on the basis of the 44-hour week.

The position, however, may be that these local men may not be able to make the International officers in Indianapolis see, that to force a strike now on these unreasonable demands would be an act of folly—and a strike may be called on June 1st.

The facts of the case are presented here, for the information of the sections of the public—subscriber and advertiser—reached by this publication.

The attitude of the employing printers is shown by their voluntary action in giving a 10 per cent. increase last year while the agreement calling for the minimum wage of $32.00 a week had still a year to run.

They feel strongly now, however, that this is not a time when an increase of 36 per cent. in the labor cost of production should be permitted.

If publishers are forced to pay $44.00 a week instead of $35.20 and get only 44 hours of work instead of 48, it is inevitable that subscription and advertising rates must advance. No business can stand an increase in its wage bill of 36 per cent. and absorb that increase. The extra cost will have to be added to the sale price of the product.

Publishers sincerely hope that the great body of sane opinion among the local printers may prevail and that the Indianapolis officials will be induced to withdraw their unreasonable demands so that Toronto printers may continue to find well-paid, congenial employment.

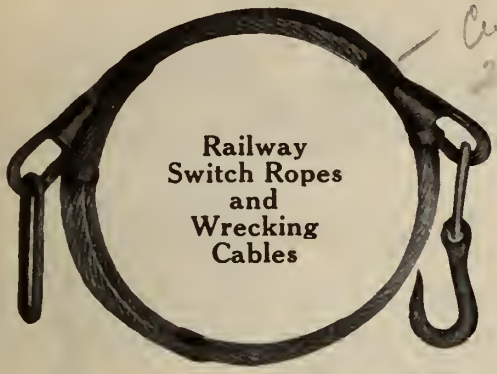
If this sane, thoughtful opinion does not prevail, a strike seems inevitable, with its equally inevitable result of loss to the printers and publishers, and inconvenience and loss to the public.

An expression of the opinion of readers of this paper on the Union's proposals, involving an increase of 36% in the labor cost of printed matter is asked. Will you not write a letter to the editor (not for publication) telling him your view of the situation.

This statement is published by and has received the endorsation of the Toronto publishers who are members of the

Canadian National Newspapers and Periodicals Association

including CANADIAN RAILWAY AND MARINE WORLD



We make a wide variety of

Locomotive Switching, Wrecking or Ballast Unloader Ropes for Ordinary and Special Service

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL Branches: TORONTO AND WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

For Coal or General Service

Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL

No matter what your **LIFTING REQUIREMENTS** may be, there is, in the wide

INDUSTRIAL WORKS

Crane Line, the exact type and size to best fill your need.

Branch:
108 Mail Building
TORONTO

F·H·Hopkins & Co.
Limited

Head Office:
MONTREAL

Cut Costs

By using keen cutting files and keen cutting files only. When files cease to cut keenly discard them.

A dull file wastes money.

The following brands are made to cut keenly and are hardened to maintain their keen cutting edge.

KEARNEY & FOOT
GREAT WESTERN
AMERICAN
ARCADE
GLOBE

FILES AND RASPS

Made in Canada by

Nicholson File Company

Port Hope - Ontario

Diamond·F

Dependable

That's one of the strongest features of Hard Fibre!

It not merely meets specifications, but gives just a little more than it guarantees.

Built upon formulas based on prolonged use under severe testing conditions, it is the most adaptable material for all railroad work.

Diamond Fibre for plates, bushings, gaskets, handles, fuse coverings and insulation purposes will serve you just as faithfully as it is now serving the biggest railroads in the country. It is dependable.

Condensite - Celeron, specially made by us for use where a waterproof fibre is needed, is just as dependable.

Send for catalogue or ask our experts for their advice on any problem that is worrying you.

Diamond State Fibre Company
of Canada, Limited.
Head Office and Works
235 Carlaw Ave, Toronto, Canada
Montreal Branch
84 St Francois Xavier St

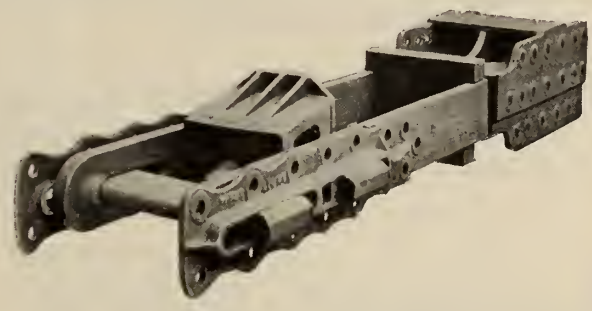
FIBRE

Symington Railway Specialties

Made in Canada

Symington Malleable Iron Journal Box equipped with Malleable Iron Torsion Spring Lid.

Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



The T. H. Symington Company

New York **Baltimore** **Chicago**

A Great Many Large Plants Are Using

COMMERCIAL ACETYLENE

On Small Work

Repairing a small cast iron bracket at a large shipbuilding plant. Our tanks are convenient, safe and guaranteed to hold quantity and quality gas.

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80 Broadway, New York

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BOSTON, MASS.
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MOBERLY, MO.
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Commercial Acetylene Supply Company, Inc.

18 TORONTO STREET TORONTO

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Can manufacture forgings up to 40 tons in weight to all Admiralty and Lloyd's Tests and specifications.

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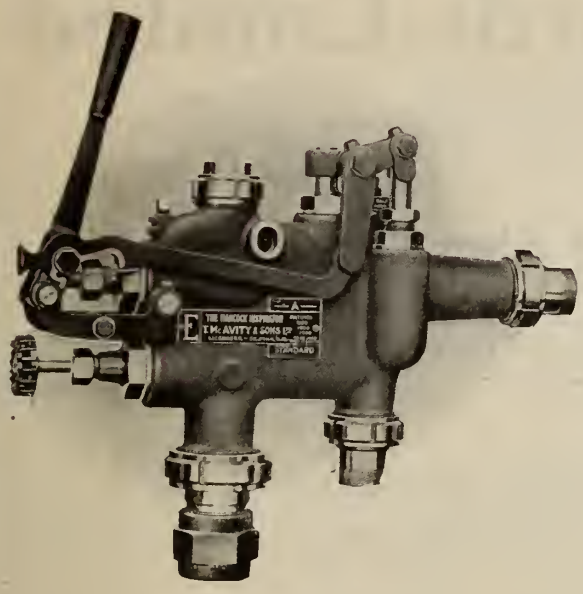

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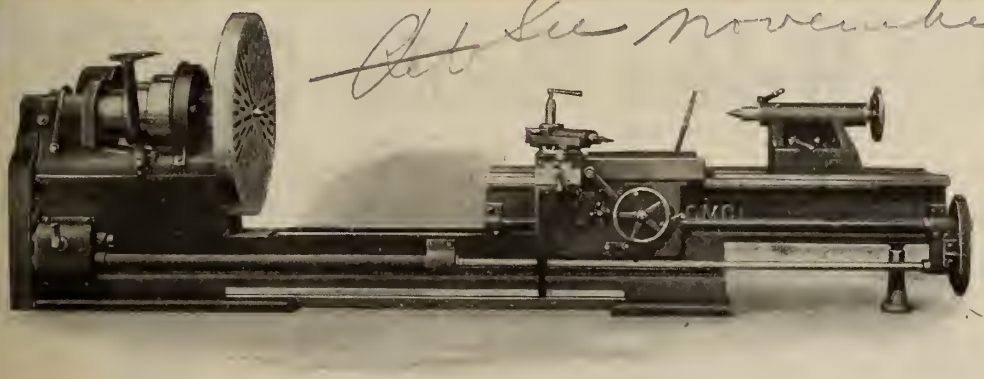

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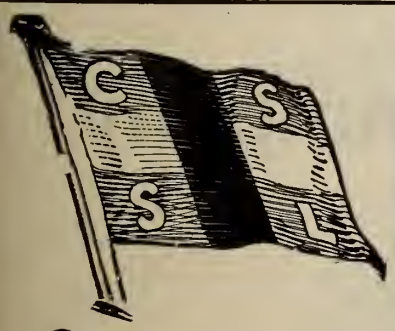

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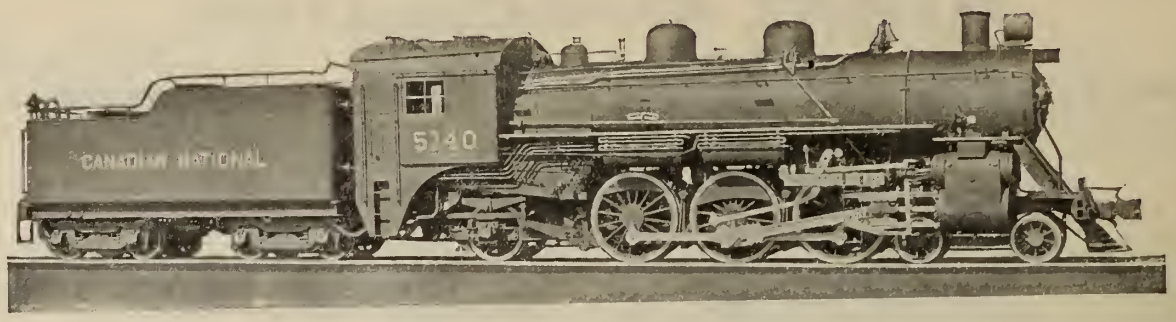

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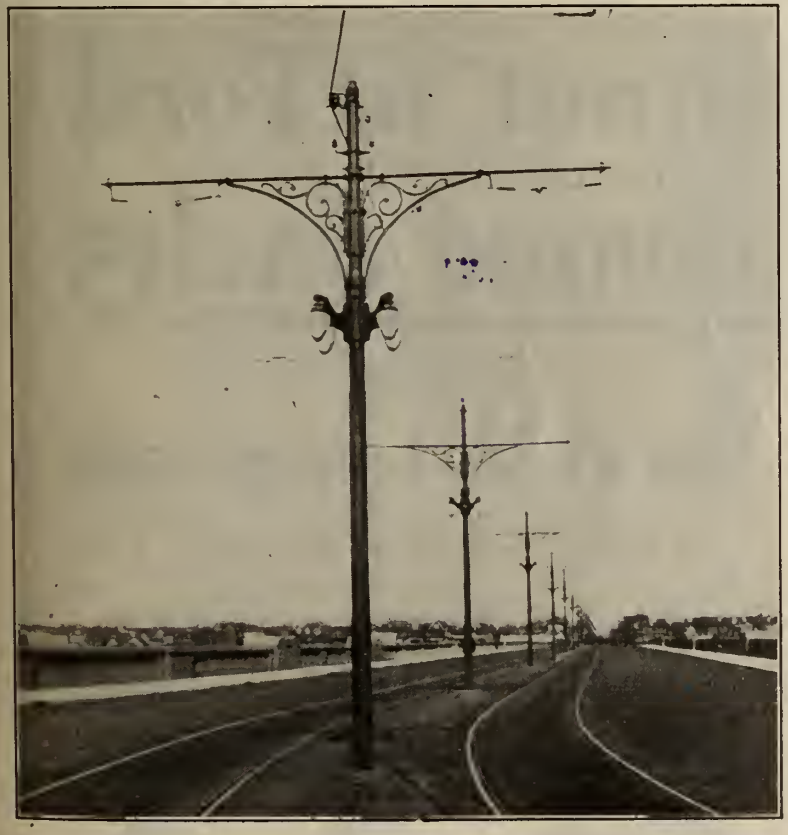

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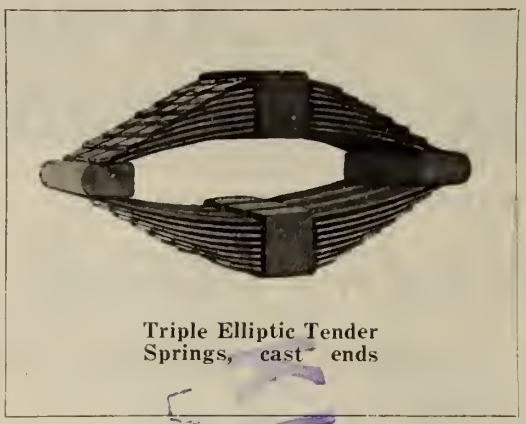

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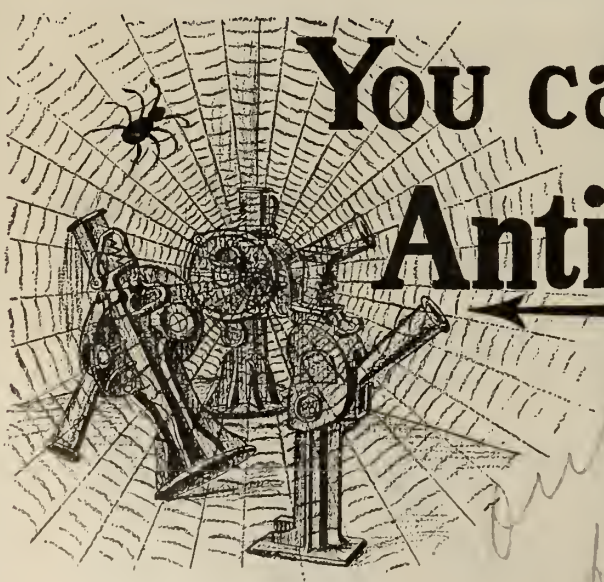

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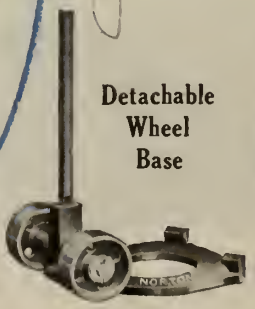

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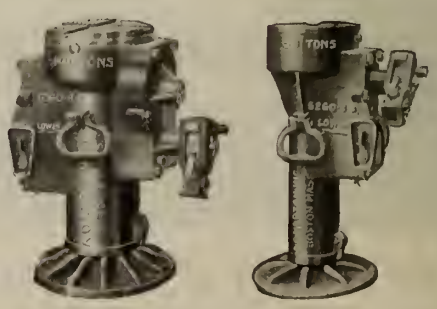

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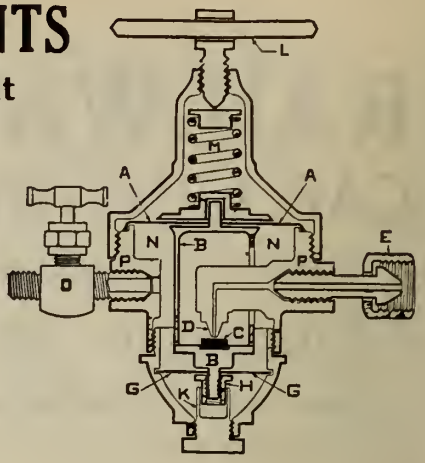

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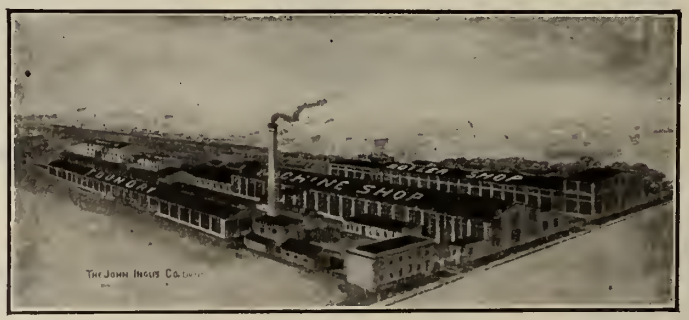

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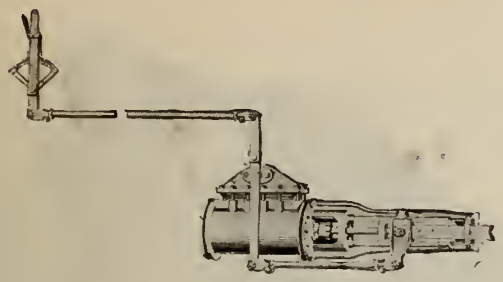

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Canadian Railway and Marine World

June, 1921

200-Ton Railway Track Scale, Canadian Pacific Railway.

By H. S. Bare, Building Engineer, Angus Shops, C.P.R., Montreal.

A railway track scale, completed recently at Angus shops, Montreal, for the C.P.R., introduces a number of interesting features that are new, particularly the tapered floor deck shown in the accompanying fig. 1, which is an innovation and a radical departure from the old style flat floor. The scale is a 4 section Fairbanks type S-20, 100 tons per section, with a beam capacity of 200 tons. The pit is 56 ft. long and 10½ ft. wide, of the usual type, with concrete walls and floor, as shown in fig. 2. The deck over the scale is a patented weather proof cover, designed to protect the scale from rust, and to prevent the freezing up of the scale during the winter. This is obtained by elevating the dead and live rails clear of the floor, and sloping the deck to shed the water from the center to either side like a roof.

Fig. 1. 200-Ton Track Scale, C.P.R. General View, Waterproof, Tapered Scale Deck.

As is well known, the ordinary track scale floor is flat as shown in fig. 3, and it is impossible to keep water from entering the pit, with the result that trouble is caused by freezing, and the useful life of the scale is destroyed, by rust, long before its mechanical life has been reached. Investigation has shown that a fair average accurate life of a track scale with the ordinary flat floor deck (fig. 3), is from 2 to 2½ years. During this time the destruction of the pivots and bearings, by wear, in the presence of rust, is considerable, and after the second year the destruction of the vital parts, by rust and wear, is so constant that many errors develop, and adjustments have to be made to correct the errors that result. With frequent inspections and adjustments the ordinary scale could be kept in service for about 4 or 5 years, and some have been carried as long as 7 or 8 years, depending on the class of scale, local conditions and the amount of weighing done at the point, but, after this service, when taken up for repairs, they generally required all new steel pivots and bearings.

It was conceded that, if rust could be eliminated, the wear of the contact surfaces would be only a small percentage in comparison to the wear by rust, and that the useful life of the scale would be greatly prolonged, as, unquestionably, a scale that is only affected by wear can be kept in service and show close weights at least twice as long as under the other conditions, and to obtain this result the C.P.R. tried in 1918 an entirely new design known as the tapered floor deck, with results so satisfactory that it has been made standard and all installations since have been equipped with this type of deck as shown in fig. 4. The normal condition of the scale pit, with the tapered floor, has always been found on examination to be free from any sign of condensation, which shows that it is not affected by weather conditions, due to the fact that every stand (both live and dead) is a ventilator (fig. 4). It does not necessarily follow that the temperature at all times is the same both inside and outside of the pit. In winter the temperature in the pit is above that of the outside air, while in summer it is below, but the difference has little or no effect as regards condensation, if the air is in circulation. In the flat floor pit, where there is practically no circulation of air, condensation takes place on the cold metal parts, with the result that hoar frost and ice forms, and dampness is constant, which means rust and destruction of the vital parts of the scale, doubtful weights, and the possibility of scales being frozen up, and out of service during severe winter weather. With the tapered floor the scales were found to weigh as accurately in mid-winter as in summer, and in no case were any of the scales with the tapered cover frozen up, or out of service for any reason.

The new scale at Angus is an all steel proposition, with cast iron stands carried on structural steel, supported by the scale irons for the live track, and similar stands, resting on steel beams carried on the wall of the pit, for the dead track. Dead and live rail stands are of course staggered and 12 in. track centers were adopted. The steel eye beams supporting the dead rail stands also carry the tapered floor joints, and incidentally the floor of the scale; the live rail stands have to be free of the floor to allow for movement when weighing, and the openings are in the floor through which the stands project. The upper edges of the flashings are protected by the overhanging umbrella tops of the stand. Ample space is allowed around the flashing, so that the stand will move without contact, but, even if this should occur, the metal is not stiff enough to affect the accuracy of the scale. The hand can be inserted under the hood of the stand and the freedom of the movement ascertained at any time (fig. 4).

The taper floor has a fall to each side of the pit, of ½ in. per foot, was built up of two thicknesses of 1⅝ t. & g. lumber, separated by felt and pitch waterproofing; the stand flashings were spiked to the upper layer of the floor, after which tarred paper, burlap and asphalt, were applied to the surface under the finishing flooring of mastic, which was ¾ in. thick. The base of rail of both tracks is 7 in. clear of the floor, a space amply sufficient to carry off the water, and to ensure that no obstruction is preventing accurate weighing. Both live and dead tracks are carried on special approach stands at the ends next to the gap, a method assuring secure anchorage. To take care of expansion point and wing rails were installed.

The scale foundation is the usual type, except that large concrete pedestals were cast at each end of the pit, to carry the last 10 ft. of track, a feature introduced to prevent heaving of track by frost, with the consequent troubles incidental thereto. About 270 cu. yd. of 1-3-5 concrete, with super-cement, were used in the foundation, and, to assure absolute waterproof conditions, all the forms were in place before any concrete was poured. The vertical members of the inside forms were made up of lumber, and, so that no patching would be required in the floor, the lower section of these members were made of scrap angle iron, so that they could be cut off and left in the floor. All concrete was poured into the walls first, raked out of the bottom of the forms and spread over the floor, two mixers being used for the purpose. The mix was spouted to the forms, and the pouring was completed in one operation, taking 18 hours to perform, and supercement was used to obtain waterproof walls and pit floor.

A shelter for the scale beam and the weighman was built in conjunction with the pit, as shown in fig. 2. The floor of the shelter is 2 ft. above the rail level. By raising the floor of the weighhouse

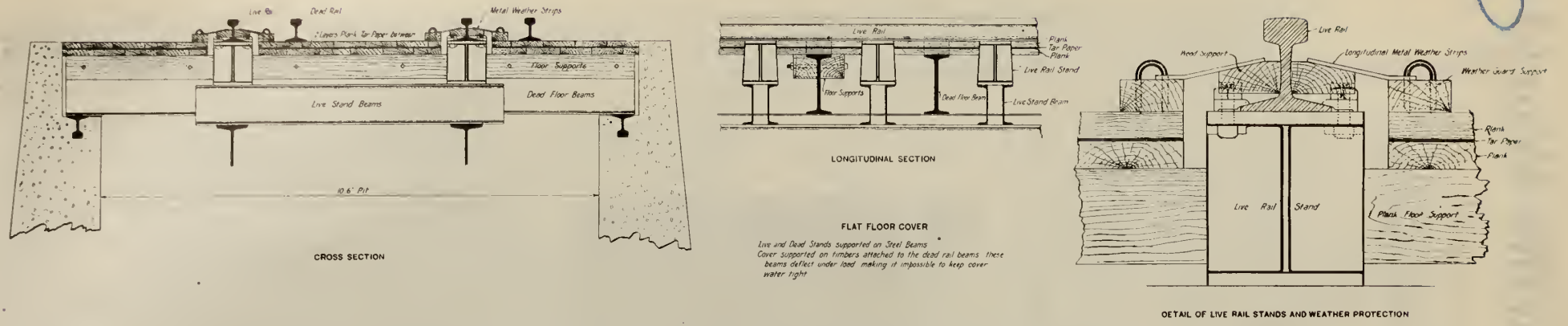


Fig. 3. 200-Ton Track Scale, C.P.R. Flat Floor Cover, cross section, longitudinal section, and detail of live rail stands and weather protection.

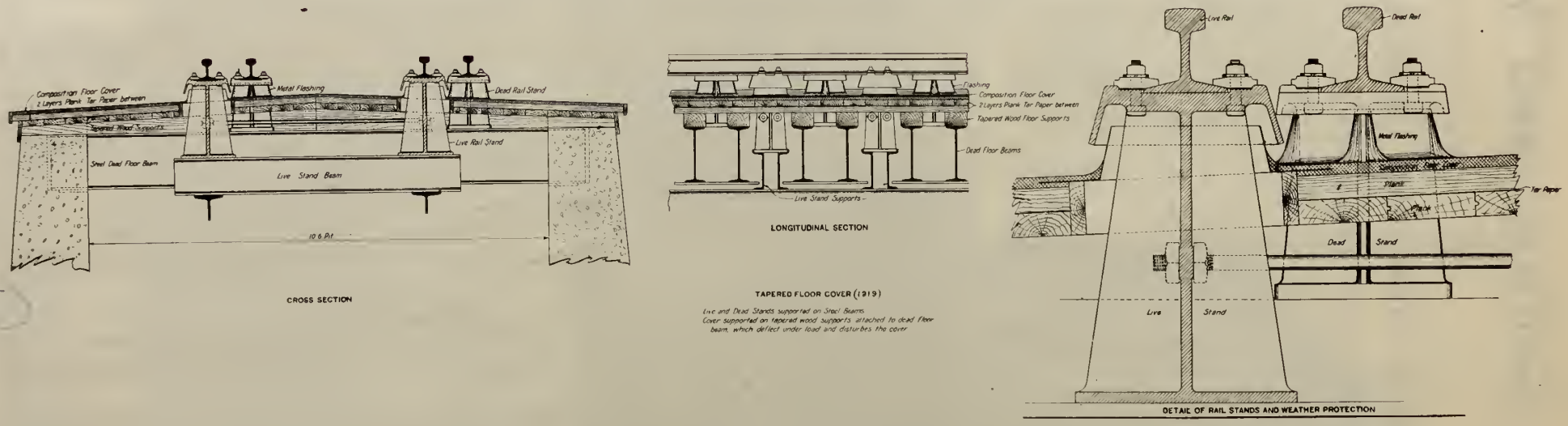


Fig. 4. 200-Ton Track Scale, C.P.R., Tapered floor cover (1919), cross section, longitudinal section, and detail of rail stands and weather protection.

in this fashion, it enables windows to be placed in the rear to light the basement, in addition it provides for ventilation of pit, and, in the case of repairs, the parts can be taken out through the basement windows, instead of disturbing the track.

Similar tapered floors of an earlier design have been in service for more than three years, and the results so far indicate that the scales will last two to three times longer with the new floor than with the old flat floor, no sign of rust or deterioration having been noted in any of the new installations.

This scale was built as part of a large programme in connection with Angus shop extensions under the direction of the Chief Engineer, J. M. R. Fairbairn, C.P.R., and was supervised by J. W. Orrock, Principal Assistant Engineer. The scale was supplied by Canadian Fairbanks-Morse Co. and was installed by J. D. O'Neill, Scale Inspector, C.P.R., and the work was carried out by the general contractors under the writer's charge.

Fig. 2, illustrating this article, appears on pg. 291.

The C.P.R. and the Boston & Maine Rd.—The President of the National Association of Cotton Manufacturers is reported to have said at the annual convention at Boston, Mass., recently, that the Boston & Maine Rd. should be taken over by the C.P.R.; the Fitchburg division of the Delaware & Hudson Rd., and the New Haven Rd. by the Pennsylvania Ry., and the Central New England Rd. by the Erie Rd., so that Boston should be made the terminal of trunk lines.

Railway Apprentices from China.—G. M. Bosworth, Chairman, Canadian Pacific Ocean Services, while in Pekin, China, recently, arranged with the Minister in charge of Chinese Government Rys. to send six of their young men to Canada to be apprenticed to the C.P.R. They will be divided between the operating, traffic and stores departments, and it is the intention that they remain for about three years. They are college graduates and speak English quite fluently. They sailed from Shanghai on the s.s. Empress of Russia, April 28, for Vancouver.

Punishment for Removing Signal Light. A 14 year old boy was sentenced to two years in St. Patrick's Home by the Sydney, N.S., Police Magistrate, recently, for taking a light from a Canadian National Rys. switch stand.

Birthdays of Transportation Men in June.

Many happy returns of the day to:

F. F. Backus, General Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Rochester, N.Y., June 4, 1860.

W. C. Bowles, General Freight Agent, Western Lines, C.P.R., Winnipeg, born at Montreal, June 3, 1875.

J. H. Boyle, Superintendent, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Waterloo, Que., June 26, 1869.

F. P. Brady, Assistant to Executive, Canadian National Tys., Toronto, born at Haverhill, N.H., June 22, 1853.

Capt. C. P. Disney, Engineer of Bridges, Eastern Lines, Canadian National Rys., Toronto, born at Montreal, June 11, 1887.

A. E. Doucet, Director of Public Works, Montreal, born there, June 9, 1860.

Knowlson Elliott, City Freight Agent, C.P.R., Calgary, Alta., born at Gorrie, Ont., June 26, 1884.

J. M. R. Fairbairn, Chief Engineer, C.P.R., Montreal, born at Peterborough, Ont., June 30, 1873.

Jas. Ferguson, Trainmaster, Canadian National Rys., Prince Albert, Sask., born at Woodbridge, Ont., June 17, 1878.

W. E. Foster, Solicitor for Ontario,

Fig. 2. 200-Ton Track Scale, C.P.R. General View of Pit, showing Scale. See pp. 289 and 290.

H. W. Brodie, General Passenger Agent, lines west of Revelstoke, C.P.R., Vancouver, B.C., born at Fredericton, N. B., June 8, 1874.

G. W. Coburn, Resident Engineer, C. P.R., Brandon, Man., born at Upper Melbourne, Que., June 24, 1877.

E. P. Coleman, General Manager, Dominion Power & Transmission Co., Ltd., Hamilton, Ont., born at Taunton, Mass., June 14, 1867.

W. S. Cookson, General Passenger Agent, G.T.R., Montreal born at Port Jervis, N.Y., June 12, 1871.

E. L. Cousins, Manager and Chief Engineer, Toronto Harbor Commission, Toronto, born there, June 11, 1883.

A. Craig, City Passenger Agent, C.P. R., Hamilton, Ont., born there, June 5, 1884.

J. M. Davidson, Division Engineer, Canadian National Rys., Winnipeg, born at Glasgow, Scotland, June 4, 1877.

G.T.R., Montreal, born at Belleville, Ont., June 27, 1866.

A. A. Goodchild, General Storekeeper, Eastern Lines, C.P.R., Montreal, born at Peckham, London, Eng., June 3, 1866.

W. C. Guthrie, Superintendent, Schreiber Division, Ontario District, C.P.R., Schreiber, Ont., born at Arnprior, Ont., June 15, 1876.

L. R. Hart, General Agent, Passenger Department, C.P.R., Boston, Mass., born at Fairport, N.Y., June 3, 1877.

J. A. Heaman, Assistant Chief Engineer, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Memphis, Tenn, June 3, 1874.

R. B. Jennings, Division Engineer, Canadian National Rys., Ottawa, Ont., born at Paris, Ont., June 29, 1888.

M. W. Kirkwood, General Manager, Grand River Ry., and Lake Erie & Northern Ry., Galt, Ont., born at Cheltenham, Ont., June 8, 1877.

L. Lavoie, General Purchasing Agent, Canadian National Rys., Toronto, born at Rimouski, Que., June 22, 1879.

J. D. McAuley, Soliciting Freight Agent, Canadian National-Grand Trunk Rys., Montreal, born at Plantagenet, Ont., June 11, 1884.

R. S. McCormick, Chief Engineer and General Superintendent, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont., born at Quaker City, Ohio, June 22, 1873.

S. J. McLean, Assistant Chief Commissioner, Board of Railway Commissioners, Ottawa, born at Quebec, June 14, 1871.

C. E. McPherson, Assistant Passenger Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Chatham, Ont., June 7, 1861.

J. R. C. Macredie, Engineer, Saskatchewan District, C.P.R., Moose Jaw, born at St. John, N.B., June 13, 1880.

James Manson, Assistant to the Vice President, C.P.R., Montreal, born at Thurso, Scotland, June 8, 1863.

W. E. Massie, Master Mechanic, Niagara, St. Catharines & Toronto Ry., St. Catharines, Ont., born at Elora, Ont., June 5, 1880.

J. D. Morton, General Auditor, Canadian National Rys., Toronto, born at London, Ont., June 15, 1857.

L. Mulkern, Division Freight Agent, C.P.R., North Bay, Ont., born at London, Ont., June 18, 1871.

R. P. Ormsby, Secretary, Canadian Nation Rys., Toronto, born at Arklow, Ireland, June 26, 1869.

J. E. Pinault, General Superintendent Canada & Gulf Terminal Ry., Matane, Que., born at Rimouski, Que., June 24, 1884.

F. R. Porter, Foreign Freight Agent, Canadian National-Grand Trunk Rys., Toronto, born at Stratford, Ont., June 13, 1875.

F. Price, Superintendent of Car Service, G.T.R., Montreal, born there, June 11, 1864.

Allan Purvis, ex-General Superintendent, Ontario District, C.P.R., Toronto, born at Batavia, Java, June 29, 1878.

L. J. Reycraft, Solicitor, Manitoba and Saskatchewan Districts, C.P.R., Winnipeg, born in Orford Tp., Kent County, Ont., June 20, 1868.

J. R. Shaw, Passenger Agent, Canadian Pacific Ocean Services, Ltd., Manila, Philippine Islands, born at Montreal, June 28, 1871.

J. L. Simpson, agent, C.P.R., Port McNicoll, Ont., born at Mount Forest, Ont., June 9, 1866.

H. H. Smith, Car Accountant, Canadian National Rys., Toronto, born at Quebec, Que., June 14, 1872.

N. Van Wyck, Freight Claim Agent, Canada Steamship Lines, Ltd., Montreal, born at Hamilton, Ont., June 29, 1883.

V. G. R. Vickers, ex-Manager, Foreign Department, and Superintendent, Atlantic Division, Dominion Express Co., now Vice President, The Holden Co., Ltd., Montreal, born at Toronto, June 1, 1866.

W. Walkden, Assistant Bridge Engineer, Western Lines, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Alderley Edge, Cheshire, Eng., June 1, 1885.

A. E. Warren, General Manager, Western Lines, Canadian National Rys. and Grand Trunk Pacific Ry., Winnipeg, born at Taunton, Eng., June 9, 1874.

Walter White, Trainmaster, G.T.R., Palmerston, Ont., born at Toronto, June 4, 1866.

Steam Railway Traffic Statistics for Year Ended June 30, 1919.

This is the third of a series of tables containing statistics for the year ended June 30, 1919. The others were published in Canadian Railway and Marine World for March, pgs. 145 and 146, and April, pg. 182.

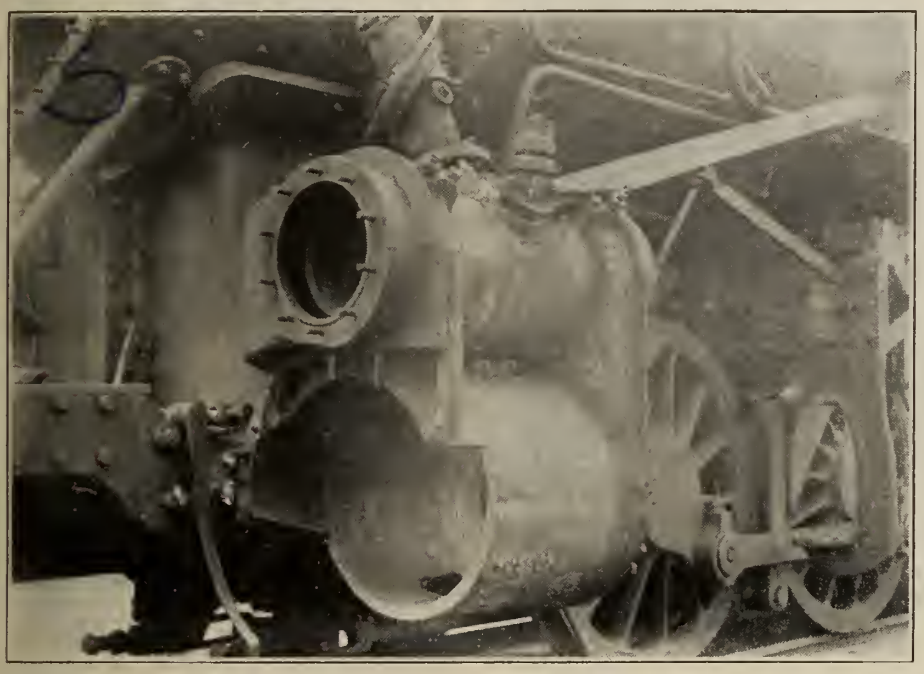
Name of Railway	Passengers carried	Passengers carried one mile	Revenue per passenger per cents	Mileage of revenue passenger trains	Mileage of revenue mixed trains	Mileage revenue freight	Tons of freight carried	Tons carried one mile.	Revenue per ton per mile cents.	Mileage of non revenue trains.
Alberta & Great Waterways	9,370	785,767	3.691	.....	22,367	27,585	70,263	8,283,156	1.054	599
Algoma Central & Hudson Bay	36,539	2,409,539	3.752	60,475	12,954	340,720	814,789	115,979,335	0.998	56,294
Algoma Eastern	46,818	1,412,430	3.622	93,853	17,812	195,330	1,881,132	26,579,630	2.955	1,481
Atlantic, Quebec & Western	47,663	1,402,903	2.981	40,477	25,569	39,836	182,107	7,991,527	1.948	2,178
Brandon, Sask., & Hudson Bay	17,945	638,327	3.210	43,176	.....	21,751	19,960	809,134	1.606	1,839
British Yukon	5,584	358,020	10.660	1,954	41,730	413	12,790	1,041,648	10.195	1,591
Canada & Gulf Terminal	24,314	558,913	3.797	.....	22,464	.....	41,399	1,224,089	5.129	.....
Canada Southern	1,543,631	1,789,823,466	2.866	1,914,128	139,050	1,780,231	9,573,206	1,593,099,085	0.923	75,547
Canadian National Railways—										
Canadian Northern	4,343,988	306,755,510	2.630	5,289,889	1,775,536	9,201,582	12,056,326	3,707,628,972	0.982	1,094,629
Elgin & Havelock	12,681	135,892	3.001	.....	14,217	76	13,422	159,286	7.848	625
Intercolonial	4,809,142	332,621,150	2.177	3,355,951	453,190	4,501,678	8,159,265	1,991,436,652	0.826	268,183
International of N.B.	36,087	1,396,559	3.328	32,397	68,037	61,218	194,015	11,853,909	1.524	17,135
Moncton & Buctouche	29,239	669,984	2.453	.....	20,090	132	21,923	433,179	6.862	1,785
National Transcontinental	1,006,041	88,836,803	2.161	919,115	342,542	2,139,069	3,905,481	1,245,520,866	0.649	189,314
Prince Edward Island	365,333	10,029,941	2.286	122,262	222,320	26,235	216,007	10,907,961	4.360	8,625
St. John & Quebec	52,165	1,180,562	2.925	.....	67,860	8,817	94,001	3,994,324	2.474	2,330
St. Martins	8,602	156,557	2.933	.....	17,584	10	13,656	212,247	6.921	60
Salisbury & Albert	13,549	314,737	2.942	.....	30,070	8,921	63,307	1,820,329	2.685	1.090
York & Carleton	9,800	56,076	4.243	.....	7,564	48	10,656	63,914	10.311	82
Canadian Pacific	14,542,282	1,400,656,245	2.516	17,756,307	1,987,553	19,680,710	25,894,741	11,307,517,134	0.956	997,482
Cape Breton	14,756	317,175	2.920	.....	19,406	.....	14,486	385,634	3.530	.....
Central Canada	5,647	271,056	3.881	.....	9,650	642	8,925	431,581	2.487	626
Central Vermont	164,254	2,999,154	3.473	112,600	44,402	58,747	254,554	8,904,255	2.855	3,146
Crows Nest Southern	12,519	330,368	3.642	33,145	.....	42,397	132,498	5,559,794	1.110	2,298
Cumberland	49,039	555,496	2.846	.....	28,145	7,448	322,559	2,254,728	3.723	.....
Dominion Atlantic	497,410	10,843,075	2.624	282,570	92,165	158,060	392,637	39,440,611	2.203	14,974
Eastern British Columbia	2,500	28,198	5.420	.....	7,512	.....	84,482	982,807	2.561	178
Edmonton, Dunvegan & B.C.	41,972	6,302,672	3.653	79,096	7,906	153,167	143,927	28,777,770	1.811	11,101
Essex Terminal	.....	.....	.....	.....	.....	35,000	430,161	4,301,610	2.962	.....
Esquimalt & Nanaimo	315,456	8,325,155	3.081	151,180	4,180	126,279	681,031	21,368,449	3.441	16,757
Fredericton & Grand Lake C. & Ry. Co.	14,735	337,214	3.680	.....	29,759	.....	221,731	7,103,985	2.147	.....
Grand Trunk	10,593,808	487,443,723	2.676	6,883,203	707,051	10,328,082	23,901,253	4,900,472,249	0.986	610,315
Grand Trunk Pacific	391,980	50,345,197	2.697	973,527	118,025	1,818,261	1,633,560	584,883,478	0.934	439,807
G.T.P. Branch Lines	258,863	12,563,339	3.030	288,601	304,697	343,002	1,033,986	99,951,696	1.571	124,136
Hereford	27,646	481,681	4.922	33,160	33,108	13,337	122,144	3,632,496	2.306	1,102
Kettle Valley	49,579	8,485,615	3.059	193,002	36,539	168,802	242,455	18,952,176	2.081	58,461
Lotbiniere & Megantic	9,340	129,845	3.216	.....	.....	19,000	57,513	960,676	4.593	.....
Maine Central	125,134	638,183	2.818	3,706	6,205	4,115	278,293	1,419,294	0.672	10
Manitoba Great Northern	8,178	182,714	3.250	10,016	24,178	4,652	42,374	1,357,714	1.398	239
Maritime Coal, Ry. & Power Co.	24,941	220,445	3.329	.....	24,645	.....	246,716	2,636,534	4.287	.....
Massiwippi Valley	176,407	2,536,898	3.272	61,965	21,910	38,299	479,554	14,315,485	0.872	1,076
Midland of Manitoba	73.615	4,084,025	3.170	97,692	.....	40,568	132,910	9,481,827	1.129	.....
Montreal & Atlantic	351,314	8,948,106	2.859	136,452	155,724	190,415	1,479,467	75,281,613	1.631	5,124
Morrissey, Fernie & Michel	81,900	411,957	2.165	.....	26,303	.....	338,027	2,061,965	4.091	.....
Napierville Jct.	121,539	4,606,458	4.022	87,421	.....	42,769	949,018	27,247,870	1.043	569
Nelson & Fort Sheppard	24,043	566,876	3.520	36,768	.....	18,381	35,823	1,250,631	2.339	3,015
New Brunswick Coal & Ry. Co.	25,154	569,995	3.185	.....	34,438	.....	34,849	1,937,840	2.500	.....
New Westminster Southern	657	8,554	3.393	.....	2,610	.....	7,363	15,508	3.237	.....
Ottawa & New York	134,309	3,297,912	2.956	75,702	.....	41,602	510,382	26,643,364	0.824	1,059
Pere Marquette	197,141	3,957,242	2.941	197,926	.....	889,348	3,310,548	616,713,972	0.716	6,535
Quebec Central	489,514	21,008,539	2.685	245,286	248,831	230,217	1,151,945	101,029,602	1.930	6,449
Quebec, Montreal & Southern	191,726	4,508,082	3.084	67,715	64,410	87,760	768,085	37,688,130	1.533	13,846
Quebec Oriental	42,806	2,420,868	3.013	28,755	31,895	110,659	206,085	17,573,142	1.543	12,067
Quebec Ry., Light & Power Co.	38,760	253,103	1.696	2,079	.....	27,426	213,151	2,738,614	5.794	364
Red Mountain	5,794	52,042	3.102	.....	6,354	.....	13,024	110,107	5.224	126
Roberval-Saguenay	42,181	708,033	3.303	29,148	15,512	25,366	232,291	4,030,173	3.815	3,260
Rutland & Noyan	.....	.....	.....	.....	.....	1,893	254,593	863,070	1.163	.....
St. Lawrence & Adirondack	643,601	12,856,400	1.900	127,006	.....	121,110	2,324,274	88,561,407	0.985	18,073
Sydney & Louisburg	160,421	1,872,769	3.122	31,714	17,998	137,202	3,280,850	36,920,398	2.705	.....
Temiscouata	60,054	1,768,164	3.066	50,419	43,980	25,656	213,055	7,254,268	3.775	21,220
Timiskaming & N. Ontario	463,665	27,594,993	2.676	398,056	54,481	545,467	1,065,726	190,721,385	1.024	16,025
Toronto, Hamilton & Buffalo	497,437	16,355,132	3.072	203,342	.....	168,907	2,702,277	101,559,371	2.053	14,715
Vancouver, Victoria & Eastern	176,095	4,988,525	3.197	113,964	86,782	66,425	885,329	27,953,526	1.260	27,577
Victoria & Sidney	29,327	375,972	2.526	22,650	1,055	7,168	19,599	181,095	6.329	.....
Victoria Ry. & Terminal Co.	29,804	29,506	2.482	1,403	66	371	18,435	18,250	4.009	.....
Wabash (in Canada)	128,058	22,804,522	2.498	278,971	.....	956,520	2,580,160	561,911,269	0.779	4,495
Total for 1918-1919	43,754,194	3,074,664,369	.....	41,048,124	7,652,411	55,034,882	116,699,572	27,724,397,202	.....	4,159,614
Total for 1917-1918	50,737,294	3,190,025,682	.....	41,850,575	7,787,636	60,143,014	127,543,687	31,029,072,279	.....	4,158,919

In addition to the revenue train mileage given in columns 5, 6 and 7, there was a total special revenue train mileage of 97.418, distributed over 20 railways.

Railway Mechanical Methods and Devices.

Welding a Locomotive Cylinder and Valve Chest.

An oxy-acetylene welding job, performed in the Canadian National Rys. Leaside shops, is worthy of mention.



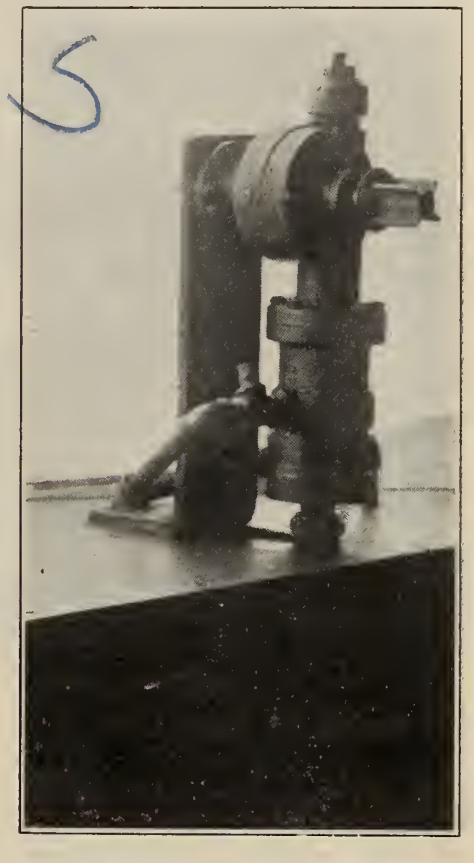
Locomotive Cylinder and Valve Chest, before welding.

This job, done some little time ago, involved very expert work, and the excellent results obtained were very gratifying. The weld was on a cylinder and valve chest on locomotive 3310. The cylinder and valve chest were so broken that the various pieces were too small for straight welding work, so two plates were made, one for the cylinder and one for the valve chest, to fit the same after the edges of the breaks had been trimmed off evenly. These patches were V'd out at an angle of 45 deg. 1 in. back, for both cylinder and valve chest, and were bolted temporarily in place. The entire cylinder and valve chest were heated to a cherry red color, and the weld was then made. After welding, the work was completely covered in dry sand, and given ample time to cool. The machine regularly used was then employed to bore out the valve chest and cylinder.

When the locomotive was ready for the test, the valve chest and cylinder were filled with steam at working pressure, and no leaks or defects were discovered. This locomotive has been in continuous road service since leaving the shops, and the welded portion has given no trouble, nor shown any sign of weakness. The accompanying illustrations, showing the work before and after welding, furnish an idea of the nature of the job. A complete cylinder and valve chest casting, which would have been necessary had it not been possible to perform this welding operation, would have cost about $3,500, and the total cost of the repair was less than one eighth of this. The welding was done by M. Karluk, leading welder, under the supervision of H. Daley, Erecting Shop Foreman, and Otis Grant, Superintendent of Leaside shops, and is representative of the type of work which is being successfully performed there.

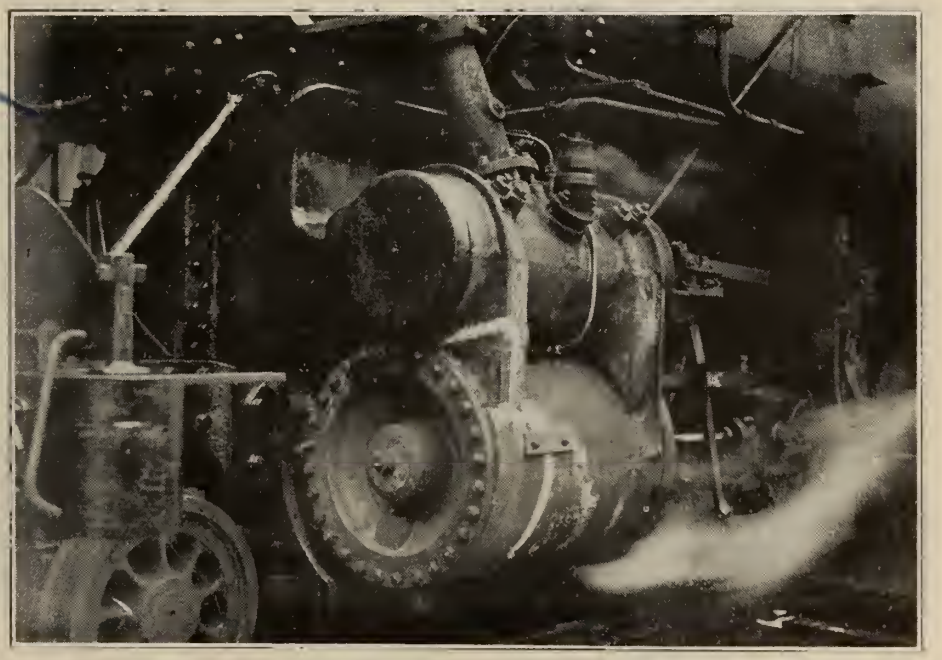
Grinding in Triple Valve Emergency Check Valves.

A method of grinding in the emergency valves of triple valves as used in the car department, air brake room, West Toronto shops, C.P.R., is unique. This work was done formerly by hand, and was necessarily slow. Now use is made of an old automatic air-operated bell ringer, which was fixed up, mounted on the air brake bench, secured to a bracket, as shown in the illustration, and connected by piping to the air supply. The accompanying illustration shows a check valve in position to be ground in.



Grinding in triple valve emergency check valves; valve in position for grinding.

In the grinding-in operation, the seat of the valve, inside the check valve case, is smeared with carborundum grinding compound, the case is held over the valve, so as to bring valve and seat together, and the air is turned on. The air, acting on the piston of the bell ringer, imparts to the check valve a rotative motion, back and forth, through about 60 degrees; the case is pressed fairly heavily so as to give the valve a good pressure on its seat, and the case is given a quarter turn by the operator every few seconds till the work is done.



Locomotive Cylinder and Valve Chest, after welding.

Where this job took formerly from five to 10 minutes, it is done in this way in about a minute, and so thoroughly and well that not one in a hundred has to be done over. For this information we are indebted to Louis Bourque, Assistant Car Foreman, West Toronto shops, C.P.R.

Reclaiming scrap bolts. Fig. 1. Straightening bolt.

Reclaiming Scrap Bolts.

Among the carloads of scrap which are taken to the scrap handling dock at West Toronto shops, C.P.R. (the scrap plant being in charge of J. E. McEwan, scrap and material reclaiming foreman), are a great many bolts, which, instead of being sold as scrap, are reclaimed. The bolts, twisted, bent and with threads badly stripped, are sorted out of the car of scrap material, and placed in a section of the dock reserved for bolts. They are then taken to the reclaiming plant and first subjected to the straightening operation, as shown in the accompanying illustration, fig. 1. The hammer is operated by compressed air, and one blow is sufficient to take a bend out of a bolt up to an inch in diameter. The bolts are then cut to length, according to orders from the stores department, as shown in fig. 2. Fig. 3 shows the threading machine, which will thread three bolts at once, and takes material up to 1⅛ in. in diameter. This machine is operated electrically, being driven by a 30 h.p. motor.

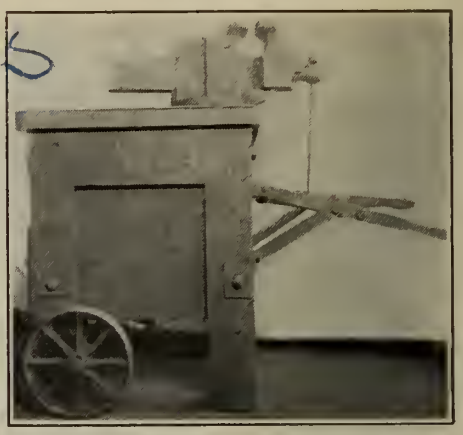
The saving effected by this reclaiming operation is shown by the following figures, representative of operations for one month.

Bolts reclaimed	18,868 lb.
Value of reclaimed bolts	$1,415
Scrap value of these	$283
Cost of reclaiming	150
	433
Saving effected	$982

Railway material exported from Great Britain during January was valued at $13,285,720, against $7,087,312 for Jan. 1920.

Portable Work Bench for Railway Repair Shop.

The accompanying illustration shows a work bench, several of which are in use throughout the Toronto repair shops,



Portable Work Bench for Railway Repair Shop

G.T.R., which can be moved from place to place throughout the shop. As shown in the illustration, support for two corners is provided by the wheels on which it is moved. These benches, which were made at the shops, are of wood, reinforced with sheet iron, and with a sheet iron plate on top. Some of them are equipped with a vise, as the one shown. The handles, for use in moving the bench from place to place throughout the shop, are so designed as to lower by gravity against the back of the bench. In the illustration, the handles are secured to the vise handle, to show their construction more clearly. For holding tools on a big job, or for placing the work on a small job, where there is no stationary bench convenient, these portable benches come in usefully. We are indebted to W. H. Delaney, Foreman Carpenter, Toronto shops, G.T.R., for this information.

The International Railway Congress will hold its ninth meeting at Rome, Italy, Apr. 18 to May 1, 1922. Reports and papers are being prepared covering almost every phase of railway construction, maintenance and operation, and among those to be presented will be thirteen by representatives of various railways in North America

Reclaiming scrap bolts. Fig. 2. Cutting bolt to length. Fig. 3. Threading bolt.

Canadian Pacific Railway Company's Annual Meeting.

The C.P.R. Co.'s shareholders' 40th annual meeting was held at Montreal May 4, Lord Shaughnessy, Chairman of the company, presiding. E. W. Beatty, K.C., President, in moving the adoption of the report for the calendar year 1920, as published in Canadian Railway and Marine World for May, said:—The company's operations during the year, the annual report for which is now submitted for your approval, have been conducted under conditions which were so exceptional as to costs as to make it unique in the company's history, as well as in the transportation annals of Canada. The shareholders are aware of the general conditions which so strongly influenced the results for the year, but I doubt if a full appreciation of them is possible save with a very intimate knowledge of the details, the aggregate of which is so vividly reflected upon the company's revenues. The cost of labor, materials, and fuel, reached their peak during the year, and extraordinary added costs, such as high exchange and taxes, added their quota to the expenses. The back pay which accrued before the increased freight and passenger rates became effective amounted to a little less than $7,000,000, and the additional amount required to pay exchange on coal and other purchases to $4,000,000. The total, including provision for income taxes, involved additional costs of approximately $13,500,000, which were charged to the expenses of the year. All these extraordinary and abnormal expenses the company was able to absorb and pay its fixed charges and usual dividends. This result was only possible because of the excellent character of the company's facilities, provided by you in previous years at large capital expense, and the possession by it of equipment used with the greatest possible efficiency, which enabled the heavy fall movement of traffic to be effected with a despatch which has rarely, I think, been equalled. I cannot speak too highly of the loyal and effective work done by the company's officers and men, without whose efforts such favorable results could not have been secured.

While the condition of the company's property has never been permitted to deteriorate, due to the provision made for its upkeep to a high standard in pre-war years, there were expenditures which had to be incurred in 1920 which, except for the intensive use of equipment and the shortage of labor and material during the war, would either not have been included in the expenses for that year in their entirety, or would not have had to be incurred at all. The company's equipment was put to a great strain from 1914 to the end of 1919, and both freight and passenger business, including troop and coolie movements, was so extensive that the usual shopping programme had to be reduced, because every unit was required in actual service. When these movements ceased, repairs to equipment and renewals, of course, became extensive, and while I should have preferred that the work could have been postponed until price conditions were more favorable, it was necessary, unless the company were to suffer in prestige, that the work should be gone on with as soon as possible.

About the middle of Dec. 1920, a pronounced contraction in business took place, resulting in diminished traffic of all descriptions. This depression still continues, but, by rigid economies, the net results for the first three months of this year are somewhat in excess of those of the corresponding period of last year, notwithstanding the greatly increased costs of labor prevailing in 1921.

Wages and Rates:—As you are aware, the parity of conditions which has existed in the United States and Canada resulted in the forced adoption in Canada of what is known as the McAdoo Award and amendments, and of the award of the United States Labor Board made in Aug. 1920. Increases in wages may have been justified at that time by the abnormal increase in the cost of living, but they were accompanied by alterations in working conditions of such a character as to impose heavy and, in the view of the companies, unnecessary burdens on the transportation agencies of North America. The combined effect of them has been to greatly increase the cost of the operations of all companies. The conditions which rendered them necessary being rapidly ameliorated, it is apparent that readjustments will be essential. The effort to secure reductions in wages and alterations in working conditions has already been commenced in the U.S., and is proceeding in a sane, orderly and legal manner. What is accomplished there will undoubtedly reflect on the rates of pay and working conditions in Canada. These increases in wage scales, while not the only element which entered into the increase in freight and passenger rates, were still a very outstanding and potent factor, and when the readjustment of wages takes place it is only right that the rate situation should be again reconsidered, with a view to revision downward. The rates are high, but I am not one of those who believe that the existing scale of wages and consequent high freights is responsible for the present business depression; the causes of that go much deeper than the mere standard of wages paid to any given class and are world wide. While reduction in wages does carry with it a reduced purchasing power in the individual, such reduced purchasing power is not represented by the difference in the scales of wages, because of the general decrease in prices of the commodities to be purchased. Nevertheless, a reduction in both wages and freight rates would have a pronounced and beneficial effect on the general sentiment in the country, through the encouragement it would give and the confidence that normal conditions had been more nearly reached.

Steamships.—The general trade depression has, of course, reflected itself in the results during the present year's operations of the company's steamships, but the passenger business is well maintained and the prospects of immigration on a large scale are very promising. The construction of the new steamships for the Atlantic and Pacific, to which reference is made in the annual report, has been very seriously delayed by the joiners' strike in Great Britain, which is still apparently far from settlement and which will defer the delivery of these ships until at least the end of this year. These ships are of a class that would render great service during the summer and autoumn of this year, and the fact that they will not be available is to be regretted. As both the direct and indirect benefits of a continuance of an adequate service are very great it may be desirable to purchase other ships, if these can be obtained at moderate prices.

Finances.—As indicated in the annual report, your finances are in excellent shape. While the balance in bank is not, of course, as large as it was at the end of last fiscal year, the amount is nevertheless a very substantial one, and there is still unissued or undisposed of over $67,000,000 of consolidated debenture stock, the issuance of which has been heretofore authorized, or that you will be asked to sanction at this meeting. Even in the trying times during and immediately succeeding the war, the company's progression has been steady and sure, and the assets statement shows an increase since 1914 of an amount in excess of $170,000,000. Your directors have recently accepted a proposal for the acquisition by London, Eng., interests of a substantial amount of 4% consolidated debenture stock at a price which was very favorable. This is the first application for the acquisition of debenture stock from England since the outbreak of hostilities in 1914, and, in your directors' opinion, is an incident of the utmost significance, as indicating the resumption of interest in your principal capital security in Great Britain. It may conceivably be the first step towards the re-establishment of a market in England for the company's ranking securities which cannot but have an important influence on its future financing.

As explained in the annual report, you will be asked at the special general meeting, to be held immediately after this meeting, to approve the issuance of bonds, debentures or other securities collateral to consolidated debenture stock which the company is or may hereafter be empowered to issue and to the same amount, such securities to be payable in such currency and at such times and places and bearing such interest as your directors may think proper. While it is not easy to designate in advance the exact purposes for which money may be from time to time required, it is thought by your directors that your approval should be asked to the creation and issue of such securities as will enable them as conditions warrant to provide money for extensions and new steamships and also restore the company's cash reserves, substantial amounts of which have, during the last few years, been expended on capital account. The company's enterprise is now so extensive that in providing for normal and proper expansion large sums of money are quickly absorbed. You will, I feel sure, recognize the desirability of having your financial arrangements in such shape that your directors can, without avoidable delay, secure funds for your purposes at intervals as circumstances may justify or require, and to that end will invest them with the proposed powers.

Business Outlook.—While the period of rigid economy and retrenchment has not yet passed, your directors do not look forward to an indefinite continuance of the present commercial depression. Certain basic elements in cost have yet to be reduced, but the stimulus of restored confidence and commercial activity is not, I think, in the distant future. When it is reached and traffic approaching normal is resumed, the full effect will be felt on the company's operations. Over

expansion, and consequent financial embarrassment, have caused, in many localities, a pessimism which is not warranted by the fundamental soundness of Canadian conditions, and the country's almost unlimited natural wealth.

I have the most implicit faith in the company's ability to satisfy all the public demands which may be made upon it, and to meet with credit to itself and advantage to your interests the steadily advancing commercial and transportation requirements of Canada.

The report was adopted unanimously.

Resolved—That the report on the affairs of the company for the year ended December 31, 1920, now submitted, be and the same is hereby adopted.

Suffield Southwesterly Branch.—It was resolved that the directors be authorized to proceed with the construction of an extension of the Suffield Southwesterly Branch northwesterly from Lomond, for not over 30 miles when in their opinion conditions warrant, and that to aid in the construction and equipment of the extension the directors be authorized to issue and dispose of consolidated debenture stock to such an amount as they may deem expedient, but not exceeding in the aggregate an amount equal to $30,000 a mile of the extension.

Payment for Steamships.—It was resolved that whereas the company has statutory power to issue consolidated debenture stock in aid of the acquisition of steamships to the extent of their cost, upon being authorized so to do by the votes of at least two thirds of the shareholders present or represented at an annual meeting or at a special meeting of shareholders called for the purpose; and whereas there are now being built for the company under contract the following steamships for the Atlantic and Pacific services, viz., Empress of Canada, 625 ft. long, with beam of 77 ft., moulded depth of 53 ft., and having a gross tonnage of about 22,000 tons, and the Montrose and Montclare, each 545 ft. long, with beam of 70 ft., moulded depth of 51 ft., and having a gross tonnage of about 15,600 tons, the aggregate cost of which steamships, including rigging, appurtenances and auxiliaries, is estimated at $22,500,000; therefore it is resolved, that for the purpose of paying the cost of the steamships above described, the directors are authorized to issue and dispose of consolidated debenture stock, bearing interest at 4% a year, to such an amount as they shall deem expedient, not exceeding in the aggregate the cost of the said ships.

Directors.—The four retiring directors, viz., E. W. Beatty, Hon. F. L. Beique, K.C., C. R. Hosmer, and Hon. W. J. Shaughnessy, K.C., were re-elected for four years.

Special General Meeting.—The meeting was thereupon made special for the consideration of the special business mention in the notice convening it, and the directors were authorized, from time to time, to issue bonds, debentures or other securities, payable in such currency, at such times and places and with such interest as they may think proper, collateral to any consolidated debenture stock which they are or may hereafter be, authorized to issue, and to such amount as they may deem expedient, not exceeding the amount of such consolidated debenture stock. Such bonds, debentures or other securities may be secured by pledge of such consolidated debenture stock.

Officers, Etc.—At a meeting of the board held immediately after the shareholders' meeting, Lord Shaughnessy was elected Chairman of the company, E. W. Beatty, President, and Grant Hall, Vice President, and the following were appointed the executive committee:—R. B. Angus, E. W. Beatty, Grant Hall, Sir Herbert S. Holt, Sir Edmund B. Osler, Lord Shaughnessy.

Timiskaming & Northern Ontario Railway Operating Results.

The Timiskaming & Northern Ontario Railway Commission's 19th annual report, submitted to the Ontario Legislature recently, covers operations for the year ended Oct. 31, 1920. The total mileage owned, or operated over, was 466.36 miles, of which 2.10 miles, the Nipissing Jct. spur, was leased from the G.T.R., 13.22 miles was leased to the Nipissing Central Ry., and 120.84 miles consisted of yard track and sidings. The main line from North Bay to Cochrane is 252.29 miles, there being 1.70 miles of second tracks, and there are three branch lines:—Charlton, 7.60 miles; Porcupine, 40.11 miles, and Elk Lake, 28.50 miles.

Financial Statement.

	1919-1920	1918-1919
Revenue from transportation	$3,926,044.92	$3,014,594.06
Revenue other than transportation	162,499.09	122,158.70
Total operating revenue	$4,088,544.01	$3,136,752.76
Maintenance of way and structures	$813,763.46	$789,431.65
Maintenance of equipment	770,627.57	594,401.64
Traffic expenses	21,666.17	19,504.73
Transportation expenses	1,887,417.25	1,499,314.90
Miscellaneous expenses	61,927.43	51,167.33
General expenses	133,328.85	123,460.28
Transportation for investment Cr.	731.45	1,150.51
Total operating expenditure	$3,687,999.28	$3,076,130.02
Net operating revenue	400,544.73	60,622.74
Ore royalties	57,296.28	25,396.08
Rent from joint facilities	16,269.72	15,037.86
Rent from loan of road	12,271.36	12,231.33
Interest and exchange (Dr)	5,918.12	12,547.98
Hire of f. and p. cars (Dr.)	189,011.38	60,496.89
Miscellaneous income	7,389.64	12,910.18
Net earnings	$298,842.23	$53,153.32

General Statistics.

	1919-1920	1918-1919
Ratio of operating expenses to operating revenue	90.2%	98.1%
Ratio of net operating to operating revenue	7.8%	1.9%
Increase of operating revenue	30.4%	
Increase revenue per mile of road	$12,446.10	$9,548.72
Operating revenue per mile of road	$11,227.00	$9,364.10
Net operating revenue, per mile of road	$909.71	$162.05
Passengers carried	609,879	
Passengers carried per car mile	36,525,694	
Average distance carried, miles	59.91	
Average received per passenger	$1.67	
Average receipts per passenger per mile	c.02.79	
Tons freight carried	1,361,185	
Tons carried one mile	252,232,745	
Average distance hauled of one ton, miles	185.3	
Average amount received per ton	$2.00	
Average amount received per ton per mile	c.01.08	
Freight revenue per train mile	3,95	
Operating revenue per mile of road	$12,446.10	
Operating revenue per train mile	$3.31	
Operating expenses per mile of road	$11,226.79	
Operating expenses per train mile	$3.95	
Mileage of revenue passenger trains	487,414	
Mileage of revenue mixed trains	55,141	
Mileage of revenue freight trains	689,995	
Mileage of revenue special trains	1,100	

Assets.

Cost of road to Oct. 31, 1919	$18,860,510.38	
Cost to Oct. 31, 1920	346,691.56	
		$19,207,201.94
Cost of equipment to Oct. 31, 1919	$2,950,232.90	
Cost to Oct. 31, 1920	40,180.14	
		2,990,413.04
Working assets		1,753,206.20
Deferred debt items		32,929.15
Total		$24,578,384.20

Liabilities.

Provincial Loan account	$22,681,505.65
Working liabilities	794,379.75
Deferred credit items	473,659.50
Profit and loss	628,839.30
Total	$24,578,384.20

The profit and loss account shows that $100,000 had been paid over to the Treasurer of Ontario.

Proposal to Electrify Part of Pacific Great Eastern Railway.

The Premier of British Columbia proposed recently that a 14 mile section between Vancouver and Whytecliffe, of the Pacific Great Eastern Ry., which is owned and operated by the province, should be electrified. The section is an isolated one, serving a suburban population with heavy traffic to summer resorts. Hitherto it has been operated with gasoline and gasoline-electric cars, but, owing to high operating costs and increasing demands for service, electrification is deemed necessary. The power supply would be obtained from the British Columbia Electric Ry., and two automatic substations, at Altamont and Whytecliffe, would have to be built. This electrification would provide for the passenger traffic between Vancouver and West Vancouver which now goes by ferry direct to West Vancouver, but, owing to the deficits occurring in the municipal operation of these and the North Vancouver ferries, it is proposed to divert traffic by the North Vancouver ferries and the Pacific Great Eastern, if adequate service is provided by electrification.

Premier Oliver proposed that the province enter upon a 10-year agreement with West Vancouver for the joint operation of the line on a basis of cost, whereby fares would meet all charges, including the cost of electrification. The province would assume the interest on the investment already made. When our Vancouver correspondent wrote on April 8, West Vancouver municipality had declined to enter into the proposed arrangement, and it is possible that the scheme will fall through for the present at least.

Winnipeg-Quebec Railway Gradients.

Senator Casgrain asked the following questions in the Senate recently, the answers being given by Sir James Lougheed.

Q. "What is the total ascent in feet overcome going from Winnipeg to Quebec on the National Transcontinental Ry.?" A. "8,252 ft."

Q. "The same on the C.P.R. between the same points eastbound?" A. "No information."

Q. "The same on the Canadian National Rys., between the same points, also eastbound?" A. "9,526 ft."

The Grand Trunk Railway's Transfer to the Dominion Government.

The Grand Trunk Ry. Co.'s shareholders met in London, Eng., May 12, to consider the question of transferring the company's property to the Dominion Government, under the provisions of the act passed by the Dominion parliament recently, which was given in full in Canadian Railway and Marine World for May, pgs. 258-250. Sir Alfred Smithers, Chairman of the Board, who presided, is reported to have said in part:—"The directors cannot conceal from the shareholders that the Government has acted in a manner which could not have been anticipated, and judging from the reports of speeches made in the Canadian Parliament, there is considerable misapprehension as to the reasons for the company's present position. I have purposely kept from making any premature announcement while negotiations were going on. I do not wish to say anything that will increase the Government's difficulties, but the statements made in the Canadian Parliament are so misleading that I am bound in justice to my staff and ourselves to state the G.T. Ry.'s position in answer to criticisms in the Dominion House of Commons. We only decided to recommend the new contract after Premier Meighen's letter recognizing fully our right of appeal. The directors, in view of the rejection of evidence of the physical value of the company's properties, are of the opinion that the arbitrators must disagree in their award, and if so, the directors believe an appeal is vital in the interests of the shareholders. Obviously an appeal cannot be concluded within four months. Believing in the impossibility of any government taking over the property on a finding which is other than the final award provided for in the agreement as the only basis of payment, the board believes that, should either party desire to exercise the right of appeal recognized in the Premier's letter, the Government must grant the necessary extension of time, particularly as the Government, being in full control of the property, would not be prejudiced by any unnecessary delay."

A motion to transfer the property, as required by the act, having been moved, an amendment was proposed to defer action until a better guarantee could be secured concerning future action by the Dominion Government. This was, however, withdrawn, and the motion was carried, only three shareholders voting against it.

H. G. Kelley, President, who was in London for the meeting, will, it is said, bring back full power to carry out the transfer.

The Government Names Directors.

The act passed by Parliament recently provides "that forthwith the directors of the company and of such of the companies comprised in the Grand Trunk System as the Government may designate shall resign or vacate their offices as directors at such time or times and in such manner as may be requested by the Government, and that nominees of the Government shall be duly appointed directors."

The Dominion Government passed the following order in council May 18:—"The committee of the Privy Council, on a report dated May 11, from the Minister of Railways and Canals, referring to the Act respecting the Grand Trunk Arbitration, which was assented to on May 3, and to the agreement between the Government and the Grand Trunk Ry. Co. of Canada recently executed in pursuance thereof, recommend that the company be requested immediately to cause five of its directors, including Sir Alfred Smithers, the Chairman of the Board, and Howard G. Kelley, the President, to resign and vacate their offices as such directors, as provided by sec. 4 of the said act, and to elect in place of these as nominees of your Excellency's Government Sir Joseph Flavelle, Bart., of Toronto; J. N. Dupuis, of Montreal; H. G. Kelley, of the G.T.R. Co.; E. L. Newcombe, K.C., Deputy Minister of Justice, and A. J. Mitchell, of the Canadian National Railways, and that thereupon the remaining directors forward their resignations as such directors to the Chairman of the Board at Ottawa through the High Commissioner for Canada in London, Eng."

J. N. Dupuis is a Montreal dry goods merchant; A. J. Mitchell is Vice President, Finance and Accounts, Canadian National Rys. It is said that the new board will act until the Canadian National Rys. Act, providing for united management of all Dominion Government railways, is brought into effect by proclamation.

In the House of Commons, on May 25, F. S. Cahill, Pontiac, Que., asked if a report he had seen in a morning paper, stating that certain persons had been appointed by the Government as Grand Trunk directors was correct, and for what period they had been appointed. Prime Minister Meighen replied: "The gentlemen named have not been appointed by the Government, because we have not the power of appointment. To make up the required number, they have been nominated by the Government for appointment by the directors themselves upon the resignation of individual directors, which resignations are called for by the order in council making the nominations. The order in council further provides, in accordance with the act and the agreement, that when one retires after the other, until five have retired, and these five nominated by us have been appointed, the remaining directors shall resign. Whether the appointments have yet taken place, I am not certain, but the order was cabled over the day it was passed, and I would presume that if the appointments have not taken place yet, they will very shortly. Under the statute, it was necessary that the directors be nominated by the Government, and these gentlemen are the directors so nominated. They are merely in charge until the calling into effect of the Canadian National Railways Act, upon which it is intended that the Grand Trunk shall be placed under that directorate. That is expected to take place shortly. The new directorate will take charge, and unless there is some reason to the contrary, almost immediately afterwards it is the intention to call the act into effect."

Out of 200 U.S. railways reporting to the Interstate Commerce Commission for February, 106 failed to earning their operating expenses and taxes.

Pacific Great Eastern Railway Construction and Operation.

In reply to questions in the British Columbia Legislature recently, the Premier stated that the Pacific Great Eastern Ry. was taken over by the B.C. Government in 1918, the present directors of the company being Hon. John Oliver, Hon. John Hart and Hon. J. W. deB. Ferris. The deficits upon the operation of the line were in 1918 $115,255; in 1919 $202,113, and in 1920 $324,328. The General Manager is A. B. Buckworth, who is paid $6,000 a year. The Northern Construction Co. has the contract for the completion of the line to Prince George, at cost, plus 5½%, based on unit prices. Since the railway was taken over in 1918 the Government has loaned the company $3,974,668.40 under the Construction Act; $625,000 under a Special Warrant; $4,800,000 under the Note Repayment Act, and $5,000,000 under the Loan Act 1916, a total of $14,399,668.40.

The Legislature is being asked to provide a further sum of $4,000,000 on account of construction of the railway. The Premier is reported to have said in explanation that a considerable portion of the $4,000,000 voted in 1920 had to be diverted from construction, owing to the deficit in operation, etc. Construction proved expensive, on account of washouts on the partially completed grade, which necessitated new fills, and the fact that diversions from the original locations had been made to secure a better line. The $4,000,000 asked for this year is expected to provide for the maintenance of the existing line, for the loss on operation, for the completion of the line into Prince George, and to take care of all outlays up to March 1922. By the time the line is completed to Prince George the province will have expended approximately $40,000,000.

The Government is not at present asking for any provision to be made for the projected cut off from Clinton to Ashcroft, surveys for which have been made.

An estimate made by C. Williams, at the Government's instance, for the extension of the line from Prince George to the B.C.-Alberta boundary, has been laid before the Legislature. The cost is put at about $18,000,000. Two routes are suggested; one from Prince George to Swan Lake, via Pine River Pass, about 316 miles, and the other from Vanderhoof to Hudson's Hope, thence to Pine River, and Swan Lake, 426 miles.

A press report states that it is expected to have over 700 men at work by April 1, on the line to Prince George. One gang will start on the section between Quesnel and Ten-mile Lake, and the other between Cotton River and Prince George. (Mar., pg. 143.)

The American Railway Association's Mechanical Division's programme for its meetings at Chicago, Ill., June 15 and 16, cover committee reports on the following subjects:—June 15, nominations, arbitration, prices for labor and material, loading rules, standard method of packing journal boxes; June 16, car construction, brake shoe and brake beam equipment, train brake and signal equipment, tank cars, specifications and tests for materials. The election of officers will take place June 15, immediately after the consideration of the report of the nominations committee, which will be made on the first day of the meetings.

The Railway Wages Question.

The law governing the regulation of railway wages in the U.S. was fully explained in Canadian Railway and Marine World for May, pg. 257, and the membership of the first Labor Board constituted under it was given. The terms of the three members of this Board, who were appointed for one year, having expired, President Harding on April 16 sent to the Senate his nominations for their successors, viz., B. W. Hooper, formerly Governor of Tennessee, to succeed H. T. Hunt, of the public group; Samuel Higgins, formerly General Manager, New York, New Haven & Hartford Rd., to succeed W. L. Park, of the railway group, and W. L. McMenimen, Deputy President of the Brotherhood of Railway Trainmen, to succeed J. J. Forrester, of the labor group. Mr. McMenimen's appointment was protested against by the representatives of maintenance of way employes' organizations, on the ground that he would be the second representative of the train service branch of railway labor to be a member of the Board, but the Senate confirmed the nominations on April 25.

The long-standing dispute between U. S. railways and certain classes of their employes, concerning the national agreements put into effect by the U.S. Railroad Administration, was terminated by the U.S. Labor Board's decision on April 14, which decision abrogated these agreements, and directed each railway to enter into new agreements with its own employes, thus upholding the railways' definition of collective bargaining, and their contention that varying local conditions should be a large factor in the drafting of rules and working conditions. The decision also stated that 16 principles, for the maintenance of which the labor leaders had consistently argued, should be applied in the making of individual agreements. The sixteen principles to be respected in the new agreements are of a broad and general nature, none of which could be considered as imposing uneconomical conditions upon the carriers. The principle of the 8-hour day is upheld, but the Board states ". . . it should be limited to work requiring practically continuous application during 8 hours . . . For 8 hours pay, 8 hours work should be performed by all railroad employes, except those in train service, who are paid on a mileage, as well as on an hourly, basis." The decision becomes effective July 1.

The wages hearing was reopened before the Labor Board at Chicago on April 18, when 92 cases, involving applications from as many railways, for the Board's authority to reduce wages, were docketed for hearing. The railways were asked to present their case first. J. G. Walber, representing Eastern U.S. lines, cited decreases in living costs and wage reductions of 10 to 30% in other industries as a cause for reducing railway wages. He stated that figures of the U. S. Labor Department, and of the National Industrial Conference Board showed that in July 1920 the cost of living was 104.5% higher than in 1914, but in March 1921 it was only 67% higher, and still declining. C. L. Bardo, General Manager, New York Central & Hudson River Rd., called attention to the financial position of the railways, and to the fact that they are incurring deficits, despite increased rates. Then followed the representations of the individual railways, the Pennsylvania leading. Western U.S. roads presented their testimony on the second day of the hearing. In connection with the rates of pay of unskilled labor, it was shown that the official railway rate is much higher than that in other industries, so that, with the railways in their present financial condition, the season for employing the greatest number of men on maintenance work is passing through the work being done, while thousands of men are out of work.

On April 28, the labor representatives began the presentation of their case. B. M. Jewell stated that up to that time no reductions had been made in wages in the steel and coal mining industries. (A 20% cut has since been made in wages in the steel industry.) He said that for 18 months preceding the making of the wage award of July 1920, railway workers received wholly inadequate rates of pay, and maintained that the fact of relief having come so late should be considered. He claimed that the Board's award of July 1920 was based on the prices and living costs as of Dec. 1919, and not on the peak prices of July 1920. He stated that he would show that the Board could not reduce the pay of unskilled workers without abandoning the principle of the living wage or without lowering the U.S. standard of living. He also stated that while he recognized that wage cuts had been made in certain outside industries, they were not on the same basis as the basic industry of transportation, and the comparison as between them and the railways, so far as wages were concerned, was valueless. He objected to wages being discussed until the new individual working agreements had been drawn up.

W. Jett Lauck, an economist retained by the railway employes organizations, presented voluminous statistics which he claimed would show that U.S. railways are grossly mismanaged, and that if they were properly managed, savings of over a billion dollars a year would result. He reviewed the past financial history of the railways generally, claiming that railway management, by issuing fictitious securities, imposed a perpetual drain upon railway operating revenues. He claimed that the inadequacies in management should be remedied before a wage reduction could be considered, and declared that the present plight of the railways in this time of depression is the result of accumulated evils of financial mismanagement, which are expressed now in physical infirmities and impossibility of economical operation.

On May 7 the railway companies representatives concluded their rebuttal statements; the eastern roads being represented by J. G. Walber, and the western roads by F. W. Sargent, General Solicitor, Chicago & North Western. Six presidents of western roads were represented by R. M. Shaw, General Counsel, Chicago Great Western, and the Pennsylvania was represented by E. H. Senneff, General Counsel. Mr. Shaw denied absolutely that U.S. railways are overcapitalized, and pointed out that it would not make any difference if they were, as the Interstate Commerce Commission determined the value of the properties on which the prescribed rate of return should be earned. He flatly denied a previous charge of labor representatives that railways pay fabulous prices to concerns under the same financial control for most of their materials, and stated that they buy their supplies from hundreds of independent companies scattered all over the country. In reply to a charge of Mr. Lauck that railways are wasteful in not moderning their locomotives, he stated that this work is being done as fast as is humanly possible, but is handicapped by the railways financial condition. He showed, in proof of the progress made, that the average train load on the western railways increased from 393 tons in 1915 to 643 tons in 1920, or 61%. He said that when Mr. Lauck maintained that the roads were being inefficiently managed, and in the same breadth said that the recent reductions in the number of employes were unnecessary, it demonstrated the baselessness and inconsistency of his propaganda. Practically all of the testimony of the railway representatives on this date was to show the theoretical and fallacious nature of Mr. Lauck's charges.

On May 5 and 6 further statements were made by the employes' representatives, including L. E. Sheppard, speaking for train service employes; W. S. Stone, President of the Brotherhood of Locomotive Engineers; G. W. Eastty, Vice Grand President of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, and W. S. Carter, President of the Brotherhood of Locomotive Firemen and Enginemen. Mr. Carter spoke at length against the open shop movement, and attacked the accuracy of the statistics compiled by the U.S. Department of Labor, stating that because of lack of funds the Department is unable to compile complete and accurate data. The hearings continued on May 11 and 12, B. M. Robinson, President of the American Short Line Railroad Association making a statement, and E. P. Curtis, Vice President of the Order of Railway Conductors, speaking in rebuttal.

Press reports state that the Labor Board has announced that a decision will be announced on June 1, covering all the applications for authority to reduce wages, principally of unskilled labor, made by the raiways prior to April 18, and that another decision will be given on June 6, covering all cases brought up since April 18. The announcement forecasted a reduction in wage scales, but no intimation was given as to the probable extent of the cut. It is reported that the employes representatives state that they will appeal to the courts to have a restraining order granted, to prevent the wage cuts going into effect on July 1 (the date specified in the Board's announcement for the cuts to take effect), and will also appeal to have the Labor Board's decision set aside. They claim there is ample precedent for this, as the courts have reviewed, and reversed, many decisions of the Interstate Commerce Commission, which, like the Labor Board, is a quasi-judicial body, created by legislation. Such are developments in the United States to date.

The Canadian Situation.—We are officially advised that an agreement has been entered into between the Railway Association of Canada and six organizations of labor, viz., Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, Or-

der of Railway Conductors, Brotherhood of Railroad Trainmen, Order of Railroad Telegraphers, and United Brotherhood of Maintenance of Way Employes and Railway Shop Laborers, to perpetuate the Canadian Railway Board of Adjustment No. 1, which came into existence by an agreement of Aug. 7, 1918. This Board consists of 12 members, 6 representing the Railway Association of Canada, and 6 representing the above named organizations. A feature of the agreement is that after a matter has been considered by the Board, and agreement has not been reached, any 6 members of the Board can appoint a referee to decide the dispute. If a satisfactory referee cannot be agreed upon, they can ask the Dominion Minister of Labor to appoint a referee, although there is no provision to make the decision of any referee legally binding.

The Federated Shop Trades have no representation on the Board of Adjustment. This organization is one of the two in Canada (the other being the United Brotherhood of Maintenance of Way Employes and Railway Shop Laborers) having a national agreement, applying to all railways. The present agreement of the Federated Shop Trades, known as "Wage agreement no. 4, between Canadian Railway War Board and Division no. 4, Railway Employes' Department," dated Nov. 12, 1919, and modified by an important supplement which took effect May 1, 1920, was made between a committee of the Railway Association of Canada, which succeeded the Railway War Board, and the representatives of the Federated Shop Trades. Any dispute arising between the Federated Shop Trades employes and the railways, is dealt with by a committee of the Railway Association of Canada, and any dispute arising between the maintenance employes and the railways, or between any of the other five organizations represented on the Board of Adjustment, and the individual railways with which they have agreements, is decided by the Board of Adjustment.

Railway wages have continued to be widely discussed throughout the country, and official action in connection with them and with working conditions has been taken. The Railway Association of Canada sent out notices early in May to the organizations having national agreements, viz., the shopmen and maintenence men, and at the same time the individual railways sent out similar notices to the other organizations, stating the intention of revising present wage scales and working conditions, so that at present practically all employes have been advised of the intention of the railways to effect a change. No indications were given in the notifications, as to the extent or nature of the proposed changes, but that these contemplate lower wage scales, and alterations in working conditions making for greater economy in operation, seems certain. The agreements provide 60 days notice of change for maintenance of way employes and 30 days for other employes.

L. L. Peltier, legislative representative of the Order of Railway Conductors, in a statement issued May 16, said that the contentions that railway employes are overpaid, relate to exceptional cases of overtime, and cited statistics to show that the average earnings for freight conductors for 1920 were $2,245.69, and for passenger conductors $2,329.70. A. R. Mosher, Grand President, Canadian Brotherhood of Railway Employes, an organization of clerks and station employes, independent of the international organizations, said that the men herepresented would vigorously oppose a reduction in wages. Jas. Murdock, Vice President, Brotherhood of Railroad Trainmen, is reported, when asked what stand his organization would take, to have replied that it would be judged from the attitude of the organizations affected by similar notices from U.S. railways. On the other hand, a press reports states that Michigan Central shopmen in St. Thomas, Ont., are prepared to accept wage reductions, if they are not excessive, and there is a large body of opinion among railway employes to the effect that a reasonable decrease in wages would be acceptable, provided proof is offered that such will hasten the return of good business conditions, and provide sufficient work to keep all labor employed on full time.

The Toronto Viaduct and New Union Station Questions.

The Board of Railway Commissioners sat in Ottawa, May 2, to consider two matters, first the Toronto Terminals Ry. Co.'s application on behalf of itself, the G.T.R. Co. and the C.P.R. Co., for an extension of time for the completion of the Toronto viaduct works, ordered by the Board in 1913; and second the Toronto Terminals Ry. Co. was required to how cause why some arrangement should not be entered into for making the new union station available for use at the earliest possible moment.

The Toronto Terminals Ry. Co.'s application was far anextension of time for three years for the building of the viaduct, on the ground of the increased cost of the work ordered, and the present difficulties of securing the necessary funds. The cost was estimated at $10,000,000 in 1918, exclusive of the station and land damages, and the present estimated cost of the whole works, including station and land damages, is $34,000,000. The Chief Commissioner expressed the opinion that the Board's order must be carried out, but said the practical question was whether it can be carried out at once. G. R. Geary, K.C., for the Toronto city council, contended that while the Board had power to extend the time for the completion of the works, it had not power to vary it for the commencement.

A temporary compromise plan, proposed by the Board's Chief Engineer, G. A. Mountain, was submitted and discussed. It provides for making an immediate start on the viaduct, certain sections of the work to be done at once, and other sections to be done later, but the whole plan, as originally ordered to be carried out. The area included in the original viaduct order extend from Bathurst St. to Cherry St., and the work suggested to be taken in hand at once covers the construction of four viaducts, and four ubways. Bridges would be built at Spadina Ave., John St., Princess St. (temporary), and Parliament St. (temporary); and the subways would be at York, Bay, Yonge and Church Sts. The building of these structions would raise the tracks at Bathurst St. 5½ ft., at John St. 12 ft. and at Simcoe St. 17 ft., continuing at that level to Yonge St., where they would drop gradually on a ½ of 1% gradient on a line of the Parliament St. viaduct, to the present track level. These suggestions, it is said, are approved by the Toronto City Council, and the Toronto Harbor Commissioners, but not by the railways interested. The suggestions outline a plan by which a portion of the viaduct could be built to utilize the new union station, to get access to the Toronto Harbor Commission's development and all the frontage; and practically nothing would be thrown away when the final work was completed. It is contended that there would be little inconvenience to the railways, or to the city. The hearing was further adjourned so that estimates might be made as to the cost of carrying out the works on the plan suggested by Mr. Mountain.

Canadian Railway Club's Annual Meeting.

At the Canadian Railway Club's annual meeting at Montreal May 10, it was reported that the club had a membership of 1,385, and that the past year had been the most successful in the club's history. W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., was presented with a past president's jewel on retiring from office as President. The following officers, etc., were elected: President, A. Crumpton, Valuation Engineer, G.T.R.; 1st Vice President, G. M. Wilson, Superintendent, Motive Power Shops, G. T.R.; 2nd Vice President, E. E. Lloyd, Assistant Comptroller, C.P.R., Executive committee: E. R. Battley, Superintendent, Motive Power, Eastern Lines, G.T. R.; H. R. Naylor, Assistant Works Manager, Angus shops, C.P.R.; C. E. Brooks, Mechanical Assistant, Locomotive Department, Canadian National Rys., Toronto; R. J. Needham, Mechanical and Electrical Engineer, G.T.R.; J. A. Shaw, Electrical Engineer, C.P.R.; W. U. Appleton, General Superintendent of Rolling Stock, Canadian National Rys., Moncton, N.B. Audit Committee:—W. H. Langridge, Auditor, Stores and Mechanical Accounts, C.P.R.; C. F. Needham, Assistant to General Superintendent, Motive Power and Car Departments, G.T. R.; J. Burns, Works Manager, Angus shops, C.P.R.; Secretary, W. A. Booth, Engineer of Locomotive Construction, G.T.R.; Treasurer, P. P. Reynolds, Chief Mechanical Engineer's office, C.P.R. Where addresses are not given above, the persons are located in Montreal.

Reid Newfoundland Co.'s Finances.—A member of the Newfoundland Legislature asked recently that a detailed statement of the Government's alleged counter claim against the Reid Newfoundland Co., amounting to $51,887.57 be laid no the table. The Minister of Marine and Fisheries, who is also chairman of the Railway Commission, said in reply: "The Reid Newfoundland Co. will be indebted by agreement to the Railway Commission for loss on operation at end of June an amount of $100,000. The accrued amount to end of April is $83,333.33."

Inter-Terminal Transportation Limited has been incorporated under the Ontario Companies Act, with authorized capital of $500,000 and office at Toronto, to carry on business as a general carrier, railway and forwarding agent, transfer and express agent and any other similar business. The provisional directors are:—A. R. Lawrence, H. B. Proudlove, E. E. Galbraith, W. W. Perry, and G. N. Shaver, Toronto.

House of Commons Committee on Canadian National Railways and Shipping.

Canadian Railway and Marine World for May contained on pgs. 245-247 full particulars of the appointment of this committee and of its proceedings up to April 27. On April 29, on motion of the Prime Minister, C. A. Fournier, Bellechasse, Que., and A. McGregor, Pictou, N.S., were placed on the committee instead of Jacques Bureau, Three Rivers and St. Maurice, Que., and A. L. Davidson, Digby and Annapolis, N.S.

It may be well to repeat the questions which the committee was instructed to enquire into, viz.:—1. What information as to operations of Canadian National Rys. and shipping as conducted by the board of directors and management, should, in the public interest, be brought down in Parliament on questions, motions for production of papers, or otherwise?

2. When, by what method, and under what conditions, if any, should such information be given, regard being had for the necessity of securing to Parliament and the public all facts requisite for the determination of policy, including finance, and to the board of directors the best possible conditions for efficiency of management?

3. What system of auditing should be adopted, and what extent of detail should be given in the annual report?

4. What, if any, improvement could be made in the general scheme of management?

5. Whether and for what purpose the committee should be continued, and that, for the above purposes, and for such other purposes as the committee deem in the public interest, there be referred to the committee the board of directors annual report, and that the committee have power to examine witnesses under oath, to send for papers, persons and records, and to report from time to time?

On May 3, the examination of S. J. Hungerford, Vice President, Operation and Maintenance, C.N.R., was resumed. The question of wages was first brought up, but Mr. Hungerford stated that President Hanna was desirous of making a general statement concerning wages, and that he preferred to have the entire question of wages referred to Mr. Hanna. Several questions in connection with passenger service between Ottawa, Toronto and Montreal were answered by Mr. Hungerford, after which, in answer to further questions. he informed the committee concerning the Canadian Railway War Board and the Railway Association of Canada. Following this, R. J. Manion, Fort William and Rainy River, Ont., asked the illuminating question whether it is possible for a station agent to know when a late train will arrive. In replying to questions by G. B. Nicholson, Algoma East, Ont., and Major General McLean, Royal, N.B., Mr. Hungerford pointed out that the bad effects which would follow interference in the disciplining of employes and minor officials, the giving out of information in connection with proposed betterments prior to all arrangements being completed, and the making public of information as to earnings of trains of a competitive character. Passenger service being brought up again, Mr. Hungerford explained why it is impossible to determine the exact cost of operating any particular train, after which he answered questions dealing with the Board of Railway Commissioners' jurisdiction in connection with passenger train accommodation. Asked by Mr. Nicholson as to the possibility of arranging a conference with the C.P.R. for the purpose of emilinating some duplicate services, he said that such a conference would not be likely to result in the C.P.R. agreeing to take off any trains. Mr. Hungerford stated that it was a logical expectation to secure advantages from consolidation with the Grand Trunk, and declared himself in favor of building the Long Lake cut off, between the C.N.R. and the National Transcontinental Ry., in northern Ontario. Questioned by T. M. M. Tweedie, West Calgary, Alta., Mr. Hungerford explained that the fact of there being two main lines east of Fort William and Armstrong, Ont., made operation expensive, and pointed out the necessity for more traffic for them. At this point R. J. Manion, who represents a constituency at the head of Lake Superior, called attention to the wealth and population of his district and stated that if through trains were operated by way of the Long Lake cut off, people in his district would be apt to patronize a competing road. Mr. Manion also brought up the question of seniority of employes on the various roads in the system, and Mr. Hungerford explained that the organization to which the employes belong determine the respective seniority standings of their members, this determination being acceptable to the railways. Mr. Hungerford showed the nature of the proposition that the Canadian National system is up against in the matter of train tonnage, and submitted a list of the train tonnages for the various lines constituting the system.

A. B. Copp, Westmoreland, N.B., suggested that some Canadian Government Rys. officials had been reduced in rank and their places filled by C.N.R. men, and Mr. Hungerford said that it was the policy of the management to change officers around, so as to widen their experience and knowledge, and that all had been treated fairly. Mr. Copp asked what sort of position L. S. Brown holds, and he was informed that Mr. Brown is now occupied as Assistant General Manager at Montreal, whereas previously he was a General Superintendent at Moncton. This change was a promotion. F. S. Cahill, Pontiac, Que., brought up the question of two passenger trains operating between Winnipeg and Biggar, Sask., necessitating another explanation by Mr. Hungerford as to why it is impossible to determine accurately the expense of operating any particular train, and also as to the necessity of these two trains when passenger traffic is heavy. Mr. Cahill said he had heard a lot of criticism about passenger trains being late; and was informed that the effort is to keep all trains on time, but that on all railways it is a difficult matter to eliminate delay entirely. He also desired to learn whether a late passenger train would be given right over a way freight running on time, and was informed answered in the affirmative. He also asked why the management should hesitate about giving out information concerning a reduction in the number of section men employed on any division, and also sought information, which he received, as to what an extra gang is. The question of equipment was brought up by W. H. White, Victoria, Alta., who complained strenuously of car shortage experienced by farmers on a western division last year. This was discussed widely, the universal car shortage at that time being pointed out, and also the facts of the large C.N. coal movement and the number of Canadian cars held in the U.S. at the time. Mr. Hungerford said that practically all of the western grain crop has been moved, and that the C.N.R. handled 46% of it. He showed that ability to handle the peak load of the autumn as quickly as freight offered would necessitate a great deal more equipment than a prudent railway management would feel justified in acquiring. Mr. Hungerford also made another explanation, for the benefit of Hon. C. Murphy, Russell, Ont., as to the impossibility of determining accurately the total expense attributable to any particular train.

D. B. Hanna, President, C.N.R., then explained to the committee that in a short time the management would meet the employes' representatives to discuss wages, and pointed out that it would be unfair that the officers should be asked to discuss, before the committee, the wages and working conditions of railway employes who work under agreements not confined to the C.N.R., but in several cases applying collectively to Canadian railways. He also pointed out the complex nature of railway wage agreements, and the danger of judging their effect by a partial knowledge of their contents, or by statistics which cover merely the rates.

C. A. Hayes, Vice President, Traffic, C.N.R., then read a statement dealing with the organization and functions of the traffic department.

The committee met again on May 4, when R. C. Vaughan, Vice President, Purchases and Supplies, C.N.R., outlined the organization of his department and detailed the duties of the general and local purchasing agents, general and local storekeepers, general Fuel Agent, general Tie Agent and other officers. The questioning started on ties, Mr. Vaughan stating that, except where ties would have to be hauled an unduly long distance, the lowest tenders are accepted. Ties in small lots are obtained from settlers along the lines, and generally at a somewhat lower price than paid to the big operators. Some of the members of the committee appeared very solicitous of the welfare of the small tie producers, but Mr. Vaughan was able to show that they are being fairly treated, and that it is necessary for him to operate his department on strictly business lines in this connection as in all others. He made it clear that all steel rails are obtained in Canada, except those used on the Duluth, Winnipeg and Pacific and that the Canadian price is lower than the U.S. price when duty and exchange and the expense of the long haul are reversed. He had never heard of a case wherein a man wanted to submit a tender and was not given the opportunity to do so. He made it abundantly clear that all mines having the ability to supply coal are given a chance to compete. He stated that, on the whole, the C.N. Rys. give a larger number of firms an opportunity to bid than most railways do, and also said that if he felt himself at liberty to negotiate privately, instead

of calling for tenders, he might get better prices in some lines. He contended it would be injurious to give out information concerning the amount the railways pay for materials, either after the completion of purchases, or before deals are completed.

On May 10, A. J. Mitchell, Vice President, Finance and Accounts, C.N.R., presented a report of special train mileage, which had been called for, and also a comparison of average U.S. and Canadian freight rates. The average U.S. ton mile rate for 1920 was 1.052c. and for the C.N.R. it was 0.989c. He gave a very technical explanation of how, by making use of a great many assumptions in the division of indirect costs of operation, the expenses of any individual train can be arrived at. He was asked to explain why the average train mile cost was $4.12 on the Canadian National and $3.93 on the C.P.R., when the average train loading on the C.P.R. was 529 tons and that on the Canadian National only 393 tons. In reply he dwelt on heavier maintenance costs, traffic density, etc. The examination then turned to the differentiation as between capital and operating costs, in making the charges for maintenance work, which he fully explained. It was brought out that the C.N.R. capitalization is $62,000 a mile. The Drayton-Acworth report gave it as $54,000, but the difference was accounted for by the capital cost of the equipment, figuring out at $8,000 a mile. The question as to how much it would cost to put the C.N.R. properties in "first class shape" started a long discussion among the members, some maintaining that the property is in that condition now. The Minister of Railways and others took the stand that it would be poor policy to name a further lump sum as being required for railway purposes, and that it would produce a bad effort on the people, when, as a matter of fact the necessary improvements will be made currently, and as necessary, and largely as maintenance paid for out of earnings.

On May 12, R. B. Teakle, Manager, Canadian Government Merchant Marine, appeared before the committee. He stated that he is operating 54 steamships, a total of 302,597 tons, outlined the services operated and pointed out the advantages enjoyed by Canada in owning the fleet. Wm. Duff, Lunenburg, N.S., asked questions covering the accounting end of the business and the nature and volume of traffic handled by the ships. Mr. Teakle gave an explanation of the effects of the present depression in business, which is affecting shipping very adversely, and made clear his policy of operating the ships on a schedule of sailings, as opposed to a possible policy of running them as tramps. Hon. A. K. Maclean, Halifax, N.S., asked a long series of questions based on the fact of the C.G.M.M. taking traffic from the Canadian National Rys. at Montreal, which, in his opinion, robs the railway of the haul on the freight from Montreal to Halifax, and he contended that one branch of the National transportation system is competing against another branch for the same traffic. Mr. Teakle said he was not in a position to discuss rail rates and differentials. Various members of the committee advanced numerous theories respecting export rates, the effects of competition, seasonal changes, etc., and the traffic matter discussion became so involved that no definite conclusion was reached concerning it. Mr. Maclean mentioned that the C.G.M.M. proposes to run a service every three weeks to St. John's, Nfld., and asked for information about cargoes, etc. Mr. Teakle admitted that, at present, cargoes are somewhat limited, but expressed confidence in his ability to make the Newfoundland service successful. Mr. Maclean, by his queestions and remarks, conveyed the impression that he considers the Government and the C.G.M.M. management guilty of poor policy in putting ships on this route. He wanted to know if this was done as a result of study, showing that there is business enough to justify it, or just because the C.G.M.M., having the ships on hand, decided to experiment a little with them. Mr. Teakle said that no experiments were being indulged in. The questions asked Mr. Teakle nearly all had to do with matters of management, and had but a remote connection with the broad questions of policy submitted to the committee for solution, gave him an opportunity to demonstrate his optimism as to the ultimate success of the venture. He was also able to show that the C.G.M.M. is being operated efficiently and on a business basis, and stated that it will continue to be so operated, if kept free from the destructive influences of political interference.

On May 17, G. W. Hensley, of Pickford & Black, Halifax; R. A. Corbett, of G. S. Campbell & Co., Halifax; F. K. Warren, ship broker, Halifax, and R. B. Teakle, Manager, Canadian Government Merchant Marine, were examined. On May 18, D. B. Hanna and A. J. Mitchell again appeared before the committee, and J. T. MacFarlane, Accountant, Dominion Finance Department, Ottawa, was examined.

Railway Statistics for Calendar Year 1919.

The Statistics Act and the Railway Act 1919 changed the reporting year for railways from the year ended June 30 to the calendar year. The Dominion Bureau of Statistics issued recently a complete report for the year ended June 30, 1919, a summary of which was given in Canadian Railway and Marine World for February, pg. 83, with tables of operating statistics in the March issue on pg. 145, income statistics in the April issue on pg. 182, and traffic statistics in this current issue on pg. 000. A report for the calendar year 1920 is being completed by the Bureau. The figures for the six months Jan. to June 1919 are thus included in both reports, viz., for the year ended June 30, 1919, and for the calendar year 1919. Future reports will be for the calendar year. The Bureau has issued a preliminary report for the calendar year 1919 to which are attached tables showing the total capital stock, funded debt, operating revenues, operating expenses and income account, also main operating statistics of all railways, also for the Canadian Pacific, Canadian National (old Canadian Northern System), all other Canadian Government lines, including Intercolonial, National Transcontinental, Prince Edward Island and other smaller lines operated by the Government, Grand Trunk and Grand Trunk Pacific, and G.T.P.R. branch lines. These five systems operate over 85% of the total single track mileage of Canada and their operating earnings were over 85% of the total of all steam railways in Canada.

Under the Canadian National, the two electric railways, the Niagara, St. Catharines & Toronto and the Toronto Suburban are not included. The figures for these are:—

Gross earnings—	
Niagara, St. Catharines & Toronto	$926,390
Toronto Suburban	394,904
Operating expenses—	
Niagara, St. Catharines & Toronto	752,062
Toronto Suburban	352,472

The operating statistics of these two railways are included in electric railway statistics.

In addition to the capital shown the amounts of principal expenditure on Canadian Government lines to March 31, 1920 (small branch lines are only to Dec. 31, 1919) are reported by the Railways Department as follows:—

Intercolonial	$140,991,709.07
Prince Edward Island	12,749,112.00
International of N.B.	2,858,394.60
New Brunswick & P.E. Isl.	529,381.32
Elgin & Havelock	73,837.09
Moncton & Buctouche	135,439.12
Salisbury & Albert	186,991.65
St. Martins	58,818.07
York & Carleton	8,749.53
Quebec & Saguenay	7,374,508.74
National Transcontinental	166,698,645.64
Rolling stock	38,748,236.94
	$370,413,823.77
Quebec bridge	22,616,017.66
Hudson Bay Ry. and terminals	20,560,836.69
	$413,590,678.12

Provincially owned lines are the Timiskaming & Northern Ontario and New Brunswick Coal and Railway, showing an investment in road and equipment of $21,880,808, and $1,960,479 respectively.

There is a correction on June 30, 1919, figures, an addition of $5,915,200 stock of affiliated companies of Canadian National that was not shown in the report for June 30, 1919. The loans made by the Government to the Canadian National are not included in the funded debt but in $229,483,759 of loans and bills payable, against that road.

The single track mileage increased 162 miles. The freight carried decreased 5,211,792 tons, or 4.5%; tons carried one mile decreased 773,798,880 ton miles, or 2.8%; indicating an increase in average haul of 4.2 miles or 1.8%.

Passengers carried increased 4,186,262 or 9.6%; the average length of ride also increased 6.08 miles, making an increase in passengers carried one mile of 583,828,347 passenger miles or 19%. The increased rates, which gave an increased average receipt per passenger per mile of .075 cents, increased the passenger receipts (rail line) $17,652,370, or over 22%.

The loaded freight car miles increased 31,732,067, indicating a lighter loading of cars. The average load was 22.21 tons, against 23.46 for year ending June 30, 1919.

The average number of employes increased 14,951 or 9.4%, and the salaries and wages increased $24,383,079 or11.7%. The average wage per hour increased from $0.484 to $0.523 or 8%. The ratio of salaries and wages to the operating expenses was 62% and to gross earnings 57.1%.

There were only five steam railways that paid dividends during the year. They were: The Canada Southern (Michigan Central), $450,000; Canadian Pacific, $29,227,277; Napierville Junction, $36,-

000; Thousand Islands, $4,200; and Toronto, Hamilton & Buffalo, $270,750.

	Year ended Dec. 31, 1919	June 30, 1919
Capital stock	$1,104,409,122.00	$1,100,301,195.00
Funded debt	931,756,484.00	914,823,515.00
Total capitalization	$2,036,165,606.00	$2,015,124,710.00
Operating revenues—		
Freight and switching	$276,008,801.59	$270,463,390.29
Passenger	119,203,749.34	102,380,357.19
Other	13,385,809.87	10,133,153.93
Total	$408,598,360.80	$382,986,901.41
Operating expenses—		
Maintenance of way and structures	$82,343,529.51	$69,034,242.27
Maintenance of equipment	85,577,378.41	78,397,270.13
Traffic	7,242,437.57	6,545,932.50
Transportation, rail line	181,979,405.30	170,382,033.76
Transportation, water line	2,235,042.01	2,168,889.52
Miscellaneous operations	7,101,198.62	5,606,045.50
General expenses	10,420,460.55	9,739,448.93
Transportation, investment Cr.	110,358.53	7,353.60
Total	$376,789,093.44	$341,866,509.01
Net operating revenue	$31,809,267.36	$41,116,392.40
Tax accruals	5,554,333.03	5,316,713.75
Uncollectable railway revenue	6,776.07	
	5,561,109.10	
Net revenue	26,248,158.26	35,793,678.65
Outside operations	2,544,006.48	1,971,248.38
Total operating income	28,792,164.74	37,764,927.03
Non-operating income	29,744,808.58	18,501,190.97
Gross corporate income	58,536,973.32	56,266,118.00
Interest on funded & unfunded debt	54,866,544.94	43,097,261.06
All other deductions	18,768,175.42	14,433,537.65
Total deductions	73,634,720.36	57,530,798.71
Net corporate loss	15,097,747.04	1,264,680.71

The tables showing earnings, expenses, etc., of the Canadian Government, Canadian National, Canadian Pacific, Grand Trunk, Grand Trunk Pacific, and G.T.P.R. Branch Lines, are not produced here, as later figures have been given, either in the companies' reports, or in Parliament.

The Maritime Provinces' Demand for Special Railway Rates.

Canadian Railway and Marine World for May gave, on pg. 259, the reasons advanced by the maritime provinces for demanding preferential treatment in freight rates, and particulars of the Board of Railway Commissioners' jurisdiction, and other factors in the case, were given. Agitation on this matter is continuing, and increasing. A meeting was held at Moncton, on April 29, under the auspices of the Maritime Board of Trade and the Canadian Manufacturers Association's maritime branch, the complaint of nearly all speakers being that excessive freight rates are prejudicial to Maritime interests. Governments of New Brunswick and Nova Scotia, Maritime Stockbreeders' Association, Nova Scotia Department of Indutries and Emigration, United Farmers of New Brunswick, Truro Agricultural College, New Brunswick Department of Agriculture, the Woodstock, St. Stephen, Bathurst, Chatham, Amherst, St. John, Halifax and Moncton Boards of Trade were represented.

Hon. R. E. Finn, of the Nova Scotia Government, stated that the Intercolonial Ry. was built as a condition precedent to the maritime provinces entering Confederation, and that it was always recognized that the road was not merely a commercial venture which should pay its own way. He contended that every management before 1916 had fixed rates to promote trade east and west, and traced the increases in freight rates and their effect in bringing about the present situation, which he pictured as hopelessly bad, from the maritime provinces viewpoint. He called on all public bodies to pass resolutions on the subject, in supporting the stand of the provincial governments, and said that when these resolutions were received the governments would send delegates to Ottawa to press the matter. He stated that as the maritime provinces pay one-eighth of the upkeep of the canals in Quebec and Ontario and the deficits on the Canadian Northern and National Transcontinental Railways, the whole country should bear I.R.C. deficits instead of the latter being met by extra freight rates.

J. E. Walsh, General Manager, Canadian Manufacturers' Association, stated that the Association had assisted in drawing up an application to the Board of Railway Commissioners, advocating: 1. The desirability for restoration of arbitraries existing prior to the Eastern Rates Case. 2. Through commodity rates between points in the maritime provinces and points in Quebec, Ontario and the west. 3. Local and export commodity and class rates within, and from maritime province points. 4. The establishment of special services, such as milling-in-transit and stop-off privileges within the maritime provinces. 5. Through class and commodity rates from the maritime provinces to the United States. He said that a circular had been issued by the ecretary of the Association's Maritime Division, asking members to furnish information as follows: 1. Nature, source, and approximate yearly consumption of each kind of raw material. 2. Principal markets and approximate yearly quantities of manufactured products shipped to each. 3. Location of competitors, and their source of raw materials, with any special advantage they may have in competition. 4. If competitors located in other provinces are able to successfully compete in the local markets, it is important to ascertain if they have the advantage of any special or more favorable rates. 5. Import and through joint ocean and rail rates on commodities shipped by foreign competitors to local markets, or competitive markets in Upper Canada, and the west. 6. Comparison of rates, showing changes and advances over a period of about 10 years. This is of particular importance if the advances in rates total more than 90%. Special note to be made of the cancellation of any commodity rates. 7. Comparison of freight cost to unit costs of production. 8 Comparison of freight cost to profit on unit of production. 9. Any detrimental effect which the advancing rates, or other changes in economic conditions, may have had on your particular industry. 10. Where an industry may not now be considered properly indigenous or natural to its location, it will be advisable to prepare a short statement outlining the establishment, progress and evolution of such industry. He added that when the information was received and a proper presentation prepared, the proposed delegation would, in his opinion, receive a hearing.

Several other speakers addressed the meeting, all emphasizing the harm done the maritime provinces' industries by the increases in freight rates and destruction of the old differentials, one going so far as to state that if the injustices were not remedied, the maritime provinces would unanimously vote to secede from Confederation. The concrete results of the meeting are given in the following resolutions, all of which passed unanimously, the names of the movers and seconders of each being given:—

1. L. W. Simms, St. John, N.B., and J. S. Smiley, Amherst, N.S.:—Whereas, this meeting has been advised that it is in the interests of the Nova Scotia, New Brunswick and Prince Edward Island Governments to make representations to the Dominion Government in respect to the management and rates on what was formerly the Intercolonial Ry. of Canada; therefore be it resolved that this meeting do request the governments of the maritime provinces to convey the resolution in respect to the subject passed at a representative meeting held in Moncton, April 29, to the Dominion Government. And also resolved that the secretary of this meeting be asked to notify each civic, commercial, labor and agricultural organization in the maritime provinces to appoint delegates to accompany the government delegates on this mission.

C. L. Martin, and W. J. Power, Amherst, N.S.:—That each maritime government be requested to appoint two members of a committee, these six to appoint a chairman, to act as a special committee, to investigate the matter of best methods of advancing the commercial, agricultural and industrial interests of these provinces.

3. H. J. Logan, Amherst, N.S., President Maritime Board of Trade, and A. E. Trites, Salisbury, N.S., President Maritime Stock Breeders' Association:—That this meeting declares that the old Intercolonial Ry. should be operated directly under the Railways Department, and that the freight and passenger rates on said road should be made in accordance with the terms and promises under which Nova Scotia and New Brunswick entered Confederation.

The third resolution demands that freight and passenger rates on the I.R.C. should be made in accordance with the terms and promises under which Nova Scotia and New Brunswick entered Confederation. As stated in our last issue, we are unable to find any provision about special rates in the act providing for the building of the I.R.C. If there was such an agreement we should be glad to be furnished with evidence of it. The Canadian Pacific Ry. was built as a condition of British Columbia entering Confederation, but we are not aware of that province having sought special rates, or having advanced the claim that the C.P.R. should be operated as a non-commercial enterprise so far as B.C. is concerned. The resolution proposes, in effect, to destroy the solidarity of the Canadian National Rys. system before it is really consolidated and organized as a complete transportation entity. That the Dominion Government, or the Canadian people, outside of the maritime provinces, who are fully acquainted with the results that would attend an attempt-

ed injection of political influences into the realms of economics and industry, would for a moment countenance such a proposition, is wholly unthinkable. The matters of industry and production in the maritime provinces, together with the freight rates affecting them, is wholly an economic one, and all experience goes to prove that it should be regulated on an economic basis. Canadian Railway and Marine World recognizes, as every informed individual or association of individuals should recognize, that national solidarity necessitates the existence of a sovereign political power, but that that political power, while exercising supervision over all activities which may effect either the individual or national welfare, should not interfere unduly with the economic agencies of the country. Embodying this fundamental principle, the Board of Railway Commissioners was established by the sovereign political power, the Dominion Parliament, to regulate railways, which are industrial enterprises, and among the greatest agencies in the economic life of the country, on an economic basis, and on a basis wherein questions of political expediency, past, present or future, should play no part.

There is no denying the fact that the producers of the maritime provinces have a grievance which deserves thorough consideration, although the effects of the present business depression may be acting to exaggerate it, in that many of them may ascribe many of their business troubles to present freight rates, while the real causes of many of them are deeper than that, and are of world-wide applicability at this time. But we maintain that this grievance is an economic one, to be settled on economic grounds, without the introduction of any political considerations whatever. The body to settle this matter. is the Board of Railway Commissioners; the matter should be confined to its proper economic limits, and the disposal of it by the Board would so confine it. For that reason, the sooner all the railways which go to make up the National system and which are not under the Board of Railway Commissioners' jurisdiction, that is, the Prince Edward Island, the Intercolonial and the National Transcontinental are placed under the Board the better it will be for the country. With years of experience in transportation costs and their effect on industry; independent of political considerations, and empowered to take into consideration the desirability of bringing industrial expansion and business prosperity to sections which may be at some geographical disadvantage, so long as discrimination is not involved, it is reasonable to expect that the Board, if presented with a clear presentation of facts, would give a decision in the matter that should be satisfactory to all concerned. We repeat, the sooner the Board is given absolute jurisdiction and an opportunity to render such a decision, the better. The day when, in this country, a system of railway regulation, which has no superior anywhere, can be applied to some railways only, when other railways, even though they are government-owned, are regulated only by various and changing manifestations of political power, should be past, and should never have existed. Any attempt to introduce matters of political expediency into matters of business means the end of efficiency, which, when analyzed, means nothing more nor less than a reduction in national productive capacity, and a lowering of the standards of living and all the other standards by which a people is judged. The proposition to place the Intercolonial Ry. back under political control is representative of a highly improper way to gain what might be a highly proper object, and the passing of that resolution is a matter for regret. Regarding the matter from the viewpoint of the national interest, which, after all, must forever take precedence over any local or sectional interest, any serious attention to it would pave the way for a serious backward step in the development, not only of the Canadian transportation industry, but of the country's entire economic and industrial life.

A Halifax, N.S., press report of May 20 states that Hon. R. E. Finn had received a telegram from Prime Minister Meighen stating that a delegation from the maritime provinces would be received by the Government in Ottawa on June 1, to hear representations regarding freight rates on the Canadian Government Rys. The delegation will consist of members of the maritime provincial governments, representatives from Boards of Trade, civic bodies, United Farmers Association, Canadian Manufacturers Association, etc., etc.

The Railway Problem in the United States.

That Canada is not the only country with a railway problem is evident, in view of the fact that a Senate committee is now engaged in a thorough enquiry into the entire railway situation in the United States. After the Transportation Act was passed, early in 1920, it was felt that the railway problem in the U.S. was well on the way to solution; the six months extension of the Government guarantee to the railways was provided to take care of the concluding portion of the readjustment period, and it was hoped that the increased rates provided would compensate for increased operating expenses, and enable the railways to operate with satisfactory financial results. But they have not been able to do so. The guarantee period came to an end in Sept. 1920, and although the railways in the following three months carried a record-breaking traffic, and operated with the highest degree of efficiency yet attained, operating expenses were such that in Sept. 1920 they earned at the rate of but 4.1% on the investment; in October at the rate of 4.6%; in November at the rate of 3.3%; and in December at the rate of 1.4%. Under the Transportation Act they are entitled to earn 5½%, or, at the discretion of the Interstate Commerce Commission, 6%. In December, 88 railways had operating deficits; in Jan. 1921, 166 had deficits, and results since then have been equally discouraging, despite efforts to effect economies in all directions. Many complaints in connection with the present rates have been, and are being, made, and the rate-making clauses of the Transportation Act have been widely attacked. The Interstate Commerce Commission's power to regulate intrastate rates has been challenged by numerous state regulating commissions, leading to much legal procedure and preventing the railways from obtaining remunerative rates on intrastate traffic.

For some time past, President Harding and members of his cabinet have been holding conferences in connection with the transportation situation, and the President has made it clear that, in the national interest, railway rates and railway operating expenses must be reduced. Senator A. B. Cummins, who was very active in framing the Transportation Act, moved in the Senate on April 12 "That the Committe on Interstate Commerce is hereby authorized and directed to enquire into and report to the Senate, as speedily as practicable, upon the following matters: 1. The operating revenues and expenses of the railways which under the law make reports to the Interstate Commerce Commission, comparing these revenues and expenses with those since 1912. 2. The reasons which led to the extraordinary cost of maintenance and operation from March 1, 1920, to March 1, 1921. 3. The reasons which induced the diminished volume of traffic in the latter part of 1920 and first two months of 1921, and in that connection the influence of the increased freight and passenger rates prevailing during that period. 4. The efficiency or inefficiency of railroad management during Federal control and during the year beginning March 1, 1920, and the efficiency, or inefficiency of labor employed by the mangaments during the same periods. 5. The best means of bringing about a condition that will warrant the Interstate Commerce Commission in reducing freight and passenger rates." The Senate adopted the resolution on April 19 without debate.

May 10 was set as the date for the hearings to begin, and it was decided to have representatives of the railway executives appear as the first witnesses. In discussing the situation, Senator Cummins is reported to have said: "The railways are in no different situation from the other industries of the country. Like many other producing industries, they are confronted with a sudden and violent shrinkage of business, which helps to make the selling price of what is produced lower than the cost of production. They will have to solve the problem in the same way as other producers are trying to solve it; by the bringing of the cost of materials, and the cost of labor, into line with the proceeds of what they have to sell. To assume the contrary would be to assume that a national transportation system cannot be self-supporting in this country. If that were so, there would be nothing to do but for the Government to take it over and pay the annual deficit, however heavy, out of the Treasury. But there is no reason to imagine anything of the kind." In opening the hearing on March 10, Mr. Cummins stated that for the year ended March 1, 1921, the net operating income of U.S. railways was only $2,578,922, compared with $787,610,435 in 1913. In 1913 the operating ratio was 69%, in 1917 it was 70%, in 1918 73%, and in the year ending March 31, 1921, it was 94%. He gave numerous other figures to show the state of the U.S. railway industry, but the above are sufficient to demonstrate its present condition. As stated above, the railway executives were to appear for hearing first; A. P. Thom, Counsel for the Association of Railway Executives, was given control of the presentation of their case. The first witness was Julius Kruttschnitt,

Chairman of Executive Committe, Southern Pacific Co., who stated that the Senate investigation was welcomed by the executives, and that everything possible would be done by them to make it successful. He explained that the railways' difficulties are not due to the Transportation Act, which he considers a good measure, but simply to the fact that operating expenses have increased in greater proportion than earnings. He explained that the providing of facilities is a more important matter than small differences in rate levels. In the main, he was optimistic as to the future and said: "The railroads will show that they are rapidly surmounting their difficulties, and from now on will realize a progressively improving situation." On May 11 he traced the large growth in railway operating expenses, and also showed just how large a part of those expenses are fixed by government action. On May 12, he traced the rise of labor costs on U.S. railways, the wage bill in 1916 being $1,466,576,394, and in 1920 being $3,698,216,351. He also discussed the freight rate situation, and, by the use of numerous examples and clear reasoning, showed that present freight rates play, and have played, no part in causing the present business depression. On May 13, he reviewed the railways operating record, and cited various statistics to demonstrate that operating efficiency during the past year was at its highest point. On May 15, he showed how the rules and working conditions introduced by the U.S. Railroad Administration increased the costs of operation.

Hearings before the committee are continuing, and other representatives of the Association of Railroad Executives are being heard.

Traffic Orders by Board of Railway Commissioners.

Western Canada Coal Freight Rates Reduced.

General order 341. May 21.—Re application of Fuel Dealers' Association of Greater Winnipeg, the Winnipeg Board of Trade, and others for a reduction in freight rates on coal in Western Canada, between April 1 and Oct. 1 of each year. Upon hearing the application at Winnipeg, April 27, the Fuel Dealers Association of Greater Winnipeg, the Dominion Collieries of Saskatchewan, the Provinces of Manitoba, Saskatchewan, and Alberta, coal operators and coal dealers of the Edmonton, Drumheller and Calgary districts, the Calgary Retaail Dealers' Association, the Trades Commission of Alberta, the Montreal and Toronto Boards of Trade, and the Canadian Pacific and the Canadian National Railways being represented at the hearing, and what was alleged, the Board orders that all railway companies subject to its jurisdiction interested in the coal movement in the three prairie provinces be required to reduce the rates on coal from mines in Alberta and Saskatchewan to points in Alberta, Saskatchewan and Manitoba by 10%, including coal actually billed out up to and including Aug. 31, 1921; such companies to file tariffs to this effect, effective on June 1.

Coal Rates in Edmonton District.

30,960. May 2.—Re complaint of Swift Canadian Co., of Edmonton, Alta., against rates charged by Grand Trunk Pacific Ry. on coal from its mines in Edmonton district to Edmonton. Upon hearing the complaint at Edmonton, April 20. the Swift Canadian Co. and the Canadian National Rys. being represented, and what was alleged, the Board orders that the complaint be dismissed.

Maple Sugar and Maple Syrup Rates.

30,961. May 2.—Re complaint of F. A. Wilson, of Vancouver, against the refusal of railway companies to allow mixed cars of maple sugar and maple syrup to be carried at rates names in item 1290, of G. C. Ransom's Tariff C. R.C. 14. Upon hearing the complaint at Vancouver, April 7, in the presence of counsel for the Canadian Pacific and Canadian National Railways, the complainant appearing in person, and what was alleged, the Board orders that the complaint be dismissed.

Switching for Davidson & Smith.

30,971. May 4.—Re application of Davidson & Smith, Fort William, Ont., for an order directing the Canadian Northern Ry. to allow the C.P.R. to switch cars to and from the Canadian Government elevator at Port Arthur, over the Canadian Northern Ry.'s spur and property from and to the C.P.R., so as to afford the applicants the same privileges as the Canadian Government elevator at Port Arthur. Whereas, by order 27,695, Sept. 16, 1918, the C.P.R. was authorized, subject to and upon certain conditions therein specified, to use and operate the Canadian Northern Ry.'s spur line into the applicants' elevator, and whereas, by order 30,855, April 6, 1921, the C.P.R. was required to furnish and continue to furnish and maintain, to the applicants' elevator, under the permission granted by order 27,695, the same traffic facilities as the company had been and was furnishing to the Government elevator at Port Arthur, under the permission granted by order 20,593, Oct. 17, 1913, and whereas the C.P.R. has applied to the Board for an order extending the time within which it may obtain leave to appeal to the Supreme Court of Canada from order 30,855, the time within which it may make such application expiring May 6. Upon hearing the application at Ottawa, May 3, in the presence of counsel for the C.P.R., and it being represented to the Board that, on account of the absence of the company's Assistant Solicitor, who was attending sittings of the Board in Western Canada during the whole of April, the application for leave to appeal was not made, the Board orders that, under the special circumstances herein, the C.P.R. be allowed a further period of one month from May 6 within which to apply to the Board for leave to appeal to the Supreme Court of Canada from order 30,855.

Charge for Switching Stone Dust.

30,972. May 4.—Re order 30,794, March 16, 1921, declaring that the charge of 3¾c. per 100 lb. made by the C.P.R. for switching stone dust from the Thames Quarry Co.'s plant to Deviney & Campbell's factory at St. Marys, Ont., was wrongfully made and should have been 2c. per 100 lb.; and authorizing the C.P.R. to refund the overcharge to Deviney & Campbell. Upon it appearing that order 30,794 did not correctly interpret the Board's judgment, dated March 15, the Board orders that the C.P.R. publish and file a tariff establishing a rate of 2c. per 100 lb., for switching stone dust from the Thames Quarry Co.'s plant to the complainants' factory at St. Marys, the said rate to apply to shipments made on and after March 16, 1921, and the Board further orders that order 30,794 be rescinded.

Regulations for Transportation of Dangerous Articles by Express.

31,065. May 9.—Re application of Express Traffic Association of Canada, on behalf of express companies subject to the Board, for approval, under secs. 349 and 350 of the Railway Act, 1919, of a proposed addition to the Regulations for Transportation by Express of Dangerous Articles, being Supplement 1 to C.R.C. no. E.T. 694. Upon reading what is filed in support of the application, and the report and recommendation of the Board's Chief Traffic Officer, it is ordered that the said proposed addition to the Regulations for the Transportation by Express of Acids, Inflammables, Oxidizing Substances, etc., be approved.

Railway Finance, Meetings, Etc.

Interprovincial & James Bay Ry. Co.—A special meeting of shareholders will be held in Montreal, June 15, to approve of a lease of the company's railway and undertaking to the C.P.R. Co., and to authorize the directors to issue bonds.

Kettle Valley Ry. Co.—A special meeting of shareholders will be held in Montreal, June 15, to authorize the directors to issue bonds to and in the construction and equipment of the company's railway, and to approve the form of mortgage to be given to secure them.

Railway Earnings.

Canadian National Railways.

Following are monthly gross earnings for the system, for 1921, compared with 1920:—

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
	$34,594,695	$29,482,425

Approximate earnings for two weeks ended May 14, $3,673,096, against $3,969,864 for the same period 1920.

Canadian Northern Railway System.

Following are monthly gross earnings for 1921, compared with 1920:—

	1921	1920
January	$5,094,100	$4,200,700
February	4,840,500	3,862,300
	$9,934,600	$8,063,000

Canadian Pacific Railway.

Following are monthly gross earnings, operating expenses and net earnings, for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,405,909	493,144
	$41,940,144	$38,905,725	$3,905,725	$648,146
Incr.	.....	.....	648,146	.....
Decr.	$1,247,466	$1,895,612	.....	.....

Approximate earnings for April, $13,411,000, and for two weeks ended May 14. $5,879,000, against $15,586,000, and $7,096,000 for same periods 1920.

Grand Trunk Railway.

Following are gross earnings, operating expenses and net earnings, monthly, for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$6,402,587	$6,954,707	*$543,120	$270,100
Feb.	5,733,447	5,332,627	400,820	888,653
Mar.	6,223,007	5,624,893	598,113	332,880
	$18,359,041	$17,903,227	$ 740,413	$1,491,633
Incr.	$2,886,907	$1,395,274	$1,491,633	.....

Approximate earnings for April. $7,349,351, against $7,006,556 for April 1920.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry. — A press report states that since the opening of the season's work the Northern Construction Co., which has the contract for the rehabilization of the line from Lac la Biche to the Clearwater Lake, and the completion of the construction into McMurray, Alta., has distributed 25,000 new ties along the track; has completed a new trestle over the Christina River at mile 198 from Carbondale Jct., and is proceeding with the grading of the newly located line from the present end of track to McMurray. (May, pg. 241.)

Alberta Railways.—The Alberta Legislature has passed an act to provide $710,000 for the construction, maintenance, operation or improvement of railways within the province.

The Canadian Transit Co. has been incorporated by the Dominion Parliament to build a railway and general traffic bridge across the Detroit River from, at or near Windsor, Ont., to the opposite side of the river in Michigan, and to use electric or steam locomotives on it; to build railways not exceeding 20 miles to connect the bridge with existing lines; to acquire land for terminal purposes in connection with the bridge; and to do other things necessary for the undertaking. Construction is not to be started until authorization has been obtained for the work in the United States. The Canadian and U.S. companies together are authorized to borrow not exceeding $30,000,000 for carrying out the undertaking. The company's capital stock is fixed at $5,000,000 and power is given to railway companies to invest in the same, or to lend their credit to the bridge company. The provisional directors are: W. J. Pulling, W. R. Campbell, of Windsor, Ont.; C. S. King, Walkerville, Ont., and C. E. Fowler, New York. C. E. Fowler, the engineer who prepared the bridge plans, is reported to have stated that it is expected to start construction work within six months, that operations will be started on the Detroit side first, in the vicinity of 24th St., that the Canadian terminal will be located at the extreme easterly end of the town of Sandwich, one mile west of Windsor, that the bridge will be of cable suspension type, with single span 1,800 ft. long, tretching from shore to shore, that there will be a clearance 110 ft. for vessels, that construction is expected to take at least six years and that the cost will be close to $50,000,000. (Feb., pg. 82.)

Central Canada Ry. Co.—The Alberta Legislature has authorized the raising of $600,000, to be lent to the C.P.R. Co. as manager of the railway, for its extension westward from Peace River for 25 miles, the loan to be secured by a first charge on the whole of the line, and to be paid out by the Government as construction is proceeded with. The Central Canada Ry. extends from Winagami, on the Edmonton, Dunvegan & British Columbia Ry., to Peace River, 485 miles. A bridge has been built across the Peace River, and some grading has been done on the further side of the river. The C.C. Ry., together with the Edmonton, Dunvegan & British Columbia Ry., is being operated by the C.P.R., under an agreement, details of which are given on another page of this issue.

Dominion Atlantic Ry.—We are officially advised that the company contemplates the following works during this year:—Ballasting, from mile 4, near Rockinham, N.S., to mile 13, near Windsor Jct.; and from mile 90, near Aylesford, to mile 103, near Middleton; laying 8 miles of 85 lb. steel rails on the main line, and 2 miles of 85 lb. rails on the Truro Subdivision. The new machine shop, blacksmith shop, erecting shop and boiler shop at Kentville, N.S., have been in use since Feb. 1, and are now practically completed. (Jan., pg. 16.)

Edmonton, Dunvegan & British Columbia Ry.—J. A. McGregor, Manager, is reported to have stated recently that a large amount of ballasting, filling, bridge repairs, tie replacements, additions to stations and landing platforms, and other work will be done this year on the line from Edmonton to the Peace River, and to the Grande Prairie district. Two steam shovels are at work, one between Smith and Edmonton, and the other at Smokey River, for ballasting; pile drivers are at work in connection with works for the prevention of slides; 350,000 new ties will be put in along the line; a number of trestle bridges will be repaired and others filled; and ditching and drainage will be done to bring the line up to a higher standard. (April, pg. 198.)

Esquimalt & Nanaimo Ry.—Progress is being made with the foundation and other work of the railway and general traffic bridge at Johnson St., Victoria, B. C. The first of the three caissons to be used is reported to have been sunk into position at the end of April, and a second was reported to be ready May 7. The City Engineer, who has charge of the work, expects that the railway part of the bridge will be ready for use in Dec., 1922. (May, pg. 241.)

Fecunis Limited is a mining company which has been incorporated by the Ontario Legislature with authorized capital of $1,000,000 and office in Toronto, and with power, among other things, to steam or electricity, from the C.P.R., in build a tramway to be operated by Dowling Tp., through Dowling, Levack, Morgan, Foy, Lumsden, Bowell and Wismer Tps., to the Canadian National Rys. in Wismer Tp. The provision directors are: L. A. McElroy, B. S. Fletcher, R. C. McClenathan, Erie, Pa.; and R. J. Copland and J. A. McEvoy, Toronto.

Grand Trunk Ry.—We are officially advised that the company is making some substantial repairs to its bridge at Breslau, Ont., with its own forces.

Kettle Valley Ry.—The Dominion Parliament has authorized the company to issue securities up to $150,000 a mile for the construction of a branch line from Sumner, or One Mile Creek, to the Copper Mountain and Voigt mining camp, 15 miles southwest of Princeton, B.C., instead of $70,000 a mile as authorized in 1918. This branch line has been completed, but its construction involved ome exceptionally heavy work.

Grading on the line from South Penticton to the north end of Dog Lake has been completed, and track is expected to be laid thereon shortly.

We are officially advised that it is the intention to make a start this year on the building of a railway from the south end of Dog Lake, to the British Columbia Demonstration Farm at Oliver. Surveys have not been completed. (May, pg. 241.)

Lacombe & North Western Ry. Co.—The Alberta Legislature has authorized the company, which is owned by the Alberta Government, to extend its line from its present terminus at Rimbey northwesterly to the western end of Pigeon Lake, thence northeasterly to Edmonton, 125 miles. Authority is given to issue bonds for not exceeding $30,000 a mile. The act also authorizes the Government to raise by way of loan and to advance to the company $150,000 in addition to the sums loaned prior to Jan. 1, 1921.

Lake Huron & Northern Ontario Ry. Co.—The Ontario Legislature has granted an extension of time for one year for the completion of this line from the present terminus at Rock Lake, mile 17 from Bruce Mines, northerly to a junction with the National Transcontinental Ry. (April, pg. 198.)

Luscar Collieries Limited. — Tenders were received to May 12 for building a five mile branch railway from Leyland siding on the Grand Trunk Pacific Ry.'s Mountain Park branch to the Luscar Collieries, Alta. Contractors were asked to submit prices for the complete work, including six miles of track laying and ballasting. R. W. Jones, 708 Tegler Building, Edmonton, Alta., is Chief Engineer. (May, pg. 242.)

The Mayo Valley Ry. Co. has been incorporated by the Dominion Parliament to build a railway from the junction of the Mayo and Stewart Rivers, Yukon Territory, northerly along the valleys of several rivers specifically named to connect with and to include the valleys of the McQuesten, Ladeau and Beaver Rivers; or in the alternative, from Gordon's Landing, on the Stewart River, via Janet Lake, to the junction of the Mayo River and Duncan Creek; with branch lines not to exceed in any one case 10 miles long. The company may issue $750,000 of capital stock, and bonds for $30,000 a mile of its railway under contract. The provisional directors are:—A. J. Gillis, Dawson, Y.T.; R. B. Young, W. A. H. MacBrien, N. J. Robinson, Toronto; and J. McDougall, Ottawa. (April, pg. 198.)

Northern Light Rys. Co.—The Ontario Legislature has authorized this company to build the following lines in addition to those authorized by the statutes of 1920, chap. 152, sec. 2:—From Swastika station on the Timiskaming & Northern Ontario Ry. westerly and southwesterly to Fort Matchewan, with branches or extensions at different points to connect with the T. & N.O. Ry., and any other railways that may be built; and to build light narrow gauge railways on Manitoulin Island, and from Little Current to Gore Bay. Work on the lines on Manitoulin Island is to be commenced by Mar. 1, 1922, and completed within two years thereafter.

A special general meeting of shareholders was called to be held in Toronto, May 30, to authorize the issue of bonds for $15,000 a mile for all or any part of the projected lines; to make provision for the sale of the same and of the company's capital stock; to authorize the increase of the capital stock to $2,500,000; to authorize an agreement with the Canadian Light Ry. Construction Co. Ltd., to finance the sale of bonds and stock and the construction of the company's undertaking, or part thereof; and for

other general purposes. (May, pg. 240.)

Pacific Great Eastern Ry.—The British Columbia Government is reported to have sold $3,000,000 of treasury bills at 100.01, the proceeds to be devoted to construction work on the P.G.E. Ry.

Construction is reported to be advancing with considerable speed on the extension from Quesnel, and A. F. Proctor, Chief Engineer, B.C. Railway Department, expects that track will be laid from the present end of rail into Quesnel, 19 miles, by July 1. The Chief Engineer stated in his annual report that the Canadian Bridge Co. commenced the erection of the big viaduct over Deep Creek valley early in July, and the first train was taken across it Nov. 3.—The viaduct is 1,192 ft. 11 in. long between parapet walls, and the central portion is 285 ft. high from foundation to base of rail. There are 4,200 cu. yd. of concrete in the foundation and 2,000 tons of steel in the superstructure. On the completion of the bridge 36 miles of track were laid to 19 miles south of Quesnel. In order to complete the line into Prince George, 98 more miles of track has to be laid. Of this distance 51 miles of grade is ready for tracklaying, but 46.5 miles of grading done by the old company will have to be reconditioned. There are also 36 timber bridges as well as one steel viaduct yet to be built, together with the ballasting and other finishing up work. A small locomotive house will be built at Quesnel. (Mar., pg. 143.)

Pere Marquette Rd.—We are officially advised that the press report that the company contemplates building a passenger station in Chatham, Ont., is incorrect. The P.M.R. trains use the C.P. R. station. (Dec., 1920, pg. 645.)

Port Canada Docks Ry. Co.—The New Brunswick Legislature has granted the company an extension of time within which it may build its projected railway from L'Etang Harbor to St. Croix, N.B.

Quebec Central Ry. — The Dominion Parliament has extended for five years the time within which the company may build the line authorized by the Quebec Legislature in 1901, from Scotts station on its present line, to the St. Lawrence River near the southern extremity of the Quebec Bridge, and thence eastward along the St. Lawrence River bank for 5 miles, the total length of the line being 3 5miles. The company is also given an extension of time for two years for the construction of a line, authorized by the Quebec Legislature in 1912, from Leeds station to a connection with the first mentioned line near St. Lambert, Levis County, 35 miles. Authority is also given to issue securities not exceeding $40,000 a mile in respect of these lines. (May, pg. 242.)

St. John & Quebec Ry.—The Dominion Parliament has granted an extension of time for two years within which the projected extension of the railway from the present northerly terminus at Centerville, to Andover, N.B., may be built. The New Brunswick Legislature has also passed an act providing among other things for an extension to Dec. 31, 1923, for the construction of the extension mentioned above. The railway is owned by the N.B. Government and it is operated by the Canadian National Rys., along it own tracks, from Centerville to Westfield on the C.P.R., and thence over the C.P.R. into St. John. (May, pg. 242.)

Timiskaming & Northern Ontario Ry. We are advised that an order for 2,900 tons of 90 lb. A.R.A. section steel rails placed recently includes the 8 miles of rails for which the Ontario Legislature provided $15,000 in the supplementary estimates at its recent session.

A press report states that a proposal for the development of a water power at the Kettle Falls of the Abitibi River, 25 miles north of Cochrane, is under consideration. The development will, it is stated, be made by the Hollinger Consolidated Mining Co. It is said that the falls in question will supply 35,000 h.p., and the suggestion is that 10,000 h.p. will be at the Ontario Government's disposal for use in connection with the proposed electrification of the T. & N.O. Ry. which has been under consideration. (May, pg. 242.)

Toronto, Hamilton & Buffalo Ry. — Work is reported to have been started on the straightening of the company's tracks on Hunter St., immediately east of John St., Hamilton, Ont.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John, N.B., Bridge.—The question of the height of the bridge over the St. John River, near the reversible falls, has been settled after a series of delays. The Board of Railway Commissioners passed an order March 5 approving the company's plans, which was published in Canadian Railway and Marine World for May, pg. 250. Some marine interests at St. John then asked the Minister of Public Works to interfere so as to secure a bridge 7 ft. higher. The Minister heard the application at Ottawa in April and decided that the Government's decision as expressed by order in council on Nov. 1, 1920, should stand. That order approved the following report by the Minister:—"That application has been made by the C.P.R., under chap. 68, sec. 248, of the Railway Act, 1920, for approval of the plan showing the new cantilever bridge proposed to be built to replace its existing cantilever bridge 1.8 on the St. John Subdivision, over the St. John River, at St. John, N.B., the new bridge being 30 ft. north of the existing bridge; that the Engineer in Charge at St. John has reported with respect to this matter, in part, as follows: 'The span of the proposed new bridge is 27 ft. less and the vertical clearance is 2.58 ft. more than the existing structure. The decrease in length of span will not in any manner impede navigation or the general flow of the river. I, therefore, recommend that the Department issue the usual approval for the construction of the proposed bridge.' That the Chief Engineer of the Public Work Department has concurred in the Engineer in Charge's recommendation, subject to the condition that the company will be responsible for any damage which might have been done to shipping in the channel by work performed on the new bridge antecedent to the approval of the application. That the matter was referred to the Marine and Fisheries Department, with regard to the company's right to use the site of the bridge, and that Department reported that there was great difficulty in deciding as to the ownership of the bed of the stream at the point in question, and added that it was rpepared to recommend the issue of a quit claim to the actual sites of the piers in favor of the C.P.R. Co. for a nominal sum, on condition that all the subsidiary works which might in any way interfere with navigation be removed on the completion of the piers, or earlier if possible, and that it considered that a report to the Privy Council might be prepared subject to these conditions. The Minister, therefore, recommends the approval of plan submitted by the C.P.R., showing the proposed new cantilever bridge, such approval to be subject to the following conditions: That the applicant company will be responsible for any damage which might have been done to shipping in the channel by work performed on the new bridge antecedent to the approval of the application. That the applicant company shall secure from the Marine and Fisheries Department a quit claim to the actual sites of the piers of the bridge, and that it shall remove, at its own expense, on the completion of the piers, or earlier if possible, all the subsidiary works which may in any way interfere with navigation.

We are officially advised that the company's original plans will now be carried out in their entirety. Full particulars of them were given in Canadian Railway and Marine World for March, pgs. 118-120.

Electrification Projects.—J. M. R. Fairbairn, Chief Engineer, C.P.R., in giving evidence before the House of Commons special fuel committee on May 10, is reported to have said that the company had not recently made any extensive investigations into the feasibility of electrifying its lines. It had not been able to find anything to tempt it to abandon coal burning locomotives for electric locomotives. If electrification were resorted to, he thought, the mountain sections would be first taken in hand. He did not think the density of traffic sufficient to justify electrification of the Ontario lines. He favored letting the United States railways reach a higher development in electrification, and then Canadian roads could benefit by their experience.

Fort William Coal Dock.—A press report states that a contract has been let to the Hurst Engineering & Construction Co., Fort William, Ont., for the erection of a concrete and steel addition to the C.P.R. coal dock there, at an estimated cost of $250,000. (May, pg. 250.)

Exchange and Surcharges on International Traffic between Canada and United States.—In accordance with the Board of Railway Commissioners' judgment of Jan. 13, and itis general order 326, published in Canadian Railway and Marine World for February, pg. 85, the rate of exchange in connection with shipments of freight, between points in Canada and the United States from May 1 to 14, was 11 15/16% and from May 15 to 31, it was 11 7/8%. The surcharge on international freight shipments during May was 7%. The authorized rate of exchange to determine additional collection on international passenger traffic during May was 12%.

The London & Northwestern Ry. will, it is reported, absorb the Lancashire & Yorkshire Ry. The London & Northwestern mileage is 2,066, and the Lancashire, 601. The latter has the densest traffic of any road in Great Britain, its gross earnings in 1917 being $53,081 a mile.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canada Steamship Lines.—F. S. ISARD, heretofore Director of Finance, has been appointed Managing Director. J. W. NORCROSS, heretofore President and Managing Director, continues as President and chief executive officer.

W. L. McDOUGALD, President, Ogdensburg Coal & Towing Co., and Century Coal Co., Montreal, is reported to have been appointed Director of Operation, Canada Steamship Lines, succeeding H. W. Cowan, who resigned to enter the service of G. U. Price & Co. Ltd., an English insurance corporation, which has a branch in Montreal. Mr. Cowan has left for England.

Canadian National Rys.—G. BALDWIN, heretofore Locomotive Foreman, Yorkton, Sask., has been appointed Locomotive Foreman, at Belmont, Man., Yorkton having been abolished as a terminal point.

G. C. BRIGGS, heretofore Engineer of Buildings, and Architect, Toronto, has been transferred to Engineering Department, Western Lines, Winnipeg, the Toronto position having been abolished.

C. E. BUCKLEY has been appointed Local Treasurer, Canadian Northern Ry. System and Grand Trunk Pacific Ry., with jurisdiction over territory Edson, Alta., and west. Office, Vancouver, B.C.

G. S. COOKE, Assistant Superintendent, Dauphin Division, Prairie District, Dauphin, Man., now has jurisdiction over Kamsack, Winnepegosis, Swan River, Erwood, Hudson Bay, Thunderhill and Assiniboine Subdivisions.

G. M. HEMSWORTH, heretofore City Passenger and Ticket Agent, C.N.R., Victoria, B.C., has been appointed Travelling Passenger Agent, C.N.R.-Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., with territory covering lines west of Edmonton, Alta., as reported in a previous issue. Office, Vancouver, B.C.

J. P. JOHNSON, Assistant Superintendent, Prince Albert Division, Prairie District, Prince Albert, Sask., now has jurisdiction over Prince Albert, Shellbrook, Crooked Lake, Duck Lake, Cudworth and St. Brieux Subdivisions.

R. KING, heretofore Superintendent, Saskatoon Division, Prairie District, Saskatoon, Sask., has been appointed Superintendent, Calgary Division, Western District, vice T. J. Brown, transferred to Dauphin, Man. His territory is Kindersley to Calgary, including Kindersley; Big Valley to Munson Jct., excluding Big Valley; Medicine Hat Jct., to Cessford; and Eatonia to Alsask. Office, Calgary, Alta.

A. E. MACDONALD has been appointSuperintendent, Saskatoon Division, Prairie District, vice R. King, transferred, with jurisdiction, North Saskatoon to East Prince Albert, 85.6 miles; Hudson Bay Jct. to Prince Albert, 160.4 miles; Melfort to St. Brieux, 21.5 miles; Prince Albert to Denholm, 116.5 miles; Humboldt to North Battleford, includShellbrook to Big River, 56.5 miles; ing Humboldt, 147.6 miles; Dalmeny to Carlton, 35.8 miles; Yorath to Kindersley, 122.3 miles; Delisle to Lucky Lake, 79.2 miles; Lucky Lake to Beechy, under construction, 14.6 miles; Tichfield to Eatonia, 114.4 miles; Watrous to Biggar, 118.3 miles; Young to Cudworth Jct., 108.7 miles; Saskatoon terminals, 10.6 miles. Office, Saskatoon, Sask.

Lieut.-Col. C. N. MONSARRATT, formerly Consulting Engineer, Railways and Canals Department, Ottawa, who entered into partnership recently with P. R. Pratley, M.Eng., as Monsarratt & Prattley, consulting engineers, Montreal, has been appointed Consulting Engineer of Bridges, Canadian National Rys. and Grand Trunk Pacific Ry., reporting to C. B. Brown, Engineering Assistant to Vice President, Operation and Maintenance. Office, Toronto. Canadian Railway and Marine World understands that he will devote only a portion of his time to C.N.R. and G.T.P.R. work, carrying on private practice in addition.

F. NICHOLSON has been appointed Locomotive Foreman, Russell, Sask., which has been made a terminal point in place of Yorkton, Sask.

George D. Perry,
Vice President and General Manager, Canadian National Telegraphs.

G. D. PERRY, Vice President and General Manager, Great North Western Telegraph Co., and heretofore General Manager, Canadian National Telegraphs, has been appointed Vice President and General Manager, Canadian National Telegraphs. Office, Toronto.

C. S. G. ROGERS, heretofore Inspecting Bridge Engineer, Toronto, has been appointed acting Bridge Engineer, Moncton, N.B.

T. DUFF SMITH, formerly Fuel Agent, Grand Trunk Pacific Ry., Winnipeg, and latterly Assistant Fuel Agent, Canadian National Rys., Edmonton, Alta., has been appointed Lake Forwarding Agent, C.N.R., Cleveland, Ohio, succeeding H. T. Rawlings, who resigned to become Vice President, Baier Coal Co.

Canadian Pacific Ry.—E. Y. BRAKE, heretofore Car Foreman, Nelson, B.C., has been appointed Car Foreman, Revelstoke, B.C., vice W. J. Shepherd, transferred to Nelson, B.C.

H. G. BYRNE, heretofore Assistant Local Treasurer, has been appointed Local Treasurer, Vancouver, B.C., vice W. F. Salsbury, who has retired.

W. DICKSON, heretofore Assistant Superintendent, Aroostook Division, New Brunswick District, Aroostook, N.B., has resumed his former position as locomotive man at Smiths Falls, Ont.

A. HAYWARD, heretofore Locomotive Foreman, Red Deer, Alta., has been appointed Locomotive Foreman, West Calgary, Alta., vice J. W. Sindall, transferred.

W. J. HENRY, heretofore acting Roadmaster, Lindsay, Ont., has been appointed Roadmaster, Kingston, Ont., vice F. W. Nicholls, transferred.

C. N. KENDALL, heretofore Shop foreman, Lethbridge, Alta., has been appointed Night Locomotive Foreman, Medicine Hat, Alta., vice W. H. Sorel, promoted, and his former position has been abolished.

J. S. LALONDE, heretofore Assistant Superintendent, Three Rivers Division, Quebec District, Three Rivers, Que., has been appointed agent, Hochelaga, Que.

S. T. LEWIS, heretofore Roadmaster, Medicine Hat, Alta., has been appointed Roadmaster, Empress, Alta.

W. E. McGILL, heretofore Assistant Superintendent, Montreal Terminals, has been appointed Assistant Superintendent, Smiths Falls Division, Quebec District, vice C. J. MacGregor, transferred. Office, Smiths Falls, Ont.

C. J. MacGREGOR, heretofore Assistant Superintendent, Smiths Falls Division, Quebec District, Smiths Falls, Ont., has been appointed Assistant Superintendent, Three Rivers Division, Quebec District, vice J. S. Lalonde, transferred. Office, Three Rivers, Que.

F. W. NICHOLLS, heretofore Roadmaster, Kingston, Ont., has been appointed Roadmaster, Lindsay, Ont., vice W. J. Henry, transferred to Kingston, Ont.

T. D. RUGGLES has been appointed Roadmaster, Medicine Hat, Alta., vice S. T. Lewis, transferred.

W. J. SHEPHERD, heretofore Car Foreman, Revelstoke, B.C., has been appointed Car Foreman, Nelson, B.C., vice E. Y. Brake, transferred to Revelstoke.

W. H. SOREL, heretofore Night Locomotive Foreman, Medicine Hat, Alta., has been appointed Locomotive Foreman, Red Deer, Alta., vice A. Hayward, transferred to West Calgary, Alta.

R. E. TAYLOR, night chief dispatcher, London Division, Ontario District, has been assigned to other duties at Toronto, his former position having been abolished.

The position of Assistant Chief Engineer, Canadian Government Rys., etc., at Moncton, N.B., vacated by the appointment of W. A. Duff as Engineer of Standards, at Toronto, is not to be filled.

European Offices and Officers.—In connection with the appointment of the Canadian Pacific Ry. as sole Traffic Manager for the Canadian Pacific Ocean Services, Ltd., in Europe, a number of changes have been made as regards offices and officers.

In London the C.P.O.S. offices, at 18 and 19 Pall Mall, have been closed, and the traffic staff transferred to the head European office, 62 to 65 Charing Cross. In the city the C.P.R. office at 91-93 Bishopsgate St. has been closed, and the staff transferred to the C.P.O.S. office at

103 Leadenhall St., which has become a C.P.R. office.

In Liverpool the C.P.R. office at 6 Water St. has been closed, and the staff transferred to the C.P.O.S. office, Royal Liver Building, Pier Head, which has become a C.P.R. office.

In Glasgow the C.P.R. office at 120 St. Vincent St. has been closed, and the staff transferred to the C.P.O.S. office, 25 Bothwell St., which has become a C. P.R. office.

Wm. Baird, heretofore Passenger Agent, C.P.O.S., Liverpool, has been transferred to London and is now with H. G. Dring, European Passenger Manager, C.P.R., 62-65 Charing Cross.

David Drummond, heretofore General Freight Agent, C.P.O.S., Liverpool, has been transferred to the European Freight Manager's Department, C.P.R. (T. J. Smith), and is located with Thos. McNeil, Liverpool Agent, C.P.R., Royal Liver Building, Pier Head, Liverpool.

D. H. Pearson, heretofore Publicity Agent, C.P.O.S., London, has been transferred to the Publicity Agent's office, C. P.R. (E. E. Gill), 62-65 Charing Cross.

The following is a revised list of C.P. R. offices in Europe, outside of London:

Liverpool, Royal Liver, Building, Pier Head, T. McNeil, Liverpool, Agent.

Bristol, 18 St. Augustine's Parade, A. S. Ray, Agent.

Birmingham, 4 Victoria Square, W. T. Treadaway, Agent.

Glasgow, 25 Bothwell St., M. L. Duffy, Agent for Scotland.

Belfast, 41-43 Victoria St., W. McCalla, Agent.

Manchester, 1 Mount St., J. W. Maine, Agent.

Antwerp, 25 Quai Jordeans, W. D. Grosset, Agent.

Paris, 1 Rue Scribe, A. Catoni, Agent.

Warsaw, 117 Marszalkowska.

Rotterdam, 42 Coolsingel, J. Springett, Agent.

Brussels, 98 Boulevard Adolphe Max, C. de Mey, Agent.

Christiania, 4 Jernbanetorvet, E. Bordewick, Agent.

Hamburg, 24 Alsterdamm, C. F. A. Flugge, Agent.

Grand River Ry.-Lake Erie & Northern Ry.—R. A. McNAUGHTON, heretofore chief clerk, General Auditor's Department, C.P.R., Montreal, has been appointed General Accountant, C.P.R. and L.E.&N.R., vice A. McL. Campbell, transferred. Office, Galt, Ont.

Grand Trunk Ry.—F. FOSTER, Assistant to Superintendent of Motive Power, Ontario Lines, Allandale, Ont., has been assigned to other duties, the position having been abolished.

F. FOSTER, heretofore Assistant to Superintendent of Motive Power, Ontario Lines, Allandale, Ont., has been appointed General Foreman, Motive Power Department, Allandale, Ont., vice G. McBride, assigned to other duties, and his former position has been abolished.

R. A. INNES, heretofore Locomotive Foreman, Stratford, Ont., has been appointed Inspector of Locomotive Houses, Eastern Division. Office, Montreal.

J. R. LECKIE, heretofore Assistant to Superintendent of Motive Power, Ontario Lines, London, Ont., has been appointed General Foreman, Motive Power Department, London, Ont., vice J. A. Walton, transferred, and his former position has been abolished.

W. J. LITTLE, Trainmaster, Allandale, Ont., has had his jurisdiction extended over districts 13 and 14, A. F. Sharpe having been assigned to other duties.

E. LOGAN has been appointed Locomotive House Inspector, Ontario Lines. Office, Toronto.

R. E. MARKS, Passenger Trainmaster, Eastern Lines, Montreal, has been assigned to other duties, the position having been temporarily abolished.

A. F. SHARPE, heretofore Trainmaster, Allandale, Ont., has been appointed Chief Dispatcher, London, Ont., as reported in our last issue.

Lake Erie & Northern Ry.—See Grand River Ry.

Canadian National Railways Construction, Betterments Etc.

Orangedale to Cheticamp.—A railway extension committee for Inverness County, N.S., is reported to be asking the Dominion Government to take over the old Inverness Ry. & Coal Co.'s railway and to build a line from Orangedale to Cheticamp. The line extends from Inverness Jct., about a mile from Point Tupper on the Intercolonial Ry., and runs northeasterly on Cape Breton Island, to Inverness, 62 miles. Cheticamp is a station on the line near Inverness, and Orangedale is a station on the Intercolonial Ry. 29 miles northerly from Point Tupper. The construction of this piece of line has been asked for several times during the past few years, and provincial and Dominion subsidies have been voted toward its construction.

Petitcodiac River Bridge.—We are officially advised that a contract has been let to Gorman & Perkins, Halifax, N.S., for the substructure of the new bridge across the Petitcodiac River, 54 miles from Salisbury on the branch between Salisbury and Albert, N.B.

Quebec District Concrete Structures.—Tenders are under consideration for the construction of four concrete structures on the Quebec District.

St. Rosalie Jct. Terminals. — Hon. R. Lemieux asked in the House of Commons recently: "Is it the intention of the Canadian National Rys. to erect a division railway shops at Ste. Hyacinthe, Que., and, if so, what is the estimated cost?" The Minister of Railways replied: "No; but the management proposes to enlarge a small locomotive house at Ste. Rosalie Jct., about 2.3 miles east of Ste. Hyacinthe, sufficiently to take care of Canadian National and Grand Trunk locomotives. The cost will be about $34,000."

Ontario District Concrete Structures. We are officially advised that a contract has been let to the Dominion Construction Co. for putting in 8 concrete structures as follows:—Abutments at miles 13 and 15, and abutments and piers at mile 55.9, Muskoka Subdivision; abutments at mile 20.4, and culverts at miles 42, 50.3, 135.1 and 135.5 North Bay Subdivision.

North Bay Connection—We are officially advised that a track connection is being put in at North Bay, Ont., between the C.N.R. and the Timiskaming & Northern Ontario Ry., to enable the through Grand Trunk-T. & N.O. Ry. trains to use the C.N.R. station instead of the C.P.R. station as at present. This work is in line with the policy of co-ordination between the C.N. Rys. and the G.T.R.

Port Arthur, Duluth & Western Ry.—A Port Arthur, Ont., press report states that A. Mitchell and H. H. Clarke, engineers, arrived there recently to arrange for a preliminary survey for the extension of the P.A.D. & W. Ry. from the present end of track at Gunflint Narrows to Duluth, about 40 miles. The "P.D.," as it is commonly called, was projected a number of years ago, the late D. F. Burke (who was also associated with the projected Nipigon & St. Joe Ry.) being one of the promoters, to connect Port Arthur with Duluth, Minn. The line was built from Port Arthur to Gunflint Narrows, near the International Boundary, and subsequently was taken over by the Canadian Northern Ry., and is now part of the Canadian National Rys. system. The line is being operated to North Lake, near the International Boundary, and 70 miles from Port Arthur.

A press report states that the Palatine Mining & Development Co. of Chicago, Ill., which has recently taken over the Atikokan blast furnaces and iron ore mines, has arranged with the C.N.R. management to put the 21 miles, from North Lake, to the old terminus at the International Boundary, into running order, and to operate it in connection with the mines and furnaces. The company was reported May 14 to have about 50 men ballasting on the 21 mile section, and to have asked for tenders for the construction of two timber structures, one of over 1,000 ft. long, and the other of 500 ft. The line is expected to be ready for operation Oct. 1. The company is further stated to have acquired some 2.000 acres of iron ore lands in Cooke County, Minn., which will be developed immediately. Cooke County is directly over the boundary from the present end of track, and it is said that the line may be extended to this property. Another press report states that an ore dock is to be built at Port Arthur.

Melville Water Supply.—We are officially advised that a contract has been let to Tomlinson & Fleming, 431 Walmer Road, Toronto, for the construction of an earth dam and the excavation for a reservoir for a water supply system at Melville, Sask., and that a contract has been let to C. L. DeVall, Edmonton, Alta., for the excavation and laying of water pipes from the reservoir to the water tank in Melville yard.

Acadia Valley Line.—We are officially advised that the revised general location of a branch line through Tps. 25-27, ranges 3-15, west 4th meridian, mile 27 to 118, approved recently by the Board of Railway Commissioners, is a projected extension of the Acadia Valley branch line. The section of this line from Eston to Alsask was put under construction in 1919, and the location, part of which is covered in the order referred to above, is for an extension of the branch which, as shown on the company's maps, will connect with another line at Coronation, Alta.

Kamloops - Kelowna - Vernon - Lumby Line.—A press report states that track laying on this branch line will shortly be started, an order for rails for the same having been given the Algoma Steel Co., Sault Ste. Marie, Ont.

British Columbia Terminals.—The re-

port of the British Columbia Minister of Railways for 1920 states that during the year $542,832.69 was paid by the Government from the proceeds of the guaranteed terminal securities on account of work done on the terminals on the Vancouver Island and mainland water fronts. The estimated total cost of the terminals was $9,141,503.40, and the total amount of cash available from the securities issued was $9,403,843.12. The total amount earned up to Dec. 1920 was $7,353,906.19, of which $84,250.34 was being retained under the terms of the contract. The following table shows the distribution of these sums:—

Terminal work	Estimated cost	Cash available	Earned to Dec. 1920
Vancouver	$4,308,455.19	$4,263,363.21	$3,626,418.44
New Westminster	2,203,601.50	2,179,118.97	1,822,458.41
Port Mann	1,213,424.62	1,200,570.16	1,175,129.92
Steveston	353,988.89	349,996.73	286,892.54
Patricia Bay	209,908.29	208,008.39	204,804.68
Victoria	853,125.00	843,790.66	238,202.20

(May, pg. 247.)

Railway Rolling Stock Orders and Deliveries.

Canadian National Rys. have received 12 dining cars from Canadian Car & Foundry Co., completing an order for that number.

The G.T.R., between Apr. 11 and May 12, received 2 switching locomotives from its Montreal shops, 160 automobile cars, 80,000 lb. capacity, from Canadian Car & Foundry Co., 50 flat cars, 100,000 lb. capacity, from National Steel Car Co., and 4 express horse cars from Osgoode Bradley Car Co.

shops; and 2 box cars to C.P.R. from its Fort William, Ont., shops. The company reports an order from Toronto Transportation Commission for 100 motor cars and 60 trailer cars, as mentioned in our last issue.

The Timiskaming & Northern Ontario Ry. has received 4 Pacific (4-6-2) type locomotives from Canadian Locomotive Co., all equipped with boosters. Following are the chief details:—

Weight on drivers	155,000 lb.
Weight, total	252,000 lb.
Wheel base of engine, rigid	12 ft. 2 in.
Wheel base of engine, total	32 ft. 6 in.
Wheel base of engine and tender	60 ft. 3½ in.
Heating surface, firebox and arch tubes	217 sq. ft.
Heating surface, tubes and flues	2,716 sq. ft.
Heating surface, total	2,933 sq. ft.
Driving wheels, diar.	69 in.
Driving wheel centers	Cast steel
Driving journals	10 x 13 in.
Cylinders, diar. and stroke	23 x 28 in.
Boiler, type	Radial stayed
Boiler pressure	200 lb.
Tubes, no. and diar.	170—2¼ in.; 32—5½ in.
Tubes, length	18 ft. 8 in.
Injectors	Ontario
Safety valves	Coale
Brakes	Westinghouse American
Packing	Paxton-Mitchell
Superheater	Superheater Co.'s type A
Booster engine	Franklin Railway Supply Co.
Speed recorder	Boyer
Cab	Vestibule type, all steel
Weight of tender loaded	156,000 lb.
Tender capacity, water	6,500 imp. gall.
Tender capacity, coal	12 tons
Tender, type	Water bottom, vestibule attachment
Truck, type	4 whcel, Commonwealth
Truck wheel, type	Steel-tired, cast steel center
Truck wheel, diar.	36 in.
Truck journals	5½ x 10 in.
Brake beams	Simplex high speed

Rhodesia Ry. Locomotives.—As stated in Canadian Railway and Marine World for Nov. 1920, the Rhodesia Rys., South Africa, ordered 12 mountain type (4-8-2) locomotives from Montreal Locomotive Works, which have been completed. These locomotives, an illustration of one of which is given herewith, are superheated, and equipped with brick arch, piston

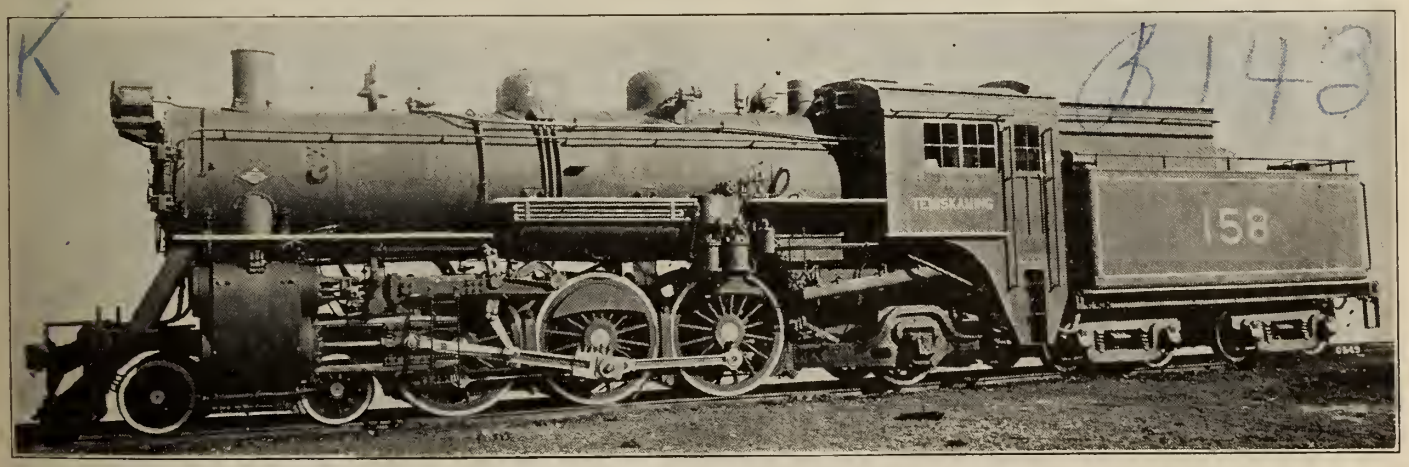
Mountain Type Locomotive, Rhodesia Railways, South Africa, built by Montreal Locomotive Works.

The item of $150,000 in the estimates for the year ending Oct. 31, 1922, passed by the Ontario Legislature recently, as mentioned in Canadian Railway and Marine World for May, is for two additional Mikado locomotives for the Timiskaming & Northern Ontario Ry. We were advised recently that it had not then been actually decided to order these.

The C.P.R., between Apr. 14 and May 11, received 10 steel sleeping cars, the

valves, outside valve gear, etc. The chief details are as follows:—

Gauge	3 ft. 6 in.
Fuel	Soft coal
Wheel base, driving	12 ft. 9 in.
Wheel base, engine	30 ft. 7 in.
Wheel base, engine and tender	56 ft. 10½ in.
Weight, engine	173,000 lb.
Weight, tender	108,000 lb.
Weight on drivers	119,000 lb.
Weight on leading truck	29,500 lb.
Weight on trailing truck	24,500 lb.
Boiler, type	Belpaire, straight top
Boiler, diam. inside first ring	65 in.
Boiler pressure	180 lb.
Firebox, length and width	80¾ x 62¾ in.
Tubes	129—2¼ in. diam; 26—5½ in. diam.
Tubes, length	18 ft. 9 in.
Heating surface, tubes	1,415 sq. ft.
Heating surface, flues	695 sq. ft.
Heating surface, firebox	137 sq. ft.
Heating surface, arch tubes	16 sq. ft.
Heating surface, total	2,263 sq. ft.
Superheating surface	589 sq. ft.
Grate area	35.2 sq. ft.
Maximum tractive effort	37,000 lb.
Factor of adhesion	3.22



Pacific Locomotive, with Booster, Timiskaming & Northern Ontario Railway.

frames of which were built by Canadian Car & Foundry Co., and the cars finished at Angus shops, Montreal; 282 steel frame box cars from Eastern Car Co., and 2 steel frame box cars from Canadian Car & Foundry Co., Fort William.

Canadian Car & Foundry Co., between Apr. 15 and May 15, delivered the following rolling stock:—12 dining cars to Canadian National Rys., 38 tank cars to Imperial Oil Ltd. from its Montreal

Driving wheel diam. ....48 in.
Driving wheel journals, main....9 x 9 in.
Driving wheel journals, other.... 8 x 9 in.
Trailing truck wheels, diam ....33 in.
Trailing truck wheels, journals ....6 x 12 in.
Engine truck wheel diam. ....28½ in.
Engine truck wheel journals ....5½ x 9½ in.
Tender, type ....8 wheel

and Marine World for February, 20 mikado (2-8-2) locomotives were ordered from Montreal Locomotive Works, for the Rio Grande do Sul State Railways. An illustration of one of these is given herewith, an inspection of which will dis-

Weight, tender ....89,800 lb.
Weight on drivers ....76,000 lb.
Weight on leading truck ....11,400 lb.
Weight on trailing truck ....17,400 lb.
Boiler, type ....Straight top
Boiler, diam. inside first ring ....52 in.
Boiler pressure ....180 lb.
Firebox, length and width ....72⅛ x 48¼ in.

Mikado Locomotive, Rio Grande Do Sul State Railways, Brazil, built by Montreal Locomotive Works.

Tender, frame ....Steel channels
Tender wheels, diam. ....34 in.
Tender wheels, journals ....5¼ x 10 in.
Tank, type ....Water bottom
Water capacity ....4,000 imp. gall.
Fuel capacity ....9½ tons

Rio Grande do Sul State Rys. Locomotives.—As stated in Canadian Railway

close many points of interests. The chief details are as follows:—

Gauge, one meter ....39.37 in.
Fuel ....Coal or wood
Wheel base, driving ....11 ft. 3 in.
Wheel base, engine ....25 ft. 4 in.
Wheel base, engine and tender....51 ft. 3½ in.
Weight, engine ....104,800 lb.
Tubes ....90—2 in. diam.; 14—5¾ in. diam.
Tubes, length ....14 ft. 6 in.
Heating surface, tubes ....679 sq. ft.
Heating surface, flues ....284 sq. ft.
Heating surface, firebox ....87 sq. ft.
Heating surface, total ....1,050 sq. ft.
Superheating surface ....235 sq. ft.
Grate area ....24.2 q. ft.
Maximum tractive effort ....20,500 lb.
Factor of adhesion 3.7
Driving wheel diam. ....42 in.
Driving wheel journals, main .... 7 x 8 in.
Driving wheel journals, other ....7 x 8 in.
Trailing truck wbeels, diam. ....
740 millimeters (29.13 in.)
Trailing truck journals ....5½ x 10 in.
Engine truck wheels, diam. ....
700 millimeters (27.56 in.)
Engine truck wheels, journals....4½ x 7 in.
Tender, type ....8 wbeel
Tender, frame .... Steel cbannels
Tender, wheel diam....740 millimeters (29.13 in.)
Tender, wheel journals ....4¼ x 8 in.
Water capacity ....13 cu. meters (3435 U.S. gall.)
Fuel capacity ....10 metric tons

The lettering on the tenders, "V.F.R. G.S.," is an abbreviation of Via Ferrea Rio Grande do Sul.

Algoma Eastern Ry. has received 2 consolidation (2-8-0) locomotives, with cylinders 25 by 30 in., from Montreal Locomotive Works.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Sstatistics, Internal Trade Division.

Week ended May 13.	Wheat.	Oats.	Barley.	Flax.	Rye.	Totals.
Fort William	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.
C.P.R. .	936,289	1,878,324	415,527	.....	142,029	3,372,169
Consolidated Elevator Co.	765,687	226,407	69,904	84,934	450	1,147,382
Ogilvie Flour Mills Co.	709,775	180,187	45.063	.....	.....	935,025
Western Terminal Elevator Co.	668,119	266,331	29,143	345,458	9,956	1,319,007
G. T. Pacific	1,509,239	2,136,147	125,105	194,818	35,195	4,000,504
Grain Growers' Grain Co.	1,139,793	526,059	60,245	.....	14,145	1,740,242
Fort William Elevator Co.	161,024	497,535	58,414	168,208	20,740	905,921
Northwestern Elevator Co.	546,922	31,559	16,328	43	29	594,823
Port Arthur—						
Port Arthur Elevator Co.	2,045,932	3,428,267	676,350	50,248	54,400	6,256,197
Sask. Co-op. Elevator Co.	2,466,113	522,996	77,453	183,366	18,755	3,268,683
Canadian Government Elevator	611,175	1,169,112	248,734	415,579	51,573	2,496,173
Davidson and Smith	169,495	422,488	133,771	.....	174	725,928
Private Terminal Elevators	1,520,911	2,218,642	340,076	251,393	6,793	4,337,815
Total Pub. & Pte. Terminal Elevators.	13,250,474	13,505,054	2,296,113	1,694,047	354,181	31,099,869
Total Pte. Term. Elevators, Winnipeg	17,719	66,591	1,879	846	202	87,237
Saskatoon: Can. Gov't Elevator	17,371	1,212,625	6,617	972	.....	1,237,585
Moose Jaw: Can. Gov't Elevator	91,218	333,877	.....	2,791	2,362	430,248
Calgary: Can. Gov't Elevator	145,052	1,448,547	43,726	732	119	1,638,176
Vancouver, B.C., Can. Gov't Elevator..	41,972	12,128	10,883	.....	.....	64,983
Total Interior Terminal Elevators	295,613	3,007,177	61,226	4,495	2,481	3,370,992
Midland—						
Aberdeen Elevator Co.	.....	41,94	.....	.....	.....	41,954
Midland Elevator Co.	54,261	.....	.....	.....	.....	54,261
Tiffin, G.T.P.	1,002	164,869	.....	37,831	.....	203,702
Port McNicoll	308,989	568,814	215,925	.....	.....	1,092,728
Goderich—						
Elevator & Transit Co.	17,835	112,043	10,000	.....	.....	139,878
West Can. Flour Mills Co. Ltd.	5,786	.....	.....	.....	.....	5,786
Kingston—						
Commercial Elevator Co.	.....	1,816	2,814	.....	.....	4,630
Port Colborne—						
Can. Gov't Elevator	241,968	341,297	83,928	.....	.....	667,193
Maple Leaf Milling Co. Ltd.	121,518	15,646	.....	.....	.....	137,164
Montreal—						
Harbor Commissioners No. 1 and 2..	717,898	1,497,539	402,042	.....	53,656	2,671,135
St. Lawrence Milling Co.	45,529	.....	650	.....	.....	46,179
**Montreal Warehousing Co.	151,087	245,727	80,438	.....	.....	477,252
Ogilvie Flour Mills Co.	132	.....	.....	.....	.....	132
Quebec Harbor Commissioners	.....	88,309	.....	.....	.....	88,309
West St. John, N.B., C.P.R.	6,943	.....	.....	.....	.....	6,943
Total Public Elevators	1,672,948	3,076,014	796,797	37,831	53,656	5,637,246
Total Country Elevators	5,953,023	8,521,836	1,462,246	861,473	.....	16,798,638
U.S. Atlantic Seaboard Ports—						
Portland, Me.	23,669	.....	27,931	.....	.....	51,600
Baltimore, Md.	23,884	.....	.....	.....	8,070	31,954
New York, N.Y.	776	248,957	57,899	.....	29,748	337,380
Total U.S. Atlantic Seaboard Ports	48,329	248,957	85,830	.....	37,818	420,934
U.S. Lake Ports—						
Buffalo, N.Y.	327,940	149,784	.....	.....	.....	477,724
Duluth, Minn.	71,000	.....	1,200	.....	.....	722,000
Total U.S. Lake Ports	398,940	149,784	1,200	.....	.....	549,924
Total Quantity in Store	21,637,046	28,575,473	4,705,291	2,598,692	448,338	57,964,840

*Overshipped. **Week ending May 6, 1921.

Regulations for Transportation of Explosives.—The Board of Railway Commissioners passed general order 339 May 7, as follows:—Re Regulations for Transportation of Explosives and Other Dangerous Articles by Freight, approved by general order 204, Aug. 11, 1917; and the matter of reporting accidents and explosions to the Board. Upon reading what is filed on behalf of the Bureau of Explosives, and the report and recommendation of the Board's Traffic Officer, the Board orders that sec. 1434 of the said regulations be amended by striking out the words after the words "Union station, Toronto, in subsec. (a) thereof, and substituting therefor the words, "Accidents and explosions must also be reported to the Secretary of the Board of Railway Commissioners, Ottawa, Ont."; and that sec. 1715 of the said regulations be amended by striking out the words after the words "Union station, Toronto, Ont.," in subsec. (a) thereof, and substituting therefor the words, "Accidents or fires must also be reported to the Secretary of the Board of Railway Commissioners, Ottawa, Ont."

Boston & Maine Rd. shareholders, at the annual meeting held recently, voted unanimously that free passes should not be issued except to employes travelling on the road's business. No official announcement having been made in this connection, it appears that the action of the meeting was not confirmed by a stock vote.

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ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, JUNE, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 307
Birthdays of Transportation Men 291
Board of Railway Commissioners,—
Orders by, Summaries of 316
Traffic Orders 304
Canadian National Rys.—
Construction, Etc. 308
Storage Battery Car Tests 313
House of Commons Committee on..... 300
Canadian Pacific Ry.,—
Annual Meeting 295
Construction, Etc. 306
200-ton Track Scale 289
Electric Railway Department .....318 to 326
British Columbia Electric Ry. New Franchise. 320
Rule of the Road 319
Finance, Meetings, Etc. 323
London St. Ry. Operation and Wages..... 324
Projects, Construction, Etc. 322
Rates, Freight and Passenger, Changes..... 321
Toronto Ry., Sale of Subsidiaries..... 324
Toronto Transportation Commission's Motor and Trailer Cars 318
Wages, Working Conditions, Etc. 323
Express Companies, Among the 317
Mainly About Railway People 312
Marine Department .....327 to 344
Canada Steamship Lines' Finances 332
Canadian Government Merchant Marine Annual Report 327
Shipbuilding, Operation, Etc. 329
St. John, N.B., Harbor Development..... 341
Shipbuilding in Canada in 1920 330
Shipbuilding, General, in Canada 342
Vancouver Harbor, Pier and Development Work 333
Welland Ship Canal Contracts 339
Maritime Provinces Demand Special Railway Rates 302
Railway Development 305
Railway Earnings 304
Railway Mechanical Methods and Devices..293. 294
Railway Problem in the United States..... 303
Railway Rolling Stock Orders and Deliveries 309
Railway Statistics for 1919 301
Railway Traffic Statistics 292
Railway Wages Question 298
Telegraph, Telephone and Cable Matters 317
Timiskaming & Northern Ontario Ry., Locomotive Booster Tests 315

Special Instruction E. re Station Limits.

The Board of Railway Commissioners passed general order 340 May 19, as follows:—Re general order 322, Dec. 10, 1920, requiring railway companies to withdraw Special Instruction E from their working timetables, and hereafter observe the Uniform Code of Rules for Canadian Railways approved by general order 42, July 12, 1909; the necessary changes and instructions to employes to become effective June 1, 1921; and re matter of the application of Canadian Pacific and Canadian National Railways for an extension of time beyond June 1. Upon hearing the matter at Ottawa, May 17, the Canadian Pacific and Canadian National Railways, Michigan Central Rd., Railway Association of Canada, Brotherhood of Locomotive Firemen and Enginemen, Brotherhood of Locomotive Enginmen, Brotherhood of Railroad Trainmen, and Brotherhood of Railway Conductors being represented, and what was alleged, the Board orders that, pending further hearing, the time within which the changes and instructions, required under general order 322 to become effective June 1, 1921, be extended until June 15, 1921.

The Alberta Government and the McArthur Railways.

The Lieutenant Governor's speech at the opening of the Alberta Legislature recently stated that an arrangement had been made whereby the C.P.R. Co. had taken over the Edmonton, Dunvegan & British Columbia Ry. system, with an option of purchase, and that the Government had acquired the Alberta & Great Waterways Ry.

The agreements connected with the taking over of these lines from the McArthur interests were subsequently submitted to the Legislature by the Attorney General. The parties to the agreements concerning the Edmonton, Dunvegan & British Columbia Ry. are the Alberta Government, J. D. McArthur Co. Ltd., Union Bank, E. D. & B.C. Ry. Co. and C.P.R. Co. The agreements state that default had been made in payment of interest on $9,420,000 of bonds guaranteed, and of interest on a lease of $2,000,000 advanced by the Alberta Government; that an agreement had been made with the C.P.R. for the operation of the line; that the Government has provided $1,000,000 for the improvement of the line, and agreed to provide an additional $1,500,000 for the same purpose, these amounts to bear 6% interest and to be repayable July 1925 or July 1930 These amounts are to be disbursed through a Manager appointed by the Alberta Government, and are secured by a first mortgage on the proyerty and equipment. The liabilities against the railway, outside the funded debt, and interest paid on the debenture stock by the Alberta Government, are stated to be $39,999.95 for a mortgage covering terminal purchases in Edmonton. The C. P.R. agrees to provide connection with its system in Edmonton, and to maintain a certain schedule of traffic charges in conformity with the rest of its system. J. D. McArthur waives for four years all claim to representation or the management of the line.

The parties to the agreements respecting the Alberta & Great Waterways Ry. are the Alberta Government, J. D. McArthur Co. Ltd. and Union Bank. The agreements state that the bonds guaranteed by the Government and outstanding amount to $7,400,000, and that the Government takes over the line free from all liabilities of J. D. McArthur Co. Ltd. and the Union Bank. The J. D. McArthur Co. is given a seven year option to reclaim the line on paying the Government all expenditures on it while in its possession, and if the Government desides to sell the line during the seven year period, it may do so, on payment of $710,000, which is the amount owing the Union Bank for advances.

Compensation to British Railways for Government Possession During War.

London, Eng., cablegram May 4.—The British Government's plan for a settlement with the British railways for the possession of them during a portion of the war, is embodied in a bill which will be presented to Parliament proposing that the railways claims be commuted for £51,000,000 in two payments, one to be made at the end of 1921 and the second at the end of 1922. The proposition seems to be regarded as fairly reasonable by the public, especially as the alternative to a substantial payment to the railways is endless litigation. Originally the railways presented claims aggregating £200,000,000. Argument was advanced by the Protective Association of Scottish Shareholders that the Government's system of railway bookkeeping did not take account of much freight and passenger traffic, carried for war purposes, and that if the usual rates had been allowed on this traffic Government operation would have shown a profit which should be turned over to the shareholders. Other claims for compensation over and above the guarantee of average returns to shareholders were based on the ground that the Government had not kept the railways in proper condition.

Fuel and Fire Protection Appliances, New York Central Railroad.

The Board of Railway Commissioners passed order 30,911, April 19, as follows: — Re general order 107, July 4, 1913, prescribing requirements with respect to fuel and fire protecting appliances used by railway companies, and the application of the New York Central Rd., operating the Ottawa & New York and the St. Lawrence & Adirondack Railways, for an order modifying the provisions of general order 107 so as to permit of the equipping of its locomotives with the Mudge-Slater front end. Upon the report and recommendation of the Board's Mechanical Expert, and reading what is filed in support of the application, the Board orders that the New York Central Rd., operating the said Ottawa & New York and the St. Lawrence & Adirondack Railways be permitted to use on itis locomotives, in lieu of the requirements with respect to wire mesh netting contained in general order 107, what is known as the Mudge-Slater front end; provided that the openings of the mesh shall not exceed ⅛ in. in width by ¾ in. in length, made of wire not less than 0.135 in. in diameter. And the Board further orders that order 20,408, Sept. 24, 1913, made herein, be rescinded.

Mainly About Railway People Throughout Canada.

William James Atkinson, whose appointment as Superintendent, St. Maurice Division, Quebec District, Canadian National Rys., Quebec, Que., was announced in our last issue, was born at Levis, Que., Feb. 14, 1880, and entered railway service March 1, 1898, since when he has been, to March 1, 1899, freight clerk, G.T.R., Point Levi, Que.; March 1, 1899 to Nov. 1900, brakeman, G.T.R., Montreal and Island Pond, Vt.; Nov. 1900 to Apr. 1, 1903, locomotive fireman, Canadian Government Rys., Levis and Montreal; Apr. 1, 1903 to June 1915, locomotive man, Canadian Government Rys., Montreal, Que., and Edmundston, N.B.; June to Oct. 1915, conductor, National Transcontinental Ry., Quebec and O'Brien, Que.; Oct. 1915 to May 1916, Master Mechanic and Assistant Superintendent, Edmundston Division, Canadian Northern Ry., Edmundston, N.B.; May 1, 1916 to Dec. 1, 1918, Assistant Superintendent, Canadian Northern Ry., Levis, Que.; Dec. 1, 1918 to Apr. 1, 1921, Superintendent, Edmundston Division, Quebec District, Canadian National Rys., Edmundston, N.B.

Burton H. Bennett, General Agent, Chicago & North Western Ry., Toronto, died there May 7 from double pneumonia. He was born at Cobourg, Ont., in 1857, and entered railway service with the G.T.R. at Toronto about 25 years ago. While in G.T.R. service as Soliciting Passenger Agent, he also acted as General Agent for the Pullman Co. there and after about five years service he transferred to the Chicago & North Western Ry. as Canadian Passenger and Freight Agent, Toronto, subsequently becoming General Agent there. During the period that U.S. railways were under the United States Railroad Administration, and their Canadian offices closed, he was temporarily Traffic Agent, C. & N.W.R. at De Kolb, Ill., and on the reopening of Canadian offices in March 1920 he resumed his former position at Toronto. He was a charter member of the Toronto Transportation Club, and a member of the Canadian Club and also of the Red Chalk Club, composed of transportation men in Canada and the U.S. The funeral took place at Toronto, May 9, from the house of his son-in-low, F. S. Livingstone, Traffic Manager, Toronto & York Radial Ry., the pallbearers being J. J. Rose, Robert Reford Co.; W. Fulton, Assistant District Passenger Agent, C.P.R.; W. J. Moffatt, City Passenger Agent, G.T.R.; G. W. Vaux, General Agent, Union Pacific Ry., Toronto; G. Donaldson, Travelling Freight Agent, Chicago & North Western Ry., Chicago, Ill., and W. B. Stannard, General Agent, Chicago & North Western Ry., Detroit, Mich. Among the numerous transportation officials present were C. A. Cairns, Passengers Traffic Manager, H. Gross and W. P. Dempsey, Chicago & North Western Ry., Chicago, Ill., and the officers and members of the Toronto Transportation Club.

Hon. F. C. Carvell, K.C., Chief Railway Commissioner for Canada, has been given the honorary degree of LL.D. by New Brunswick University.

James Gorman, whose appointment as Superintendent, Sleeping, Dining and Parlor Cars, Western Lines, Canadian National Rys., Winnipeg, was announced in our last issue, was born at Hamilton, Ont., Oct. 7, 1873, and entered railway service in 1889, since when he has been, to 1899, clerk, G.T.R., Hamilton, Ont.; 1899 to 1908, dining car conductor, G.T.R., Toronto; 1908 to 1910, dining car inspector, G.T.R., Toronto; 1910 to March 1921, Superintendent, Sleeping, Dining and Parlor Cars, Grand Trunk Pacific Ry., Winnipeg.

George Ham, of the C.P.R. headquarters staff, addressed th eElectrical Association at Montreal, May4, on world events in general, from original sin to the present status of the League of Nations.

John Kyle, of the Car Service Department, Canadian National Rys., Moncton, N.B., was presented with a chest of silver, on his marriage recently.

William Edward McGill, who has been appointed Assistant Superintendent, Smiths Falls Division, Quebec District, C.P.R., Smiths Falls, Ont., was born at Toronto, Apr. 5, 1884, and entered C.P.R. service in 1900, since when he has been, to 1916, trainman and conductor, Farnham, Que., London and Toronto, Ont.; Feb. to Oct. 1916, Assistant Superintendent, Bruce Division, Ontario District, Toronto; Oct. 1916 to May 1918, Assistant Superintendent, Surbury Division, Algoma District, Sudbury, Ont.; May 1918 to May 1, 1921, Assistant Superintendent, Montreal Terminals Division, Quebec District, Montreal.

Stuart MacTier, son of A. D. MacTier, Vice President, Eastern Lines, C.P.R., is to be married in Winnipeg, in June, to Miss Dorothy Martin.

William Ferriman Salsbury, who has retired from the position of Local Treasurer, C.P.R., Vancouver, B.C., was born in Surrey, Eng., in 1847, and entered railway service at Brighton, Eng., in 1861. He came to Canada in 1870, and entered G.T.R. service, becoming assistant to Jos. Hickson (afterwards Sir Joseph Hickson), then Treasurer of the company. He entered C.P.R. service in 1881, and went to British Columbia on the first C.P.R. transcontinental train, arriving at Port Moody, then the Pacific terminal, July 4, 1886. He became Local Treasurer, C.P.R., Vancouver, the same year, and held the position until his retirement, May 1, 1921.

W. F. Tye, consulting engineer, Montreal, formerly Chief Engineer, C.P.R., spent the winter in Nice, is now in Paris, and will probably return to Canada in August.

H. H. Vaughan, consulting engineer, Montreal, formerly Assistant to Vice President, C.P.R., and Mrs. Vaughan, will spend July and Augusat Chatham Bars, Cape Cod, Mass.

R. C. Vaughan, Vice President, Purchases and Supplies, Canadian National Rys., left Toronto, May 12, on a business trip to the Pacific Coast.

Isidore Verschelden, whose appointment as Bridge and Building Master, Farnham Division, Quebec District, C.P.R., Farnham, Que., was announced in our last issue, was born at Ste. Therese, Que., May 15, 1879, and entered C.P.R. service in July 1897, since when he has been, to Jan. 1, 1907, carpenter, Eastern Division; Jan. 1, 1907 to May 1, 1910, assistant bridge and building inspector and clerk, Quebec Section, Eastern Division; May 1, 1910 to Jan. 18, 1915, Assistant Bridge and Building Master, Ste. Therese, Que.; Jan. 18 to Apr. 1, 1915, Bridge and Building Foreman, Ste. Therese, Que.; Jan. 1 to Apr. 24, 1916, in Bridge and Building Department, District 3, Eastern Division; Apr. 24 to Dec. 1, 1916, Bridge and Building Foreman, Ste. Therese, Que.; Dec. 1, 1916 to Aug. 1, 1918, General Foreman, Laurentian Division, Quebec District; Aug. 1, 1918 to Aug. 1, 1919, General Foreman, Ste. Therese, Que.; Aug. 1, 1919, to Apr. 1, 1921, Bridge and Building Master, Montreal Terminals.

John Benjamin Windross, whose appointment as Manager, Macdonald Hotel, Canadian National-Grand Trunk Pacific Rys., Edmonton, Alta., was announced in our last issue, was born at Whitehaven, Eng., July 5, 1873, and has been at various times from Aug. 1907 to Feb. 1921, Assistant Manager, Chateau Louise, C.P.R., Lake Louise, Alta.; Assistant Manager, Chateau Frontenac, C. P.R., Quebec, Que.; acting Manager, Chateau Frontenac, C.P.R., Quebec, Que.; Manager, Empress Hotel, C.P.R., Victoria, B.C.; Assistant Manager, Davenport Hotel, Spokane, Wash.; Assistant Manager, Hotel del Coronado, California.

Intoxicating Liquor Transportation by Mail.—The Post Office Department has given notice of a modification of the parcel post regulation whereby the transmission of intoxicating liquor by post is prohibited, providing that where an act has been passed providing that delivery of intoxicating liquor shall be made by a Government commission by parcel post, parcels containing intoxicating liquor, which are handed in at the post office of any city or town in the said province, by the Government commission may be accepted for transmission to any place within the said province, with the proviso that such a parcel so posted cannot in any circumstances be redirected to a place outside the province, and that the parcel must in every case comply with the general parcel post regulations, including those relating to packing.

Dimming of Electric Headlights. — The Railway Association of Canada has issued the following circular:—To reduce the glare from electric headlights on locomotives, which, in the interests of safety, it is advisable to do in yards, at stations, and when passing trains on double track, it is recommended that the following regulations be adopted on Canadian railways:—"When regulations require headlight to be displayed, electric headlights on locomotives will be dimmed (a) where yard engines are employed; (b) at meeting points; (c) approaching stations where stops are to be made, where trains are receiving or discharging passengers, or where train orders or clearances are to be picked up; (d) when standing; (e) on two or more tracks when approaching trains running in opposite direction."

Railway Y.M.C.A., Point Richards, Montreal.—At the annual meeting it was reported that the building had been used by a larger number of men than in the preceding year. The receipts were $8,718.20, and the expenditures $8,616.66. Officers were elected as follows:—Honorary Chairman, C. Manning; Chairman, W. Hyman; Vice Chairman, S. Pugh; Treasurer, C. F. Needham; Recording Secretary, A. G. Mitchell.

Electric Storage Battery Passenger Car Test on Canadian National Railways.

As stated in Canadian Railway and Marine World for May, the Canadian National Rys. are testing a storage battery car on their Ottawa-Montreal line between Belleville and Trenton, Ont., 11.4 miles. The car carries nothing to generate its own power; its source of power being electric storage batteries, which are charged at a central station and the car operates on the energy thus stored. An illustration of this car is given herewith, also a plan showing the interior divisions and seating arrangements. It is of steel construction, and weighs complete 30.3 tons; is 55 ft. long inside coupler knuckles, 52 ft. 2 in. long over vestibules; and 35 ft. 10 in. between bolster centers. The extreme width is 8¾ ft., extreme height 12 ft. 5½ in.; from rail, and the storage battery holders, on the bottom of the car, clear the rail by 10¼ in. The side posts are of 2 x 2 x ¼ in. T section, and the side sheathing 3/32 in. thick. The car has a 3½ x ½ in. belt rail, and pressed steel window sills, letter board, carlines, etc. The roof is of composite construction, roof boards being ⅝ in. thick. The front and side window arrangement is clearly shown in the illustration.

Electric Storage Battery Passenger Car.

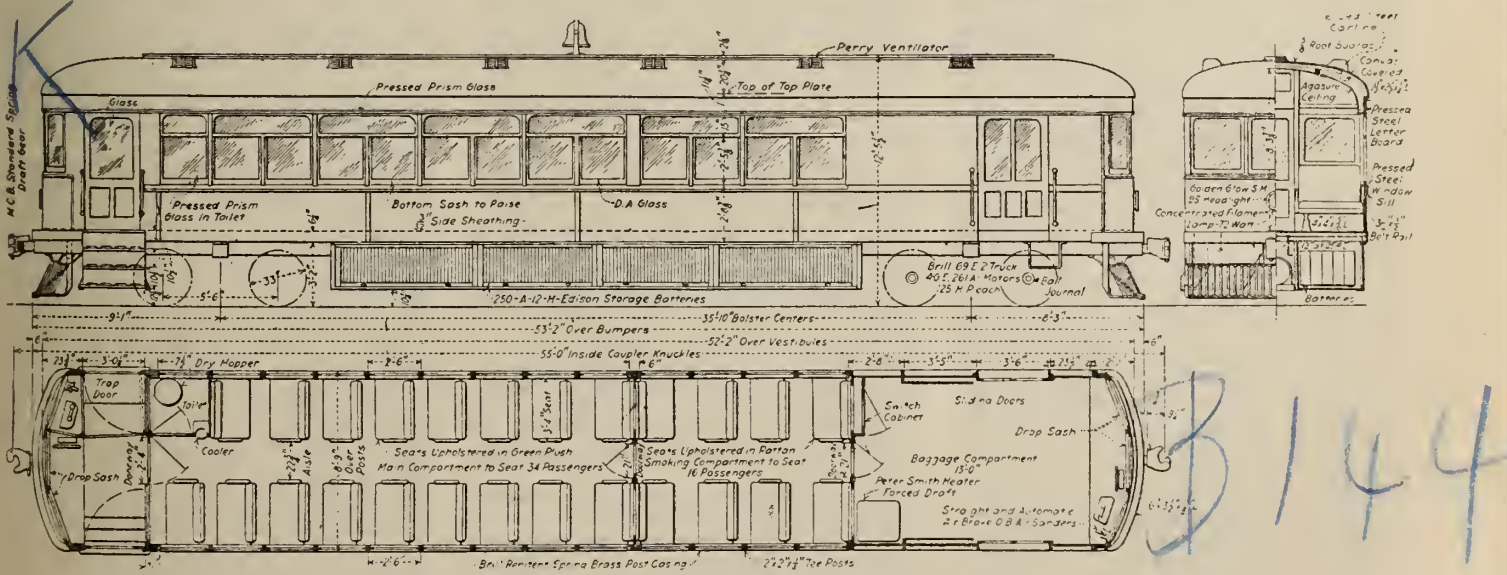
The interior of the car is divided into three compartments; the main one contains 17 double seats, reversible, 3 1/3 ft. wide, arranged transversely along both sides of the aisle, which is 22¾ in. wide. Seating is thus provided for 34 persons in this compartment, which is connected by a doorway to the middle or smoking compartment, where the seats, 4 on each side of the aisle, are similarly arranged, seating 16 passengers. The seats in the main compartment are upholstered in green plush, and those in the smoking compartment are of rattan. The third compartment, 13 ft. long, is for baggage, and also contains the switch cabinet and heating apparatus. The side doors of this compartment are of the sliding type, designed to facilitate the quick loading and unloading of trunks and other baggage. The side windows are fitted with blinds and the front windows are equipped with drop sash. The compartment partitions are fitted with large panes of plate glass, as are also the doors between compartments and the vestibule doors. The ceiling is finished in agasote.

The car is heated by a forced draft equipment, such as is used in street railway cars in many cities, the heated air from a small coal stove being forced through ducts by a small motor driven fan. The car roof is equipped with 6 ventilators; the lights in the car are suspended from the ceiling in two longitudinal rows, while each end of the car is equipped with a golden glow concentrated filament headlight, so that the car may be operated in either direction, duplicate control apparatus being installed in both vestibules. When operated in trains, the several cars may be controlled on the multiple unit system.

The source of power is a set of 240 type A-12-H Edison storage batteries, located beneath the car floor. On a single charging, these are capable of propelling the car 140 miles under average operating conditions. The maximum speed which the car can attain on straight and level track is 45 miles an hour. The car is equipped with a G.E. type 261-A motor of 25 h.p. for each pair of wheels, that is, 4 motors in all; power being transmitted through a single reduction spur gear. In addition to the battery equipment mentioned above for propelling power, there are 8 additional cells for lighting purposes. The car is mounted on 4-wheel trucks of special design, the journals operating in frictionless bearings; the wheels are 33 in. diameter, the axles in each truck being 5½ ft. c. to c.

The car is equipped with a small motor driven air compressor, and G.E. straight and automatic air brakes. Couplers, wheels, axles and all interchangeable parts conform to M.C.B. standard designs. An ampere hour meter is used to ensure the proper charging of the batteries. The car has been furnished to the C.N.R. for test purposes by Railway Storage Battery Car Co., New York, N.Y. The car body and trucks were built in Philadelphia, and the motors and electrical control equipment are General Electric Co. product.

Previous tests of similar cars are claimed to have resulted in an average current consumption of 2¼ kilowatts a car mile, measured on the basis of input at the charging station, and at a demonstration of a car of this type in 1919 at Atlantic City, during American Railway Association Mechanical Section's convention, the cost of power per car mile is said to have been 0.0437 cent. The development of such equipment has been retarded by the unsuitable type of storage batteries formerly in use, but with the light and compact batteries now available, the successful operation of it is looked for. As pointed out in Canadian Railway and Marine World for May, such a car should be specially suitable for branch lines, where steam operation



Floor Plan and Elevations, Electric Storage Battery Passenger Car.

is carried on at a loss, and where the capital cost of electrification, considered in relation to traffic returns, is prohibitive.

The car's first run on the Canadian National Rys. was made on May 16, from the C.N.R. Don station, Toronto, to Trenton, on the Toronto-Ottawa line, 108.4 miles. Running as a passenger extra, it left Toronto at 10 a.m., and arrived at Trenton at 1.30 p.m., maintaining the schedule closely at all points, and making several stops at way stations. Speeds of 40 miles an hour were made on stretches of level track, and the run was completed without trouble, or delay, of any kind. At Trenton the car was coupled to two large business cars, which it moved for short distances, but the car is not designed for drawing a trailer, or other cars of considerable weight, although storage battery "locomotives," for hauling heavy loads over comparatively short distances, are used, particularly in mine service.

After two hours at Trenton, the car proceeded to Belleville, 11.4 miles, covering the distance in 25 minutes and making 4 stops. The car then returned to Trenton (and being equipped for operation from either end, it was not necessary to turn it), making a total distance of 131.2 miles covered on the one charging of the batteries, received before leaving Toronto. The condition of the batteries, after completing this mileage, was such as to indicate that the stated capacity of 140 miles on a single charging, under average conditions, can be easily attained. The time required for a complete charging of the batteries is between 6 and 7 hours.

The power consumption on the run from Toronto to Trenton was 50 k.w.h., and from Trenton to Belleville and return 13 k.w.h. With cost of power figured at 1½c. per k.w.; with liberal allowances for interest, depreciation, maintenance and overhead costs, and with prevailing wage rates, the car mile costs amount to 34.8c. Figuring the power cost at 2c. per k.w., the cost per car mile comes to 38.3c., and with power costing 3c., the car mile cost comes to 39.3c. It is difficult, if not impossible, to calculate the expense of operation attributable to any individual passenger train, but on the assumption that one of these cars can, in two or three trips, do the work of a local train on a short branch run, the opportunity for effecting large savings is evident. The average passenger train mile cost on the Canadian Northern last year was $2.5, the total of all costs, direct and indirect, of running a passenger train, composed of a locomotive and several cars, one mile, but this figure must necessarily be based, in large part, on an arbitrary division of many items of expense, so that actual comparisons are difficult. The fact remains, however, that the possible savings, although incapable of exact determination, are large, in the particular field in which the electric storage battery car is designed to operate. A particularly noticeable feature of the car is the absence of machinery to get out of order, making for low maintenance costs. The first cost of such a car, for use in Canada, including complete equipment and counting freight, duty and exchange, is below $50,000.

The following C.N.R. officials went on the trip:—E. B. Walker, Chief Electrical Engineer, Toronto; W. R. Devenish, General Superintendent, Ontario District, Toronto; W. R. Kelly, Superintendent, Ottawa Division, Ontario District, Ottawa; L. W. Buller, Assistant Superintendent, Ottawa Division, Toronto; P. H. Fox, Assistant Superintendent, Ottawa Division, Trenton; J. H. McAlpine, Master Mechanic, Ontario District, Toronto; R. L. Fairbairn, Assistant Passenger Traffic Manager, Toronto; W. J. Whiteside, Publicity Agent, Toronto; W. H. Robinson, Official Photographer, Toronto, and J. Sterling, Chief Electrician, Leaside shops, Toronto. The Railway Storage Battery Car Co. was represented by L. Klopman, General Manager, and C. A. Wipf, Chief Mechanical Engineer. Others present were:—D. C. Wilson, Manager, Railway Department, Edison Storage Battery Co.; Edwin Winfield, Assistant Editor, Canadian Railway and Marine World, and representatives of daily and weekly newspapers.

On the initial trip the car was driven by C. A. Wipf, Chief Mechanical Engineer, Railway Storage Battery Car Co., who was accompanied by J. E. Cote, locomotive man, C.N.R., who is now operating the car. The conductor was T. N. Milne, Toronto. The car was left at Trenton, the party returning to Toronto via G.T.R. on the business car of W. R. Devenish, General Superintendent, Ontario District, C.N.R.

The car is being given a thorough months trial between Belleville and Trenton, making 11 round trips a day, leaving Trenton on the first trip at 8.25 a.m., and arriving at Trenton on the last trip at 10.10 p.m. Power for re-charging the batteries is obtained from the Ontario Hydro Electric Power Commission at Trenton at about 1c. per k.w.

E. H. Fitzhugh Sues the Grand Trunk Railway, Etc.

Concord, N.H., press dispatch, May 17. Hearing was begun in the Superior Court here this morning of the suit brought by Earl H. Fitzhugh, former President, Central Vermont Ry., against the Grand Trunk and Central Vermont Rys., Sir Alfred W. Smithers, of London, Eng., and E. J. Chamberlin, of Ottawa, and E. C. Smith, of Newport, Vt. The case has been on the docket since April 1919. The amount of damages asked is $200,000. Mr. Fitzhugh claims that the defendants maliciously forced his resignation as President of the Central Vermont, and also that they have prevented him from obtaining employment in a similar position. The defendants last week filed several motions in the case, all of which were denied, except that requiring the plaintiff to set forth more specifically how, when and where he had been prevented from obtaining employment.

The suit is the outcome of negotiations which Fitzhugh entered into while President of the Central Vermont, to obtain an entrance into Boston and Providence for the G.T.R. He alleges that while he was negotiating the defendants entered into a secret agreement with C. S. Mellen, then President of the New York, New Haven & Hartford, to abandon the extensions. He further alleges that the defendants "conspired to ruin his career" by claiming he had testified falsely in an investigation held in connection with the negotiations. The defendants deny all the allegations in the suit.

E. H. Fitzhugh was born in Montgomery County, Mo., Feb. 1, 1853, and entered railway service in 1873, since when he was, to 1889, successively, clerk in Master Car Builder's office, St. Louis, Kansas City and Northern Ry., in car mileage office, same road, and chief clerk to Superintendent, Western Division, Wabash, St. Louis & Pacific Ry.; 1889 to Jan. 1896, Master of Transportation, Wabash Rd., Moberley, Mo.; Jan. 1896 to May 1899, Superintendent, Middle Division, G.T.R., Toronto; May 1899 to March 1901, Vice President and General Manager, Central Vermont Ry.; March to Dec. 1901, Assistant to President, Southern Pacific Co.; Feb. 1902 to Dec. 1904, Vice President and Genedal Manager, Central Vermont Ry., St. Albans, Vt.; Jan. 1, 1905, to Jan. 7, 1910, Third Vice President, G.T.R., Montreal; and Vice President, Central Vermont Ry.; Jan. 7, 1910, to Oct. 2, 1911, First Vice President, G.T.R., and to July 27, 1911, Vice President, Central Vermont Ry., when he was appointed President, Central Vermont Ry., Central Vermont Transportation Co., Southern New England Rd. Corporation, Southern New England Ry. and Montreal & Southern Counties Ry., resigning the last named positions in Jan. 1913.

Grain Inspected at Western Points.

The following figures, compiled by the Dominion Bureau of Statistics' Internal Trade Division, show the number of cars of grain inspected at Winnipeg, and other points on the western division, during April, and for 8 months ended Apr. 30, 1921, and Apr. 30, 1920.

	Apr. 1921	8 mo to Apr. 30, 1921	8 mos to Apr. 30, 1920
Canadian Northern Ry.	4,544	60,513	44,981
Canadian Pacific Ry..	3,976	93,675	63,032
Grand Trunk Pacific Ry.	1,040	20,013	18,367
Great Northern Ry. (Duluth)	9	171	495
Total	9,569	174,372	126,875

A. B. Calder's Quick Rejoinder.—Percival Marshall, Chairman, British Association of Trade and Technical Journals, who visited Canada last year as one of the delegates to the Imperial Press Conference, in referring recently, in the Model Engineer and Electrician, of which he is the proprietor, to A. B. Calder of the C.P.R. executive staff, who accompanied the press party on its transcontinental tour, says, in speaking of the return trip eastward from Vancouver on the Canadian National Rys.:—"The C. N.R. for many miles run parallel to the C.P.R. on the other side of the Fraser River, and this gave rise to a rather neat bon mot from A. B. Calder, our C.P.R. guide, philosopher and friend. Seated next to him on the platform of the observation car, I though I would quietly pull his leg, and said: 'I think the travellers on the Canadian National Rys. on this side have a much better view than your passengers on the other side of the river.' 'Yes,' replied friend Calder, with a little twinkle in his eye, 'they can see the C.P.R.' "

The Canadian Forestry Association has had a second car equipped for giving instruction in forest conservation, etc. It was at Bonaventure station, Montreal, May 5, and started a few days later for a tour in New Brunswick, Quebec and Ontario.

Five C.P.R. conductors charged with misappropriation of ticket money alleged to have been taken on trains running between Quebec and Montreal, were acquitted recently by Montreal juries.

Locomotive Booster Tests on Timiskaming & Northern Ontario Railway.

As stated in Canadian Railway and Marine World previously, Timiskaming & Northern Ontario Ry. has received recently 4 mikado locomotives, one of which is equipped with a locomotive booster, and 4 Pacific type locomotives, all of which are equipped with it. A very complete, illustrated description of the appliance was published in Canadian Railway and Marine World for Dec., 1920, pg. 661.

Tests of two of the locomotives equipped with boosters were made on the T. & N.O.R. on May 9, 10 and 11. Mikado locomotive 150 took a train from North Bay to Englehart, 138 miles, on May 9, and returned the following day. On May 11, Pacific type locomotive 157 took the Canadian National transcontinental passenger train no. 1 from North Bay to Englehart, and Canadian National transcontinental train no. 2 from Englehart to North Bay. The Canadian National Rys. business car 84 was loaned to the T. & N.O.R. for the tests, its apparatus consisting of drawbar pull recording device, with gauge, buffing force recorder, air brake train line automatic pressure recorder, standard speed recorder, train line and auxiliary reservoir pressure gauges, together with charts for the quick determination of drawbar horsepower from various speed and tractive effort combinations.

In the test of May 9, mikado locomotive 150 handled a freight train of 1,450 equivalent tons, from North Bay to Englehart, the ruling grade and other hard pulls being got over with ease with the booster cut in. The regular northbound tonnage for power of this class, without the booster, is 1,200 equivalent tons. Returning on May 10, this locomotive was given 1,995 equivalent tons out of Englehart, to ascertain how far up the grade into Cobalt it could handle the tonnage before stalling. This grade is about 9 miles long, the northern one third of it being 0.7 and 0.8%, the remainder being 1%. The standard tonnage rating for it is 1,660 equivalent tons, so that the locomotive handled an excess of 335 equivalent tons. Instead of stalling on the grade, the tonnage was handled over it, and into Cobalt, without trouble, with the booster cut in on the hard places. From Cobalt, mile 102.8, south to Riddle, mile 33.9, there are many short grades, but the ruling grade for southbond traffic is between Riddle and mile 22.5 from North Bay, portions of it running as high as 1.2%. The standard tonnage for this is 1,460 equivalent tons. To the train of 1,995 equivalent tons, another car, of 48 gross tons, was added, and this train was taken over these ruling grades, without stalling, with the booster cut in.

In the Pacific type locomotive tests, locomotive 157 was started from North Bay with Canadian National Rys. train no. one, 1 3cars, 950 tons. The initial lift was on a heavy grade, where, without the booster, it would be impossible for the locomotive to lift the train; but, with the booster cut in, the train was lifted without taking the slack, the drawbar pull showing as 45,000 lb. Acceleration on this grade was such that a speed of 15 m.p.h. was attained in 2 min. 50 sec. The train was delivered in Englehart on time, the booster having been used successfully on grades and in starting from stations. The rate of acceleration made possible by the booster is shown by the following exaple of a start out of Tomiko, mile 27.3, on leve ltrack.

Time, seconds	Drawbar pull, lb.	Speed, m.p.h.
0	38,000	.....
10	38,000	.....
20	32,000	5.5
30	29,000	8.5
40	27,000	11.5
50	25,000	13.5
60	23,000	15.5

On the return trip, Englehart to North Bay, with Canadian National Rys. train no. two, 12 cars, 890 tons, the booster was employed successfully on the grades and in increasing the acceleration in starting after station stops. The train left Englehart 30 min. late, and reached North Bay on time.

These tests demonstrated the value of the booster in aiding locomotives on grades, and in increasing acceleration. On the mikado type locomotive it showed an increase in tractive effort of 20%, and of 26% on the Pacific type locomotive. As stated in our May issue, the T. & N.O.R. has many short, steep grades, for both north and southbound traffic, and heavy ruling grades, limiting the trainload for the whole division. In addition, many of the stations are on very steep grades. For these reasons, it was anticipated that the booster would be satisfactory for use on that line, and the result of these tests, so far as actual performance is concerned, was to demonstrate the booster's ability to fulfill the expectations in regard to it. The tests were also in the nature of tests of the locomotives themselves, as to steaming capacity, fuel economy, tractive power, etc.

Specifications of the Pacific locomotives were given in Canadian Railway and Marine World for Dec. 1920, pg. 646, and Jan. 1921, pg. 15. Specifications and an illustration of the mikado locomotives were given in the May issue, pg. 252. The tractive effort of the Pacific type locomotives is 36,600 lb., without the booster. The rated tractive effort of the booster is10,700 lb., giving a ratio of weight on trailing truck to tractive effort, due to booster engine, of 4.44.

In the application of the booster on T. & N.O.R. locomotives a radical change was introduced, the exhaust steam from the booster engine, instead of being carried back through a pipe, to exhaust from the top of the tender, or being carried back to exhaust into the water in the tank, as has been the practice in the installations on U.S. railways, was carried through a pipe under the boiler, and tapped into the exhaust steam cavity in the saddle castings, and exhausts through the stack, with the steam from the main locomotive cylinders. Before this application was made, it had been contended by some people that the additional exhaust steam would tend to build up back pressure to a prohibitive degree; however, in a test at the Canadian Locomotive Co.'s works, at Kingston, Ont., where the boosters were applied when the locomotives were being built, it was found that cylinder back pressure was not materially increased by having exhaust steam from the booster engine pass through the nozzle and stack, which led to this design being applied. We are officially advised that this method of handling the exhaust steam from the booster engine will be followed in future applications.

Among those present at the tests were: S. B. Clement, Chief Engineer; A. A. McRoberts, Office Assistant to Chief Engineer; and H. L. Rodgers, Mechanical Engineer; T. & N. O. Ry. C. E. Brooks, Mechanical Assistant, Locomotive Department, to Vice President, Operation and Maintenance; W. U. Appleton, General Superintendent of Rolling Stock, Eastern Lines; A. H. Eager, General Superintendent of Rolling Stock, Western Lines; W. F. Connal, Mechanical Engineer, Toronto; and Frank Williams, Mechanical Designer, Moncton, N.B.; Canadian National Rys. C. E. Rafferty, Master Mechanic, Algoma Central & Hudson Bay Ry. C. B. Lathrop, Sales Manager, F. R. Peters, Division Engineer, W. T. Comley, Service Manager, R. P. Peckett, Jr., Service Representative, and F. Lumb, Inspector, Franklin Railway Supply Co. W. Casey, Vice President and General Manager, and G. Cavin, Mechanical Engineer, Cnaadian Locomotive Co. Edwin Winfield, Assistant Editor, Canadian Railway and Marine World.

Reduction in Lumber Rates from British Columbia

Rail rates on lumber and shingles from British Columbia to eastern points have been reduced to enable B.C. mills to compete in the eastern markets against other producers, particularly U.S. ones, and to strengthen the eastbound movement of these commodities, which has decreased materially of late. We are officially informed that the rates on lumber published in C.P.R. tariff C.R.C. no. W-2588, which became effective April 21, are, to main line points in Ontario, east of North Bay and Toronto, to and including points in Quebec, 95c. per 100 lb. from coast mills, and 88c. per 100 lb. from interior mills, against corresponding rates in effect Jan. 1 of $1.06½ and $1.02 To main line points, Toronto Windsor and Sarnia, and territory south thereof, the new rates are 90c. per 100 lb. from coast mills and 81c. per 100 lb. from coast mills and against rates of $1.03½ and 94½c. respectively. The rates to territory on branch lines, north of the main lines in Ontario, and north of Ottawa in Quebec Province, also to the Maritime Provinces, are the usual differentials over main line rates. The following comparison of rates from Vancouver has been furnished by the Canadian National Rys. Traffic Department:—

	New rate	Old rate
To Toronto	90c.	$1.03½
To Montreal	95c.	$1.06½
To Quebec	95c.	$1.12½

"Eastern Tours through the Canadian Pacific Rockies," the latest folder issued by the C.P.R., may easily be said to be the best in placing before the public a great transcontinental railway. With characteristic illustrations, and a breezy story depicting Canada from the western shores of Vancouver Island to the apple blossomed slopes of Evangeline Land, this booklet tells a new story of the Dominion. Its cover design, by a Canadian artist, is a twilight scene at Lake Louise, in a color scheme of ivory and gold, showing this spot in the Rockies in a new and majestic phase. This folder is outstanding and is a proof of what may be done in Canada by the artist, writer and printer.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 339. May 7.—Amending secs. 1434 and 1715 of Regulations for Transportation of Explosives and Other Dangerous Articles by Freight.

30,908, 30,909. Apr. 16.—Approving Bell Telephone Co. agreements with Woodford Telephone Co. and Centre Road Telephone Co., Grey County, Ont.

30,910. Apr. 19.—Authorizing City of St. Thomas, Ont., to operate to May 23 St. Thomas St. Ry. p.a.y.e. one man cars over Pere Marquette Ry. on Wilson Ave.

30,911. Apr. 19.—Authorizing Ottawa & New York and St. Lawrence & Adirondack Rys. to use on its locomotives what is known as the Mudge-Slater front end.

30,912. Apr. 20.—Ordering Brantford & Hamilton Electric Ry. to provide entrance to E. F. Leeks and N. Slater property, on part of Lot 28, on south side of Glenfern Ave., Con. 4, Barton Tp., Ont.

30,913. Apr. 20.—Authorizing Canadian Northern Pacific Ry. to build spur for Arrow Lakes Lumber Co., mile 85.7 Blue River Subdivision, B.C.

30,914. Apr. 20.—Ordering C.P.R. to keep station building at Straffordville, Ont., open, and, when necessary, heated and lighted, for 30 min. prior to arrival of trains 656 and 657 (changed by order 30,968 to trains 659 and 662).

30,915. Apr. 19.—Approving agreement between Bell Telephone Co. and St. Jude Telephone Co., St. Hyacinthe County, Que.

30,916. Apr. 20.—Dismissing C.P.R. application for order relieving it from maintaining speed limitations on trains at St. Henri St., Hull, Que.

30,917. Apr. 20.—Approving Chatham, Wallaceburg & Lake Erie Ry. Standard Mileage Tariff, C.R.C. 646.

30,918. Apr. 20.—Ordering Toronto, Hamilton & Buffalo Ry. to provide protection at crossing 1,400 ft. east of Silverdale station, Ont.

30,919. Apr. 16.—Recommending to Governor in council for approval, lease to C.P.R. of Kaslo & Slocan Ry.

30,920. Apr. 23.—Authorizing Michigan Central Ry. to issue supplement to its tariff C.R.C. 3003, to give effect to proper rates on cheese.

30,921. Apr. 21.—Authorizing Lac du Bonnet rural municipality, Man., to make highway crossing over C.P.R. opposite Third St.

30,922. Apr. 21.—Authorizing Alberta Public Works Department, on behalf of Little Bow municipal district 98, to make a highway crossing over C.P.R. in Sec. 10, Tp. 11, Range 23, west 4th meridian.

30,923. Apr. 22.—Authorizing the British Columbia Public Works Department to make highway crossing over C.P.R. at chainage 2181-39.7, west of Yahk.

30,924. Apr. 21.—Authorizing the Canadian National Rys. to terminate agreement under which siding was built for Gainford Collieries, Ltd., in Sec. 14, Tp. 53, Range 6, west 5th meridian.

30,925. Apr. 21.—Ordering C.P.R. to appoint station agent at Crestwynd, Sask., by June 1.

30,926. Apr. 21.—Ordering Canadian National Rys. to provide protection at east crossing, Sclater, Man.

30,927, 30,928. Apr. 20.—Authorizing C.P.R. within two months to make level crossings over its tracks at mile 12.7 and 9.7, west of Revelstoke, B.C.

30,929. Apr. 21.—Approving clearances between C.P.R. loading track and pier leg of new coal bridge at Island no. 1, Fort William, Ont.

30,930. Apr. 23.—Authorizing Halifax & South Western Ry. to fill in trestle at mile 51, Chester Subdivision, Chester, N.S.

30,931. Apr. 22.—Authorizing London & Port Stanley Ry. to build spur for City Gas Co., London, Ont.

30,932. Apr. 22.—Authorizing Canadian Northern Western Ry. to build spur to ballast pit in s.w. ¼ Sec. 24 and s. ½ Sec. 23, Tp. 39, Range 27, west 4th meridian, Alta., mile 0 to 1.42.

30,933. Apr. 23.—Approving location of portion of C.P.R. Pashley Northeasterly Branch, from Sec. 7, Tp. 12, Range 3, at mile 0 to Sec 18, Tp. 16, Range 1, west 4th meridian, at mile 32.15, and authorizing crossing of 29 highways.

30,934. Apr. 25.—Authorizing Esquimalt & Nanaimo Ry. to build spur for Wells Lumber Co. at mile 9.18, Vancouver Island, B.C.

30,935. Apr. 25.—Authorizing Canadian National Rys. to alter and extend spur for Great West Land Co. through s.e. ¼ Sec. 7, Tp. 53, Range 23, west 4th meridian, Alta.

30,936. Apr. 25.—Ordering C.P.R. to improve view at Glen Nevis crossing, between Lots 16 and 17, Con. 7, Lancaster Tp., Ont.

30,937. Apr. 25.—Recommending to Governor in council for sanction, rules and regulations for movement of trains and locomotives over electrified tracks.

30,938. Apr. 25.—Approving location of Canadian Northern Saskatchewan Ry. Meeting Lake Branch, through Tps. 51-52, Range 21 to 18, west 3rd meridian, mile 0 to 23.01, Sask.

30,939. Apr. 25.—Dismissing application of C.P.R. and G.T.R. for order rescinding order 28,589, July 17, 1919, requiring crossing of Frederick St., Toronto, to be protected by day and night watchmen.

30,940. Apr. 20.—Approving Canadian National Rys. revised route map showing general location through Tp. 22, Range 16, west 3rd meridian, mile 32 to 35, Sask.

30,941. Apr. 25.—Authorizing C.P.R. to build spur for Ontario Public Highways Department, mile 65.6, Windsor Subdivision, Lot 22. Con. 1, Raleigh Tp., Ont.

30,942. Apr. 26.—Authorizing Ontario Government to build its Sault Ste. Marie and Sudbury trunk road across C.P.R. near Algoma station, mile 46.985 Thessalon Subdivision.

30,943. March 23.—Approving Canadian National Rys. standard fourth class station, to be built at Notre Dame de Lourdes, Man.

30,944. Apr. 28.—Relieving Toronto, Hamilton & Buffalo Ry., G.T.R., and Wabash Rd. from maintaining interlocking operator at crossing near Diltz, Ont., on Sundays, and between 11 p.m. and 7 a.m., on week days.

30,945. Apr. 27.—Ordering G.T.R. to provide proper facilities at Sarnia Tunnel station, Ont.

30,946. Apr. 28.—Authorizing Namao Collieries Ltd. to make two entries under Edmonton, Dunvegan & British Columbia Ry. at Carbondale, Alta.

30,947. Apr. 28.—Ordering Lake Erie & Northern Ry. to stop its southbound trains just north of the crossing of Concession St., Galt, Ont.

30,948. Apr. 28.—Extending to May 20, time within which Great Northern Ry. may build station at Crescent, B.C.

30,949. Apr. 28.—Extending to July 15, time within which Canadian National Rys. may install gates at Dufferin St., Trenton, Ont.

30,950. Apr. 28.—Relieving Toronto, Hamilton & Buffalo Ry. and G.T.R. from maintaining interlocking operator at crossing in Dunnville, Ont., on Sundays, and between 11 p.m. and 7 p.m. on week days.

30,951. Apr. 27.—Extending to Oct. 31, time within which G.T.R. may complete branch with spurs therefrom for Williard Storage Battery Co. and Bateman-Wilkinson Co., Toronto, Ont.

30,952. Apr. 29.—Authorizing C.P.R. to build spur for Quebec Highways Department at mile 158.42 Three Rivers Subdivision, between Carillon and Renaud Sts., Quebec, Que.

30,953. Apr. 29.—Ordering protection at crossing of Victoria Ave. by Canadian National Rys., Fort Frances, Ont.

30,954. Apr. 29.—Authorizing Canadian Northern Ry. to build across Third Ave. (not open), North Bay, Ont.

30,955. May 2.—Authorizing Canadian Northern Saskatchewan Ry. to build across and divert highway in n.w. ¼ Sec. 2, Tp. 52, Range 20, west 3rd meridian, Sask.

30,956. May 2.—Ordering C.P.R. to restore train service between Calgary and Macleod, Alta., which was discontinued in Jan. 1920; and rescinding order 30,001, re withdrawal trains 540 and 541.

30,957. May 2.—Authorizing C.P.R. to build spur for J. Arabi and A. Abrahamson, Winnipeg.

30,958. May 2.—Dismissing complaint of C. Belluz, Fort Frances, Ont., against noise and smoke caused by operation of International Bridge & Terminal Co.'s switching locomotives in Fort Frances Pulp & Paper Co.'s yard.

30,959. May 2.—Dismissing application of residents of Dodsland, Sask., and vicinity for order requiring C.P.R. to stop trains there.

30,960. May 2.—Dismissing complaint of Swift Canadian Co., Edmonton, Alta., against Grand Trunk Pacific Ry. rates on coal from its mines in Edmonton district to Edmonton.

30,961. May 2.—Dismissing complaint of F. A. Wilson, Vancouver, B.C., against refusal of railway companies to allow mixed cars of maple sugar and maple syrup to be carried at rates named in item 1290, Tariff C.R.C. 14.

30,962. May 2.—Dismissing application of Woodlea rural municipality, Man., for order directing Canadian National Rys. to provide station and platform, at Camper, Man.

30,963. May 2.—Declaring that, for present, C.P.R. crossing of highway near east switch at Darlington, Ont., is protected to Board's satisfaction.

30,964. Apr. 13.—Revising book of reference approved under order 29,723, June 8, 1920, re proposed revision of Canadian Northern Quebec Ry. near St. Boniface, Que., mile 87.6 to 91.60 from Quebec.

30,965. Apr. 21.—Declaring that, for the present, Michigan Central Rd. crossing of first highway east of Charing Cross station, Ont., is protected to Board's satisfaction.

30,966. May 2.—Authorizing Canadian National Rys. to build spur for Elgin Coal Co. at Drumheller, Alta.

30,967. May 2.—Authorizing Quebec Central Ry. to build across St. Lambert Road, St. Lambert de Lauzon Parish, Que.

30,968. May 2.—Amending order 30,914, Apr. 20, 1921, changing numbers of C.P.R. trains affected at Straffordville, Ont., from 656 and 657, to 659 and 662.

30,969. May 3.—Dismissing application of Mayo Lumber Co. for order directing Esquimalt & Nanaimo Ry. to provide station and agent at its mill at mile 7.2 Cowichan Branch, Vancouver Island, B.C.

30,970. May 4.—Authorizing G.T.R. to enter W. Upper's lands and remove trees obstructing view at highway crossing just north of Allanburg station, Ont.

30,971. May 4.—Allowing C.P.R., because of special circumstances, an extension of one month from May 6, within which to apply to Board for leave to appeal to Supreme Court of Canada from order 30,855, re furnishing similar traffic facilities to Davidson & Smith Elevator Co., Fort William, Ont., as furnished Dominion Government elevator there.

30,972. May 4.—Ordering C.P.R. to file tariff establishing rate of 2c. per 100 lb. on switching stone dust from Thames Quarry Co.'s plant to Deviney & Campbell's factory, St. Mary's, Ont., to apply to shipments made on and after Mar. 16, and rescinding order 30,794, Mar. 16.

30,973. May 4.—Permitting free transportation for the ex-Speaker of the British House of Commons, car and party, on Canadian National Rys.

30,974. May 3.—Ordering C.P.R. to keep station agent at Dalhousie Mills, Que., and have station open until 7 p.m. on Tuesdays, Wednesdays, Thursdays and Fridays.

30,975. May 4.—Approving plan showing in red additions to interlocking plant installed under order 24,256, at crossing of Canadian Northern Ontario Ry. and Timiskaming & Northern Ontario Ry., at North Bay.

30,976. May 4.—Declaring that, for the present, G.T.R. crossing of Colborne St., Brantford, Ont., is protected to Board's satisfaction, and rescinding order 26,192, June 5, 1917.

30,977. May 4.—Approving agreement, Apr. 18, 1921, between Bell Telephone Co. and Sparta Rural Telephone Co., and rescinding order 22,720, Oct. 13, 1914, approving agreement of Sept. 23, 1914.

30,978. May 6.—Approving location and details of Canadian National Rys. station at St. Casimir, Que.

30,979. May 6.—Authorizing Canadian National Rys. to open for traffic its second track, Drumheller Subdivision, between mile 302.2 and 315.6, Alta.

30,980. May 6.—Extending to Sept. 1 time within which Grand Trunk Pacific Ry. may build station at Bechard, Sask.

30,981. May 6.—Authorizing Quebec Central Ry. to build across Beausejour Road, St. Jean Chrysostome, Que.

30,982. May 6.—Authorizing Woodford municipal district no. 550, Alta., to divert Ste. Anne trail along north side of Canadian National Rys., 470 ft. east center of station; cost to be divided between municipality and C.N.R., and maintenance to be paid by C.N.R.

30,983. May 6.—Authorizing C.P.R. to remove station agent at Wanapitei, Ont., caretaker to be appointed.

30,984. May 6.—Relieving Toronto, Hamilton & Buffalo Ry. and Michigan Central Rd. from maintaining watchman to operate interlocking plant on Sundays and between 11 p.m. and 7 a.m., week days, at crossing at mile T.H.&B.R. Erie and Ontario Branch, 9.46, and M.C.R., 30.5, Moulton Tp., Ont.; and rescinding order 23,004, Dec. 19, 1914, in so far as it relieves companies from maintaining night signalman there, and also order 23,800, June 4, 1915.

30,985. May 9.—Authorizing Canadian National Rys. to construct its Eston Southeasterly Branch across highways between Secs. 30 and 19, and Secs. 18 and 7, Tp. 22, Range 16, west 3rd meridian, Sask.

30,986. May 7.—Authorizing Quebec Central Ry. to build across Le Bras Road and La Grande Ligne Road, St. Isidore Parish, Que.

30,987. May 9.—Authorizing C.P.R. to build spur for Imperial Oil Ltd., Trenton, Ont.

30,988. May 7.—Authorizing Canadian National Rys. to rebuild bridge over Shawinigan River, Flore Parish, Que., mile 86.69 from Quebec.

30,989. May 7.—Approving agreement, Apr. 22, 1921, between Bell Telephone Co. and East Luther Telephone Co., Dufferin County, Ont., and rescinding order 25,891, Feb. 15, 1917, ap-

proving agreement dated Feb. 6, 1917.

30,990. May 7.—Authorizing Canadian National Rys. to rebuild bridge over Metabetchouan River, Metabetchouan Tp., Que., at mile 181 from Quebec.

30,991. May 7.—Authorizing Canadian National Rys. to close interlocking plant on Sundays at crossing of Grand Trunk Pacific Ry. Melville-Regina Branch at Regina, Sask.

30,992. May 7.—Approving Canadian National Rys., Sec. 31 to Sec. 18, Tp. 22, Range 16, west 3rd meridian, mile 31.13 to 35.22, Sask.

30,993. May 7.—Relieving Canadian National Rys. from maintaining night signalman, and authorizing closing of tower on Sunday, at crossing of Grand Trunk Pacific Ry. Melville-Regina Branch over C.P.R. Bulyea Branch in n.w. ¼ Sec. 32, Tp. 17, Range 19, west 2nd meridian, Assiniboia District, Sask.

30,994. May 7.—Authorizing Canadian National Rys. to rebuild bridge over Belle River, Signai Tp., mile 191 from Quebec, Que.

30,995. May 6.—Ordering G.T.R. and C.P.R. to operate trains at Sunnyside station, Ont., at speed not exceeding 6 miles an hour: keep freshly painted safety lines on platform; and maintain officer in uniform on platform during hours passenger trains arrive and depart, whose duty will be to direct and protect passengers so as to minimize danger from congestion.

30,996. May 9.—Rescinding order 28,483, June 28, suspending cancellation of district rates between Weston and Islington, New Toronto; Dundas and Hamilton; Ridgeville-Welland and Marshville; Wellandport, and Smithville; and between Rockwood and Guelph, Ont.

30,997. May 10.—Authorizing Dominion Public Works Department to build international bridge jointly with the State of Maine over the St. John River between Edmundston, N.B., and Madawaskam, Me., across the Canadian National and Temiscouata Rys.

30,998. May 9.—Authorizing G.T.R. to build spur for Long Lumber Co., Hamilton, Ont.

30,999. May 9.—Relieving C.P.R. and Grand Trunk Pacific Ry. from maintaining signalman on Sundays and from 6 p.m. to 1 a.m. on week days at interlocking plant at crossing mile 118 from Regina.

31,000. May 10.—Authorizing C.P.R. to build extension to siding for Pembroke Lumber Co., Pembroke Tp., Ont.

31,001. May 10.—Authorizing C.P.R. to remove station agent at Victoria Mines, Ont.

31,002. May 10.—Authorizing Alberta Public Works Department to make highway crossing over Edmonton, Dunvegan & British Columbia Ry. in Sec. 12, Tp. 62, Range 27, west 2nd meridian.

31,003. May 9.—Authorizing Toronto Township, Ont., to make highway crossing over G.T.R. about center line of south half of Lot 7, Con. 2, south of Dundas St.

31,004. May 9.—Extending to July 1, 1922, time within which C.P.R. may build freight shed at Kingston, Ont.

31,005. May 9.—Approving additions to Regulations for Transportation by Express of Acids, Inflammables, Oxidizing Substances, etc., Supplement 1 to C.R.C. no. E.T. 694.

31,006. May 10.—Declaring protection at crossing by G.T.R. of St. Paul's Ave., Brantford, Ont., is satisfactory to the Board.

31,007. May 10.—Authorizing Etobicoke Tp., Ont., to make highway crossing over G.T.R. at Kingsbury Ave.

31,008. May 9.—Authorizing Canadian Northern Ontario Ry. to build spur for S. McCord, Toronto.

31,009. May 10.—Rescinding order 27,898, Nov. 2, 1918, re G.T.R. application to remove siding built for Ontario Government, in Hunter Tp.

31,010. May 9.—Extending to July 31, 1922, time within which Canadian Northern Ontario Ry. may install interlocking plant at junction with C.P.R. near Harrowsmith station.

31,011. May 10.—Authorizing Toronto Tp., Ont., to make highway crossing over G.T.R. in Lot 8, Con. 2, south of Dundas St.

31,012. May 10.—Rescinding order 21,903, May 29, 1914, approving agreement between Bell Telephone Co. and Alnwick Telephone Co.

31,013. May 10.—Approving Bell Telephone Co. agreement with Pine Grove Telephone Association.

31,014. May 11.—Approving location and details of G.T.R. new station at Glen Sandfield, Ont.

31,015. May 11.—Extending to Aug. 1, 1921, time within which Canadian National Rys. may build station at Birch Hills, Sask.

31,016. May 9.—Ordering C.P.R. to install, in addition to electric bell, a wigwag signal at Drummond St., Perth, Ont., 25% to be paid out of Railway Grade Crossing Fund, and remainder by company.

31,017. May 11.—Authorizing free transportation for Prime Minister of New South Wales, his wife, daughter and secretary.

31,018. May 11.—Approving Boston & Maine Rd. bylaw authorizing Vice President, Traffic, Assistant Freight Traffic Manager, General Passenger Agent, Chief of Tariff Bureau, and Car Accountant, to issue rules, regulations and tariffs of tolls.

31,019. May 11.—Authorizing London & Port Stanley Ry. to make highway crossing on Carlow Road, Ont.

31,020. May 12.—Declaring protection at first public crossing west of Beach Road, Ont., by G. T.R., is satisfactory to Board.

31,021. May 2.—Approving agreement between Bell Telephone Co. and Houghton, Bayham and Tilsonburg Telephone Association.

31,022. May 2.—Rescinding order 25,819, Jan. 23, 1917, approving agreement between Bell Telephone Co. and Norfolk & Tilsonburg Telephone Co.

31,023. May 3.—Extending to Sept. 30, time within which Canadian National Rys. may erect gates at crossing of C.P.R. at Bay Bridge Road, Belleville, Ont.

31,024. Maay 12.—Dismissing application of Tilbury West Tp., Ont., for approval of plans and specifications of the Dodson Drain, to be laid on Michigan Central Rd. lands.

31,025. May 13.—Extending to Aug. 29, time within which C.P.R. may build spur for Ruggles Motor Truck Co., London, Ont.

31,026. May 13.—Authorizing C.P.R. to make highway crossing on west boundary of District Lot 19, Group 1, New Westminster District, B.C.

31,027. May 12.—Authorizing C.P.R. to build spur for Knechtel & Sons and Peppler Brothers Co., Hanover, Ont.

31,028. May 12.—Amending order 30,701, May 4, re G.T.R. entering W. Upper's lands to remove trees obstructing view near Allanburg station, Ont.

31,029. May 13.—Ordering C.P.R. to remove its station at Pritchard, B.C., 100 ft. east of boundary of north and south highway.

31,030. May 16.—Authorizing C.P.R. to build siding for Toronto Asphalt Roofing Mfg., Mount Dennis, Ont.

31,031. May 16.—Ordering Canadian National Rys. within 60 days from date to install wigwag signal at crossing between Secs. 8 and 17, Tp. 21, Range 12, West 2nd meridian, Sask.

Telegraph, Telephone and Cable Matters.

The Manitoba Government estimates for this year provide for the installation of a wireless telegraph service for northern Manitoba.

F. Gallienne, Superintendent, Dominion Government Telegraph Lines on the north shore of the St. Lawrence, died at Seven Islands, Que., May 3, aged 73.

Ewan Cameron, who was for 50 years in charge of the Great North Western Telegraph Co.'s office at Brantford, Ont., died there May 13, aged 82. In his day he was one of the best telegraph operators, and was connected with the transmission of the first telephone message over a telegraph wire, which took place between Brantford and Paris, Ont., Andrew Graham Bell conducting the experiments.

The Yukon Legislature has decided to memoralize the Dominion Government extend the Yukon trunk road and the Dominion Government telegraph system to the Fort Norman oil fields, Mackenzie River district. This, it is claimed, is the shortest route, and the Government road system reaches to within 360 miles of Fort Norman. The completion of this section would give direct connection to the coast at Skagway.

George D. Perry, who has been appointed Vice President and General Manager, Canadian National Telegraphs, Toronto, was born at Whitby, Ont., Apr. 19, 1858. He commenced his business career in Nov. 1877 as clerk in the Standard Bank at Colborne, Ont., anr left there July 1879. From Feb. 1880 to Feb. 1881 he was cashier, Credit Valley Ry., Toronto; Feb. to Sept. 1881, bookkeeper, Dominion Telegraph Co., Toronto; Sept. 1881 to Dec. 1891, chief clerk and Travelling Auditor, Great North Western Telegraph Co., Toronto; Dec. 1891 to Sept. 1902, Secretary and Auditor, same company, Toronto; Oct. 1902 to March 1911, Secretary-Treasurer and Superintendent of Supplies, same company, Toronto; March 1911 to Dec. 1920, General Manager, same company, Toronto; Jan. to Apr. 1921, General Manager, Canadian National Telegraphs, Toronto, and from April, Vice President and General Manager, Canadian National Telegraphs and also Vice President, Great North Western Telegraph Co., Toronto.

Among the Express Companies.

The Canadian National Ex. Co. has opened offices at Zephyr, Ont., and Tichfield, Sask.

W. A. Perkins is reported to have been appointed agent, Canadian Ex. Co., Fredericton, N.B.

R. Fennell, agent, Dominion Ex. Co., Maple Creek, Sask., has been retired on pension, on account of ill health.

Canadian National Ex. Co. has opened offices at Hydro and Macdiarmid, Ont., and has closed its office at Cameron Falls, Ont. The name of Eaton, Sask., has been changed to Eatonia.

A. W. Gordon, who died at Winnipeg, recently, was a brother of W. M. Gordon, Superintendent, Western Division, Dominion Ex. Co. there. He was 55 years old, and was on the Dominion Ex. Co.'s staff for about 10 years.

Judgment was reserved, May 11, in the appeal to the Supreme Court of Canada, of Gold Seal Ltd., Calgary, Alta., against the decision of the Supreme Court of Alberta's Appellate Division, which held that an express company is not bound to accept shipments of intoxicating liquor either into or out of Alberta.

The Dominion Ex. Co. has arranged with the C.P.R. Passenger Department for foreign and domestic money orders and letters of credit, or travellers' cheques, to be placed with C.P.R. agents and representatives. They are now procurable at all C.P.R. hotels, on Great Lakes, British Columbia coast and Atlantic and Pacific Ocean steamships, and at all passenger offices in Canada and the U.S.

Frederick Gillespie, who has been appointed Claims Agent, Canadian National Express Co., Toronto, was born at Alliston, Ont., Aug. 21, 1894, and entered express service in 1909, since when he has been, to 1911, clerk, Canadian Northern Ex. Co., Toronto; 1911 to 1915, cashier, same company, Toronto; 1915 to 1920, chief clerk, same company, Toronto; 1920 to Apr. 12, 1921, chief clerk, Canadian National Ex. Co.

The Dominion Parliament has passed the Dominion Ex. Co.'s bill, amending its act of incorporation, and providing that it may convey goods, as well without, as within, the Dominion, and also increasing its capital stock from $2,000,000 to $5,000,000. While the bill was before the House of Commons railway committee, it was stated that, during 1920, the company lost $1,537,000 in operation, which could be attributed to increased wages, increased cost of material, etc. It was also stated that the company owed the C.P.R. a considerable amount, and that the C.P.R. would take up the new stock.

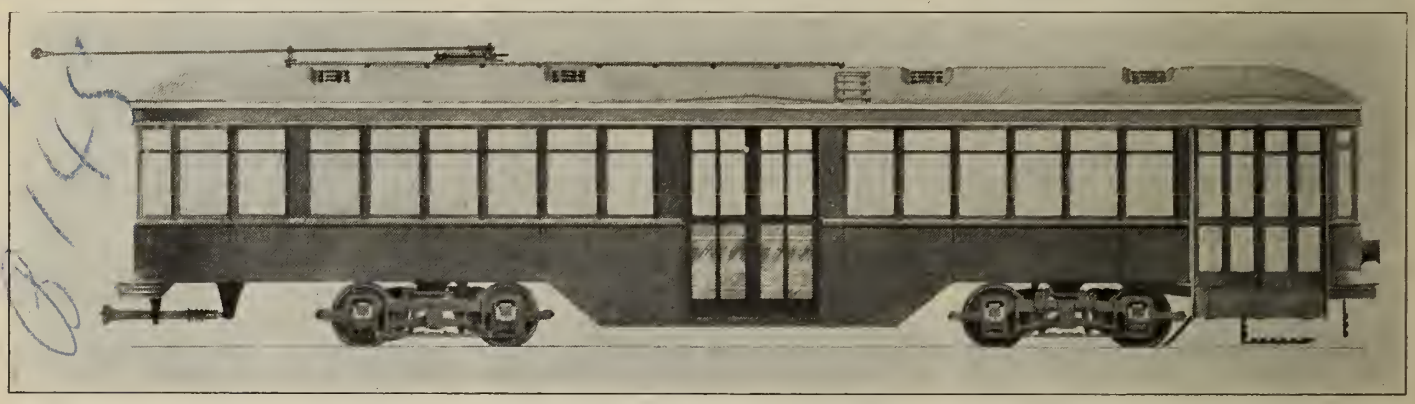
Victoria Bridge Automobile Tickets.—The G.T.R. announces that for the convenience of automobile owners, tickets for crossing Victoria Bridge, Montreal, can be bought either at Bonaventure station ticket office, or at the city ticket office, 230 St. James St.

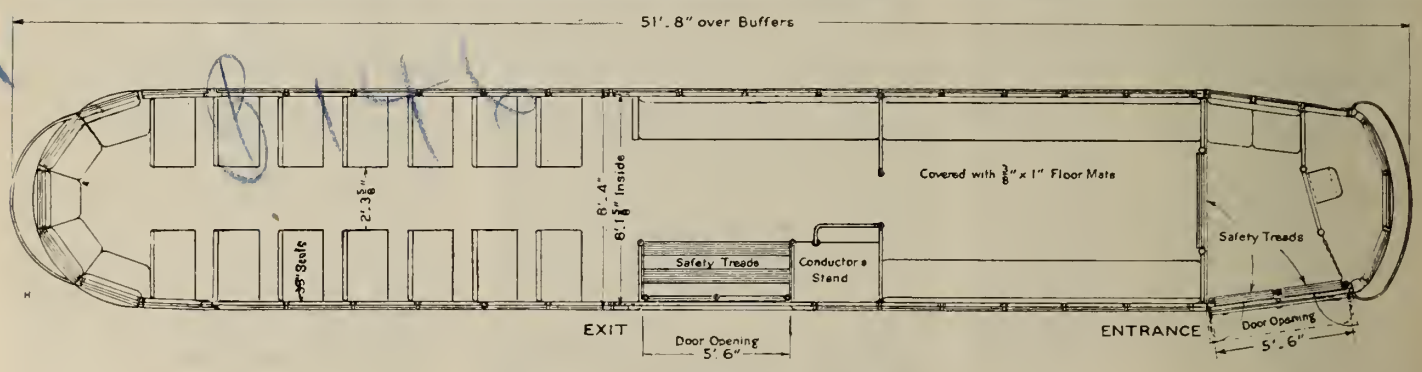
Electric Railway Department

Toronto Transportation Commission's Motor and Trailer Cars

As stated in Canadian Railway and Marine World for May, the Toronto Transportation Commission has ordered 100 motor cars and 60 trailer cars, perspective views and ground plans of which are given herewith. The cost of the car bodies and trucks, without motors, controllers and other equipment, will be about $1,270,000, and the average cost of the cars fully equipped will be between $17,000 and $18,000 each.

The total weight of the motor car will be 49,000 lb.; distance between truck centers 26 ft.; length over all 51 ft. 8 in.; width over all 8½ ft., and height, rail to trolley base, 11 ft. 4 in. The underframing, side and end framing, sheathing, carlines, etc., will be of steel con-





Motor Car, Toronto Transportation Commission.

struction. The roof will be of composite construction, of wood and canvas, the roof boards being of poplar. The plain arch will be used. Head-lining will be of ¼ in. agasote. The flooring will be built up of ⅞ in. transverse pine underflooring, with ⅝ in. longitudinal maple top flooring, with mat strips in the aisles.

These cars will involve a radical departure from the types now used in Toronto. The interior of the motor car will be divided into two compartments, the forward one being equipped with seats placed lengthwise along both sides of the car. In the rear section there will be a row of transverse seats along both sides of the center aisle, with a circular bench seat around the rear of the car. Instead of entering the car at the rear, as is the present practice in Toronto, passengers will enter the car at the front door. Instead of the car being of the pay-as-you-enter type, the conductor will be stationed at the center of the car, near the side doors, and the passenger will pay his fare while leaving the front portion of the car, or while passing from the front to the back section. The front doors will be sufficiently wide to permit two passengers to enter abreast, which will permit a large number of passengers to embark in a short time. The interior finish of the car will be birch, stained to resemble cherry, and the seats will be of the wood slat type, as being the most sanitary. Exit from both the front and rear sections of the car will be by side doors. Both the entry and exit doors will be electro-pneumatically interlocked with the control apparatus, so that power to move the car will not be available until the passengers are all off, or on, and the doors closed. The normal seating capacity of the motor car will be 57 persons. The front portion of the car is designed for use by passengers making a comparatively short trip, while the rear portion, with the transverse seats, is intended for passengers making a longer journey. Inspection of the illustration will show a large window area, to provide a well lighted interior. The cars will not be equipped with window shades. The door frames and window sashes will be of the same material as the other interior woodwork, viz., birch stained in cherry. Interior lighting will be supplied by fifteen 36-watt tungsten lamps in the body of the car, equipped with opal reflectors.

The cars will be of the 4-motor type, an inside-hung motor geared to each axle. Three types of motor will be used on the different cars, viz.: Canadian General Electric type 241-B, 55 h.p.; Canadian Westinghouse 533-T-4, of 50 h.p., and Dick-Kerr type 83, of 56 h.p., all 600 volt. The control will be Canadian General Electric K-35 with the C.G.E. type 241-B, 55 h.p. and Canadian Westinghouse 533-T-4, 50 h.p. motors, and Canadian General Electric Q2-D with Dick-Kerr motors. The airbrakes will be of Canadian Westinghouse semi-automatic type, with compressor on car. Hand brakes will also be provided. The gearing for the motors will be of the helical type. Heating will be supplied by a coal burning stove, and ducts through which the heated air will be forced by motor driven fan. Sleeve armature bearings will be used. The cars will be equipped with anti-climber bumpers and Consolidated car signal system, Tomlinson couplers, H.B. fenders and wheel guards, and National Pneumatic Co. door operating mechanism. Three different types of lightning arrestor will be used on the different cars,—Westinghouse, Dick-Kerr, and C.G.E. The cars will be equipped with air sanders, slack adjusters, lead filled stop treads, and U.S. 13-D trolley base, and trolley wheels and catchers will be used. A special feature will be a signal light on the front of the car, in addition to the headlight, which will light up automatically as soon as the doors close and the car is ready to proceed, thus conveying information to traffic policemen and others. At the rear will be two signal lights, one showing red, when the car is stopped, or when the power is shut off to make a stop, and the other showing green when the car is moving, or when the power is turned on and the car is about to move.

The trucks, with a wheel base of 5 ft. 10 in., will be of the arch bar type. The motor cars are to be equipped with

roller side bearings. Axles are to be to A.E.R.A. specifications. Journals will be of 3¾ x 7 in., and the wheels, of cast iron, will be 30 in. diam.

Trailers.—The general design of the trailer car is shown in the illustration. They will weigh 28,000 lb. each complete, will be 26 ft. between truck centers, 49 ft. long over all, 8½ ft. wide over all, and 10 ft. 6¾ in. high from rail to highest point of roof. They will be of steel construction, with underframing, and side and end framing, substantially similar to that of the motor car, and also having the plain arch type roof. Like the motor cars, the interior finish of the trailers is to be of birch, stained in cherry, while roof and floor construction are along similar lines.

The trailer cars will differ from the motor cars in method of operation, in that entrance to, and exit from, the trailers will both be by the side doors. The entry side door will open into the forward section. The fare will be paid while passing from the front to the back section, or while leaving the car. The seating arrangement in both sections of the trailer will be similar to that in the corresponding sections of the motor car. The seating capacity of the trailer will be 61 persons.

The trailer trucks will be of the same design as those of the motor cars, but the wheel base will be considerably shorter, being only 4 ft. 2 in. The same size journal, 3¾ in. x 7 in., will be used. The cast iron wheels will be smaller than those of the motor car, being only 22 in. diam. Westinghouse air brakes will be used on the trailer, but it will not be equipped with a compressor, the compressor on the motor car supplying both cars when the two are operated together. The trailer will be heated in the same manner as the motor car, and will be equipped with the following specialties: Anti-climber bumpers, Consolidated car signal system, bronze interior trimmings, roller side bearings, National pneumatic door operating mechanism, hand brakes, American E-1 slack adjuster, lead filled step treads, and Tomlinson couplers.

The order for the cars was given by the Toronto Transportation Commission to Canadian Car & Foundry Co. on April 27, and deliveries are to commence in August. As pointed out in our last issue, the rush hour transportation problem in Toronto is a serious one, and the new cars, with their larger capacity, designed to permit quick pick-up and discharge of passengers, and ample power to permit of quick acceleration, should aid materially in solving the city's transportation problems.

British Columbia Electric Railway and the Rule of the Road.

A settlement has been arrived at between the B.C. Government and the B.C. Electric Ry. as to the amount to be paid by the Government towards the cost of altering the company's railways lines, cars, etc., to conform to the change in the rule of the road to the right hand side. The Legislature authorized the payment of one half of the cost, the amount to be paid not to exceed $400,000. As the result of negotiations the amount which the Government will pay is reported to have been fixed at $350,000, and the agreement is said to contain a provision that if the total cost of the work is less than $700,000 there will be a corresponding rebate to the Government. The company's officials estimate that the work will cost approximately $1,000,000.

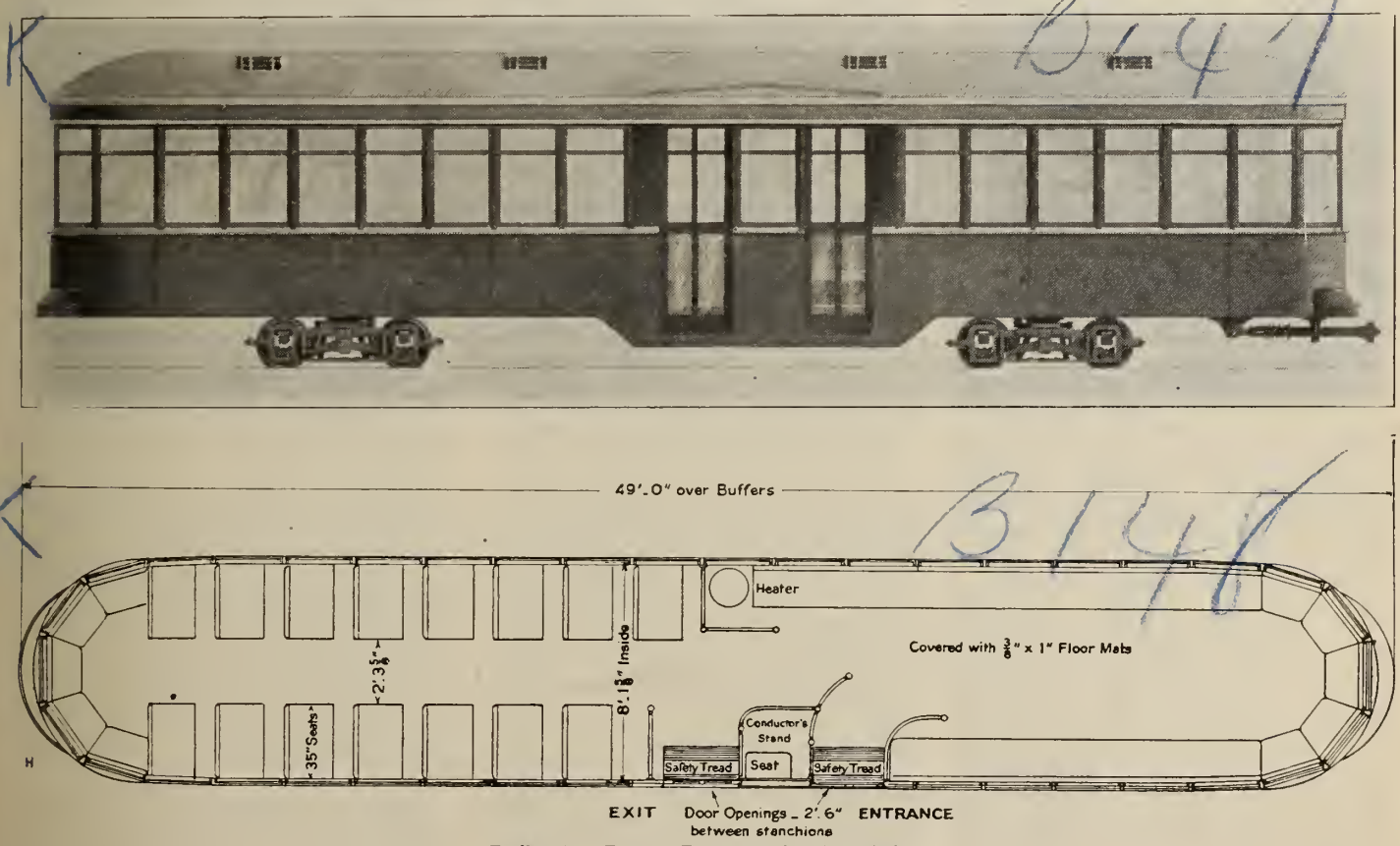
We are officially advised that the company will start immediately to take out one side of the car platforms in Vancouver, New Westminster and North Vancouver. Special steel will be required for intersections, and all electric switches and points will have to be changed. The company has some 33 cross-overs on the mainland lines which must be changed. The company does not expect to give a car service in Vancouver for several days immediately after the change is made and for some months afterwards the cars will be undergoing alterations and finishing work. It is probable that the change will be made on the mainland before Vancouver Island, owing to mechanical difficulties involved. On the company's interurban lines no changes will be necessary in rolling stock, but the stations, in many cases, must be removed to new locations.

Ontario Highway Travel Act.

The Ontario Highway Travel Act, R. S.O. 1014, chap. 206, provides in sec. 9 as follows:—"Where a person, travelling upon a bicycle or tricycle, in a northerly or westerly direction, upon the central strip between the double tracks of a surface railway, meets another person on a bicycle or tricycle travelling in an opposite direction, he shall turn out to the right, allowing such other person the whole of the central strip."

The Minister of Public Works introduced a bill at the current session to amend the above section by adding thereto the words "except where a safety zone has been authorized by the municipal council and is defined on the street."

On the order of the day for the second reading the bill was withdrawn.



Trailer Car, Toronto Transportation Commission.

Yarmouth Street Ry. Co. Limited. — The Nova Scotia Registrar of Joint Stock Companies has announced that at the company's request its certificate of registration under the Domestic, Dominion and Foreign Corporations Act 1912, has been revoked.

The British Columbia Electric Railway Co.'s Proposed New Franchise.

Following upon the agreement between the B.C.E.R. Co. and the municipalities within which it operates, which preceded the withdrawal recently of the company's application to the Dominion Parliament for an amendment to the Vancouver, Fraser Valley & Southern Ry. Co.'s charter to provide for amalgamating the company's undertakings under that title and so bringing them under the Board of Railway Commissioners' jurisdiction, negotiations were opened between the company and Vancouver City Council, with a view of arriving at a new agreement. The terms under which the company is operating on the mainland expire July 1, 1922, and six months was allowed for arranging the terms of a new charter. After several meetings between representatives of the company and the city council, a tentative agreement was reported to have been arrived at on May 4. This agreement covers the company's gas, electric light and power business as well as its electric railway lines. The following are reported to be the principal terms of the agreement referring to the electric railways.

The company is to be allowed to earn 6% on capital actually and necessarily invested up to Jan. 1, 1921, and 8% on capital invested after that date, the sum already invested to be ascertained by Price, Waterhouse & Co., chartered accountants. The fares to be charged are not to exceed 7c. cash, or 4 tickets for 25c., and 10 children's tickets for 25c., with free transfers. Until the accountants have fixed the capital value of the properties and decided upon the rates to be charged, the company is to continue to charge the existing fares. The accountants' report must be completed within six months from June 30. The rates so fixed are to remain in operation for three years and are then to be subject to revision and again every three years thereafter. At the revision periods, if the company is found to be earning more than the percentages allowed, the surplus is to be divided, one half going to the company as a reward for efficient management, and the other half to be appropriated to the reduction of fares during the next period. The rate of interest to be earned is to be subject to revision at the end of six years from June 1921, and every three years thereafter, provided that the rate shall not be more than the company may be actually paying, nor less than 6%, nor more than 8%. The city to have the right to buy out the company at the expiration of each three year period, on giving a year notice of its intention so to do. The company agrees to give a continuous service under a penalty of $1,000 a day, unless such default is due to causes beyond its control. Disputes with employes are to be submitted to arbitration and the company agrees to abide by the awards. All differences between the city and the company under the agreement are to be submitted to arbitration. An arbitration board is to be appointed, after the accountants' findings are made, to decide what fares shall be charged in areas outside the city. The company agrees that during the lifetime of the agreement it will not take any steps to have itself placed under the Board of Railway Commissioners, or any other Dominion or provincial jurisdiction.

George Kidd, General Manager, is reported to have stated May 5, that the benefits of the new agreement will be extended to the surrounding municipalities. The company started with Vancouver, because it is the largest of the contracting parties and it is easier to negotiate with one party than with several. It is intended to offer all the benefits of the agreement to all the other interested municipalities. T. Blundell Brown, of London, Eng., one of the directors, was in Vancouver while the negotiations were in progress, and is reported to have stated that the company can now go ahead and raise the capital necessary for extensions and betterments.

Representatives of public and semi-public organizations of Vancouver met there, May 8, in connection with the proposed new agreement. The City's Counsel and Comptroller explained the proposal, and answered questions in regard to it. W. H. Gallagher, of the Central Ratepayer's Association, is reported to have said that the agreement should be dropped altogether, and the company be allowed to go under the Board of Railway Commissioners' jurisdiction. Another meeting has been called for more general discussion of the agreement.

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

Remodelled Car, Hull Electric Co. — The Hull Electric Co. has had one of its older single truck cars, no. 46, remodelled, and equipped with complete safety appliances, by Ottawa Car Manufacturing Co. The car was originally 31 ft. long over bumpers, and 7 ft. 3 in. wide, 21E truck, 2 Westinghouse 101B 40 h.p. motors 2 K10 controllers, hand brakes, manual sanders, double end operation, weight 22,000 lb. The remodelled car is 31½ ft. long over bumpers, 7¾ ft. wide, and is equipped for single end operation, with 1 K10 controller, hand and air brakes, air sanders, complete new underframing, reinforced with teel plates, and weighs 22,500 lb. Its number has been changed to 48.

Board of Conciliation, Niagara, St. Catharines & Toronto Ry.

On application by Niagara, St. Catharines & Toronto Ry. employes, the Minister of Labor has appointed a board of conciliation consisting of, G. D. Kelley, barrister, Ottawa, representing the company; and Jos. Gibbons, a Toronto controller, representing the men. D. Dick, Jr., of Welland, Ont., is chairman. The cases submitted to the board are as follows:—

Conductor Bauer and motorman Lampman, comprising the crew of a regular passenger train, from Niagara Falls to St. Catharines, left Thorold on Oct. 2, 1920, without, it is alleged, having a proper clearance, and met an opposing passenger train, resulting in injuries to 18 passengers. The men were dismissed, and the union has asked for their reinstatement, with pay from time of dismissal.

Conductor Phillips was charged with using obscene and profane language to a passenger. The circumstances were thoroughly investigated, and the management found that even provocation was absent. The conductor was dismissed, and the union has asked for his reinstatement, with pay from date of dismissal.

Conductor Bowman was suspended five days for over-running train orders. The union has asked that he be paid for time under suspension.

Conductor Worley entered the service Aug. 11, 1918. The union wants him dropped to the foot of the list as of Aug. 11, 1920.

Conductor Wilson was suspended for not putting in accident reports. The union asked for his pay while suspended, but the case has been withdrawn by the conductor.

Conductor Hannah was removed from the cars on a charge of defrauding the company. He admitted his guilt and no restitution having been made, and as prosecution is still pending, the management withheld money due him, between $5 and $6. The union has demanded that this be paid him.

It is evident from the above that the most important question involved is whether the company's management is to be left with the officials, or whether it is to be handed over to the employes.

Municipal Councillors Disqualified from Electric Railway Management.—The Ontario Legislature has passed an act adding to sec. 53 of the Municipal Act, which deals with the disqualification of persons as members of a council, a subsection which disqualifies a person who is a member of a board or commission appointed or elected for the construction, management or control of an electric railway, owned, leased or controlled by a municipal corporation, or by any trustee, board or commission on behalf of such corporation. This disqualification is to operate notwithstanding the provision of any general or special act, or any bylaw of a municipal corporation.

Strapholding and Righteousness. — Thos. Adams, Town Planning Adviser, Dominion Conservation Commission, told a Toronto audience why the city is called "Toronto the good," the reason being the spirit of supplication which has seized the people through holding their hands up to Heaven when hanging on to the straps in the street cars.

Changes in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry.—See under "The B.C.E.R. Co.'s Proposed New Franchise" on another page of this issue.

Nipissing Central Ry. — Members of the Board of Railway Commissioners sat at Haileybury, Ont., May 13, to hear the Timiskaming & Northern Ontario Railway Commission's application for authority to put in operation the increased fares, which were detailed in Canadian Railway and Marine World for May, pg. 266. Residents of Haileybury, Liskeard, Cobalt and North Cobalt opposed the application.

Peterborough Radial Ry., owned by the Ontario Government, and operated by the Hydro Electric Power Commission of Ontario, started a Sunday service on May 1, from 9 a.m. to 11 p.m., the fare being 10c. No change has been made in the week day fares, as given in Canadian Railway and Marine World, for January, pg. 33.

Windsor, Essex & Lake Shore Rapid Ry.—A. Eastman, Vice President and General Manager, issued a circular to the company's patrons recently, announcing an increased service to be put in operation on May 1, and also an increase in passenger fares as follows:—

One way from from 2.5c. a mile to 2.75c. a mile.
Round trip fare from 2.25c. a mile to 2.47c. a mile.
School books from 1c. a mile to 1.30c. a mile.
Monthly commutation books from .81c. a mile to 1c. a mile;
5c. coupons, from 1.75c. a mile to 2.16c. a mile.

In commenting on these changes, Mr. Eastman said:—"This increase ranges from 10% on the one way fare to 30% on school books, or an average of about 15% based on the average class of transportation presented and used. In putting this increase in effect, we feel the public are entitled to know why this advance is necessary in view of the fact that costs are supposed to be on the decline. Our gross receipts for 1920 were the largest in the road's operation, while our net earnings did not equal those of 1913, 1914 or 1916, and were only sufficient to meet our operating charges, and a part of our interest on investment.

"No advance in passenger fares has been made by the company since 1910, with the exception of some slight adjustment. The general public are conversant with the fact that even with substantial advances allowed both steam railways and interurban electric railways in both Canada and the United States, heavy deficits are piling up, and the problem is a serious one. This is clearly shown by the report of the Railways Department covering the operation of Government owned railways for 1920.

"Only that we have enjoyed a splendid patronage and that operating expenses have been kept down to the lowest possible point consistent with safety, this company would not have been able to continue operation during the past three years at the old rate of fare. At present we are faced with an additional financial obligation of $88,000, invested for additional equipment. We will also be obliged to meet heavy expenditures in connection with additional terminal facilities and paving in some municipalities. We have reached the limit of our borrowing capacity and from now on we will be compelled to meet the above mentioned financial obligations from earnings.

"A few outstanding facts may be of interest. In 1910, our operating costs were $77,000.00, in 1920 they had increased to $216,606.73, without any allowance being made for interest on investment, or depreciation. The average earning per passenger being about 25c., it required an increase in traffic of about 300% to break even with 1910. In 1912, we bought two passenger cars at a cost of $18,000 each. Today's quotation for practically the same car is $62,000 each. In 1910, our fuel bill was $6,891.81; while in 1920 it reached $48,285.47. The pay roll for 1910 was $35,914.82; in 1920 it was $104,483.42. From the above figures it can be easily seen just what use has been made of the earnings from the increased travel we have enjoyed.

"Developments in the territory through which we operate demand an increased service and we will make every effort to meet this demand. The interest of these municipalities and our company are mutual and are closely allied, and co-operation can and will result to the mutual benefit of both. We are asking you for an increased fare. We will try and furnish an increased service. We believe the public are willing to pay for what they get by way of service and we propose to meet the growing demand in this respect. One additional overhauled passenger car will be ready for service in a few days, and two more will be put into service as soon as they can be put through our shops. With three additional passenger cars, we feel we can furnish a satisfactory service."

Investigation and Valuation of Chatham, Wallaceburg & Lake Erie Railway.

The Ontario Government passed an order in council recently under the provisions of the Hydro Electric Railway Act, 1914, authorizing the Hydro Electric Power Commission of Ontario to investigate and report upon the matter of acquiring the Chatham, Wallaceburg & Lake Erie Ry., with a view to its operation as a hydro electric railway, as asked for by the City of Chatham, the Town of Wallaceburg, Erie Beach village and Chatham, Dover, Harwich, and Raleigh townships. Members of the Commission's staff are reported to have arrived at Chatham, April 27, and to have started valuing the property.

The Chatham, Wallaceburg & Lake Erie Ry., which for some years has been one of Sir Wm. Mackenzie's enterprises, extends from Erie Beach, on Lake Erie, to Wallaceburg, Ont., with a branch from Paincourt Jct. to Paincourt, a total of 40.77 miles. The power station and car repair shops are at Chatham, about half way between the terminal points. For some time past the line has been operated by Hydro Electric Power Commission of Ontario's power. The company has 8 motor passenger cars, 2 trailer cars, 80 freight cars, 1 other car, and 2 electric locomotives.

For the year ended June 30, 1919, the gross earnings were $184,470, and operating expenses were $152,971, leaving a net income from operation of $31,499. Taxes and interest on funded debt were $42,563, leaving a loss on the year's operations of $11,064. The company carried during the year 239,320 fare passengers and 111,562 tons of freight, its cars running 460,000 miles.

The officers and officials are:—President, R. G. O. Thompson; Vice President, J. D. Morton; Secretary, H. S. Gasby; Auditor, J. A. Hogg, all of Toronto; Assistant to President, R. Keemle; General Superintendent, W. J. Curle; Accountant, R. C. Bissett; Freight Claims Agent, C. F. Waugh, all of Chatham, Ont.

Electric Railway Statistics for Calendar Year 1919.

The Statistics Act, and the Railway Act, 1919, changed the reporting year for railways from the year ending June 30, to the calendar year. Electric railway operating statistics for the year ended June 30, 1919, were given in Canadian Railway and Marine World for March on pages 156 and 157 and for April on pg. 212. The Dominion Bureau of Statistics, which is now preparing its report for the calendar year 1919, has issued the following summary of its principal items, with comparisons for the year ended June 30, 1919, as follows:—

Single track mileage, 1,687, a decrease of 10 miles. Total mileage of all tracks 2,400 miles; no change.

Capital stocks outstanding, $91,757,-418; funded debt, $81,283,922; total, $173,041,340, a decrease of $1,284,950 in stocks. This was due to the removal of $2,000,000 of stock of the London & Lake Erie Ry., which has ceased operation, and the tracks have been taken up. The funded debt increased $2,431,734.

Gross earnings from operation		$40,698.586
Including passenger earnings		37,547,456
and freight earnings		2,259,585
This was an increase over gross earnings of June 30, 1919 report of		5,002,054
Operating expenses—		
Maintenance of way and structures		$3,470,306
Maintenance of way and structures		3,470,306
Maintenance of equipment		4,717,614
Operation of power plant		4,682,297
Operation of cars		13,806,108
General and miscellaneous		4,709,377
Total		$31,385,702
This was an increase of		4,546.631
Income account—		
Gross earnings from operation	$40,698,586	
Operating expenses	31,385,702	
Net operation revenue		9,312,884
Miscellaneous income		2,921,097
Total income		12,233,981
Deductions—		
Taxes	$2,590,134	
Interest, funded debt	4,043,551	
Interest, floating debt	936,177	
Other deductions	960,053	
Total deductions		8,529,915
Net income		$3,704,066
Reserves, etc.	$1,810,797	
Dividends	2,684,729	
		4,495,526
Total corporate deficit		$971,460

This was an increase of $455,422 in net operating revenue and a decrease of $645,632 in corporate deficit.

Wages were	$20,211,576
An increase of	3,000,725
Number of employes was	16,940
A decrease of	302

The fare passengers carried were 749,334,380, an increase of 63,210,117, or over 9%. The passenger receipts give an average of 5.01c. per passenger, against 4.78c. for year ended June 30, 1919, and 4.50c. for year ended June 30, 1918. This does not include transfer passengers, but includes passengers on the interurban lines.

Ninety-one persons were killed by accidents and 4,173 injured, against 94 and 3,511 for year ended June 30, 1919.

Brantford, Ont., City Council is reported to have asked the Brantford Street Railway Commission to cease running one-man cars over level crossings of steam railways which are not guarded by a watchman.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—A press report states that plans are practically completed for the extensions proposed to be made this year of lines serving Mohawk Park, West Mill St., West Oxford St., Holmesdale and Terrace Hill, and Eagle Place, the estimated cost of which is $79,852. The city council has authorized the issue of $80,000 of debentures. (May, pg. 268.)

British Columbia Electric Ry.—We are officially advised that matters in connection with the change of the rule of the road in B.C. have been finally settled as between the company and the B.C. Government, and that work will be taken in hand shortly in regard to the changing of switches, cars, etc. A conference between members of the Government and George Kidd, General Manager, W. G. Murrin, Assistsant General Manager, and A. T. Goward, Local Manager, Victoria, was held at Victoria, May 1, at which the whole matter was discussed. The work to be done will consist of changing the points of all switches, changing overhead wiring, and changing the fronts and ends of the cars. (May, pg. 268.)

The Grand River Ry. on May 1 began using its new line, on private right of way, in Kitchener, Ont., to Queen St. south, near Mill St., where a temporary station has been built. Previously the company had been using a line along King St., which has been abandoned and sold to the Kitchener & Waterloo St. Ry. The length of the new track is 1.742 miles, and the length of track abandoned is 0.935 mile. (Feb., pg. 92.)

Hamilton St. Ry.—A press report says that at a conference on May 17 between the Hamilton City Council's street railway committee and Hamilton St. Ry. officials, E. P. Coleman, General Manager, stated that the matter of laying new tracks on York St. rested with the directors. Members of the committee are reported to have asked for the laying of new tracks on King St., and some other lines. The city council is holding the question of the paving of York St. in abeyance until the company has settled about the track laying. (April, pg. 213.)

Kitchener & Waterloo St. Ry.—We are officially advised that the Kitchener, Ont., Light Commissioners, who operate the K. & W.S.Ry., have acquired from the Grand River Ry. Co. its abandoned line on King St., from the city limits to Water St., and installed a Y for turning cars at Maple Lane, 406 ft. east of the city limits. The K. & W.S.Ry. cars now make connection with the G.R.Ry. cars at this point, and it is probable that a joint waiting room will be built there. A 10 minute service is being given over this extension, which is about a mile from the Albert St. car barns, to which point the K. & W.S.Ry. operated up to May 1. (March 1920, pg. 145.)

London & Port Stanley Ry.—The Ontario Legislature has passed an act respecting the City of London, which provides, among other things, that the city council may, without the ratepayers' assent, issue $275,000 30-year debentures, at not over 6% interest, to pay for an electric locomotive, steam shovels, rails, car barn, freight shed and passenger station extension, road crossings, platforms and shelters, overhead bridge at St. Thomas, coal ferry slip and scales, and other works on the L. & P.S. Ry. (May, pg. 268.)

Montreal Tramways Co.—J. S. Archibald, of the Montreal Tramways Commission, is reported to have suggested a plan for the improvement of the company's lines terminating at Place d'Armes, The Square, to have waiting rooms on the east and west sides, connected by shelters; each waiting room to be the length of two cars, and passengers to pay their fares on entering.

The building of a line from Atlantic Ave. up Bremner St. to Ball St. has been under the Tramways Commission's consideration, and it is said that a single track line will be built during the summer. The contract with the city calls for a double track line, but the Board of Railway Commissioners would only authorize the building of a single track across the level crossings near the C.P.R. Outremont yards, and would only permit empty cars to be over the crossing. The Tramways Commission, under the circumstances, will only order a single track line, and operate it as a stub line.

The Tramways Commission and company officers went over the system on May 9, to inspect track alterations completed recently, work in progress, and work contemplated. The season's work was started at the end of April, and is expected to be completed by Nov. 1. It is said to involve the expenditure of from $1,500,000 to $2,000,000, and the employment of some 1,500 men. The work in hand, or contemplated, includes the extension of a number of tracks, which will add about 15 miles to the lines; the laying of about 1,000 tons of new rails, and the putting in of about 60,000 new ties. The extensions to be made are on the Park Avenue and Bordeaux Avenue, Kelly St., and Sherbrooke St. lines, and the other work completed, in hand or contemplated is on the following lines:—St. Lawrence St., from Mount Royal to Bernard; the intersection of Notre Dame and Craig; intersection of St. Catherine and Marlborough; intersection of St. Denis and St. Catherine; St. Catherine from St. Lawrence to Green; St. Catherine from Glen to Victoria; Ontario from St. Lawrence to Frontenac; St. Denis St. from Decarie to Isabeau.

The Tramways Commission has decided to delay until May 1922 the following works authorized in the contract between the city and the company in 1918:—Laying of second track on Kelley St.; building of track from the De Fleurmont line eastward, and laying of a second track on the Iberville Masson line. (May, pg. 268.)

New Brunswick Power Co. — At a meeting of the St. John, N.B., City Council, May 9, Commissioner Thornton recommended that the city pave Douglas Ave., and tear up the rails and posts carrying the New Brunswick Power Co.'s overhead work if the company refuses to comply with its alleged agreement to lay grooved rails. At another meeting, May 11, the city's road engineer reported that the city has the right to remove the rails and tie on the Avenue, to lay down a base and surface, and that when the company has to restore the tracks the council could prohibit the laying of the old rails and ties, on the ground that the material is a menace to public safety. The Mayor is reported to have advised the council that an arrangement was likely to be effected as to the purchase of new rails required for the work. (May, pg. 268.)

Ottawa Electric Ry.—We are officially advised that the company proposes to renew about two miles of double track during this year, and has ordered 200 tons of steel rails in the United States. (April, pg. 213.)

Regina Municipal Ry.—D. W. Houston, Superintendent, is reported to have informed the Regina, Sask., City Council recently that he intended to recommend that when the existing Y's give out at the ends of the lines, loops be installed instead. (Aug., 1920, pg. 450.)

Saskatoon Municipal Ry.—Tenders are reported to be under consideration for the supply of approximately 5,000 ties for replacement on this line. (Feb., pg. 92.)

Toronto Civic Ry.—The Ontario Legislature has authorized the city council to issue debentures, without submitting bylaws to the ratepayers, for the following works:—Building street railway, Prince Edward viaduct, from Sherbourne St. to Broadview Ave., $185,000; installation of insulated negative feeder cable, Danforth Ave. line, to prevent electrolysis, $31,350. (Jan., pg. 36.)

Freight Traffic in Montreal. — The Montreal Administration Commission and the Montreal Tramways Co. are reported to have agreed upon the operation of freight traffic. The new regulations provide that no delivery be made in the streets after 5 p.m., that no cars stop on the streets between 5 p.m. and midnight, and that from Nov. 1 to April 1, no delivery shall be made after 4 p.m.; that the chief of police be informed when freight is to be delivered in the streets; that, unless precautions are taken, no freight liable to damage the pavements shall be delivered; that no freight be delivered to consignees who neglect to remove it promptly; that the city on giving 12 hours notice may prevent the delivery of freight on any street; that 5c. a ton be paid by consignees, not doing work for the city in compensation for the cleaning and upkeep necessitated by the unloading of freight on the pavements, this 5c. a ton not to be collected on materials required for municipal works; and that the city may prevent permanently the carrying of freight by giving the company notice on or before any Oct. 1, the notice to take effect on Jan. 1 following.

London & Lake Erie Ry. and Transportation Co.'s Liquidation.—The Dominion Parliament has passed an act authorizing the company to sell its right of way and other property of all kinds, in block or in parcels, subject to the consent of the Fidelity Trust Co. of Toronto, trustee for the bondholders, and the approval of two thirds in value of the stockholders. The company, in winding up its affairs, has already sold the steel rails lifted from the track, the overhead work, and some other property. A recent press report states that a portion of the old right of way may be acquired by the Ontario Government to widen the highway between Lambeth and Talbotville.

Electric Railway Employes' Wages, Working Conditions, Etc.

Cape Breton Electric Co.—Notice of a reduction in salaries and wages of from 8 to 10% to affect all grades of employes was announced April 30, to take effect May 1. The reason given by C. C. Curtis, Manager, for the reduction, is decreasing business owing to the industrial depression. A press report states that the men accepted the reduction. The existing fares on the company's lines will not be affected by the reduction in wages, as it is stated that owing to the decreased patronage of the cars the company is barely able to make ends meet.

Detroit United Ry.—A Detroit, Mich., press dispatch of May 7 said that 80% of the car men employed by the D.U.R., in Detroit, Port Huron, Flint, Ann Arbor, Pontiac and Mount Clemens, had voted to accept a wage reduction, and that the new scale, effective May 18, would be 55, 58 and 60c. an hour, against 70, 73 and 75c. under the old scale.

Montreal Tramways Co.'s employes are reported to have been advised that the company will not renew the present agreement as to wages, etc., which expires June 30. The employes met subsequently and are reported to have expressed a desire to work under a contract including the conditions embodied in the present agreement, and a committee was appointed to communicate the decision to the management. It was stated May 14 that the men's representatives had decided not to wait on the company's officers on that date, as had been arranged.

The New Brunswick Power Co. is reported to have notified its employes that it will not renew the agreement as to wages, etc., which expires June 14, and that it will insist on a reduction.

The Winnipeg Electric Ry. has signed an agreement with its motormen and conductors for the next twelve months, giving conductors and motormen the same wages and working conditions as prevailed under the previous agreement. The 1920 agreement was made between the company and the Street Railway Men's Union, this union being an independent organization, with no affiliation with the Internationals or any other body. Since the agreement was signed, May 1, 1920, the trainmen joined the One Big Union, a political organization with revolutionary tendencies, and which was directly responsible for the six weeks strike in Winnipeg in 1919. When the expiry of the 1920 agreement was near, the Street Railway Men's Unit of the O.B.U. demanded that the company sign its new agreement with them as representing the O.B.U., thus giving recognition to this body. This the management positively refused to do, and declined to negotiate with the O.B.U. at all. The company said it was prepared to negotiate an agreement with a committee of the men, but that if the men insisted on recognition of the O.B.U. the company would go to arbitration and open up the whole agreement as to wages and working conditions. After several mass meetings the demand for recognition of the O.B.U. was withdrawn, the men appointed a committee to represent them, and an agreement was signed on May 9 between the company and motormen and conductors of Winnipeg Electric Ry. Co., as represented by a committee executing this agreement. In all its agreements so far executed with its employes the company has agreed to maintain the same rate of wages as prevailed last year, and all agreements contain the following: "If at any time during the currency of this agreement, by any reason of something beyond its control, the company is deprived of any considerable portion of its revenues, and is thereby rendered unable to pay the wages herein agreed to, the company shall be at liberty to give 30 days notice to terminate this agreement, in so far as it affects the rates of wages.

The conductors and motormen's wages under the old agreement, which has been continued, are as follows per hour:—First six months 50c, second six months 53c., second year 57c., after second year 60c. Sunday work, 5c. an hour extra. Overtime paid for as time and a half.

Mainly About Electric Railway People.

Sir George Garneau attended a sitting of the Quebec Public Service Commission, April 26, to say farewell to his former colleagues and the members of the staff. A. W. McAllister, who succeeds Sir George, assumed office April 27.

Major Paul A. Lazenby, who was appointed Engineer, Toronto Transportation Commission, recently, was born in Lancashire, Eng., Aug. 6, 1880. He graduated in arts from Glasgow University in 1900, and subsequently took a course in civil engineering at the Massachusetts Institute of Technology, graduating in 1904. Later he spent about four years in general engineering and construction work, Chicago, Burlington & Quincy Ry., in charge of grade separation in the Chicago district, and subsequently entered Grand Trunk Pacific Ry. service at Winnipeg, where he had charge of construction at various points for about two years. He was then Assistant Engineer on construction of the Point du Bois hydro electric plant for the City of Winnipeg, and later returned to Chicago, Burlington & Quincy Ry. service. In 1910 he was engaged on valuation work for the New York Central Rd., and in 1911 was Assistant Engineer, with the Chicago Planning Commission, engaged on the preparation of a city plan, in the course of which he made a study of the various transportation problems there. He resigned this position in 1915 on becoming Principal Assistant Engineer for the Toronto Civic Transportation Commission, and on the outbreak of war he enlisted with the 2nd Canadian Pioneers and served until the signing of the armistice at the end of 1918. On returning from overseas he engaged in private practice in New York City until his present appointment.

Col. C. W. McLean, Member of the British Parliament for Trigg, Lincolnshire, and Parliamentary Secretary to the Under Secretary of State for the Colonies, who has announced that he will retire at the next general election, is a son of Major General H. H. McLean, M. P. for Royal, N.B., who was at one time President, St. John Ry.

R. A. MacNaughton, who has been appointed General Accountant, Grand River Ry., and Lake Erie & Northern Ry., Galt, Ont., was presented with a gold watch, May 4, by his associates in C.P.R. General Auditor's office, Montreal, where he had been chief clerk for some time. He was for some years Secretary-Treasurer, Kingston & Pembroke Ry., and entered C.P.R. service when it absorbed the K. & P.R.

Percy W. Thomson has been appointed General Manager, New Brunswick Power Co., which operates the St. John Ry., St. John, N.B.

Electric Railway, Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Feb. 1921	Feb. 1920	8 mos. to Feb. 28, 1921	8 mos. to Feb. 29, 1920
Gross	$792,590	$746,030	$6,370,501	$5,796,655
Expenses	558,055	493,222	4,656,808	4,082,656
Net	234,535	252,808	1,713,693	1,713,999

The Detroit United Ry. is asking the Michigan State Public Utilities Commission for authority to issue $275,000 par value capital stock to provide for a dividend of 2½% on the $15,000,000 capital stock now outstanding, to be paid to stockholders June 1, in lieu of the regular cash dividend. The directors state that this action is taken because of the abnormal business conditions and to conserve the company's cash resources.

Fort William Municipal Ry.—The following statement of earnings for the four mouths ended April 30 have been publishsed in a local paper:—Jan., $18,-406.15; Feb., $16,810.71; March, $18,-109.68; April, $15,760.68.

Hydro Electric Power Commission of Ontario Bonds.—We are officially advised that an issue of $1,340,000 of 4½% bonds by the Commission, and guaranteed by the Ontario Government, has been oversubscribed. They constitute a first mortgage on the Sandwich, Windsor & Amherstburg Ry. and the Windsor & Tecumseh Ry., subject only to underlying bonds totalling $679,000, of which $490,000 mature Dec. 1922, and $189,000 in 1927. The two railways mentioned were taken over by the Commission in 1920, and are operated as the Hydro Electric Rys. Essex Division, under the powers conferred upon the Commission by the Hydro Electric Railway Act of 1914, and amendments to the same.

Oshawa Ry. Co.—The Dominion Parliament has authorized the directors to fix the date of the shareholders' annual meeting, as they may determine from time to time, instead of the fixed day provided in the Dominion Statutes of 1900, chap. 70.

Port Arthur Civic Ry.—The following comparison of earnings for the four months ended April 30 has been published in a local paper:—

	1920	1921
Jan.	$15,361.64	$17,608.28
Feb.	13,306.63	15,798.91
March	15,508.78	17,441.59
April	14,823.34	16,883.68

Toronto Ry., Toronto & York Radial Ry. and allied companies:—

	Feb. 1921	Feb. 1920	2 mos. to Feb. 28, 1921	2 mos. to Feb. 29, 1920
Gross	$1,228,722	$1,113,717	$2,502,973	$2,244,203
Expenses	824,912	754,994	1,685,824	1,505,472
Net	403,810	358,723	817,149	738,731

Winnipeg Electric Ry. and allied companies:—

	Mar. 1921	Mar. 1920	3 mos to Mar. 31, 1921	3 mos. to Mar. 31, 1920
Gross	$495,209	$456,915	$1,461,563	$1,400,625
Expenses	380,533	353,234	1,105,159	1,046,470
Net	114,676	103,681	356,404	354,155

Surplus after allowing for fixed charges for March, $56,083.

Sale of Toronto Railway Co.'s Subsidiary Companies to Hydro Electric Power Commission of Ontario and the City of Toronto.

The Ontario Legislature has passed an act authorizing the purchase and operation of certain radial railways by the Hydro Electric Power Commission of Ontario on behalf of the City of Toronto, and another act respecting the purchase by the City of Toronto of the assets of certain companies. These two acts deal with the proposed purchase from the Toronto Ry. Co. of its electric railways, power plants, etc., outside the Toronto Ry.'s property, the details of which are being worked out, and the ratification of the agreements for which sale were to be voted upon by the shareholders of the company at an adjourned special meeting on May 27.

The first act authorizes the Toronto Ry. Co. to sell and the H.E.P.C. of Ontario to buy, on terms to be agreed upon, the shares, securities, property and rights of the Toronto Power Co., formerly the Toronto & Mimico Ry. Co., the Toronto & York Radial Ry. Co., the Schomberg & Aurora Ry. Co., the Toronto & Scarborough Electric Ry., Light & Power Co., and the Metropolitan Ry. Co. Upon completion of the purchase the properties of the Metropolitan Division (including the Schomberg & Aurora Ry.), the Mimico Division, and the Scarborough Division, shall be vested in the Commission on behalf of the City of Toronto, subject to the making of agreements as of Dec. 1, 1920, drafts of which are given in schedule A of the act. The properties so acquired and vested shall be controlled, equipped and operated by the Commission, which shall exercise, in respect to them, all the powers, duties and obligations it is empowered to exercise in respect of lines constructed under the Hydro Electric Railways Act, 1914. Agreements may be made with any municipalities through which any of the lines pass, to admit them as parties to the agreement in respect of such portion of the line, or extension thereof, as may be within their boundaries, such agreements to be approved by the Ontario Government, and submitted to a vote of the ratepayers. Provision is made for the issue of debentures in connection therewith without further vote of the ratepayers. The purchase price of the railways to be acquired shall not exceed $2,375,000, in payment of which the Commission may issue 20-year 6% bonds dated Dec. 1, 1920. Of the bond issue $1,875,000 is to be a charge on the Metropolitan Division, $260,000 on the Mimico Division, and $240,000 on the Scarborough Division. The Commission is authorized to dispose of any of the property not required for railway purposes, and to utilize the proceeds for expenditures on capital account, or to invest them in Ontario securities towards the retirement of the bonds at maturity. The Toronto City Council is authorized to issue $2,375,000 of 50-year 6% bonds, to be charged as stated above on the several divisions, and to deposit the same with the Commission. Additional bonds or other securities may be issued to meet the capital cost of extentions, additional equipment, etc., and provision is made for the establishment of a sinking fund after 10 years from the date of the agreement. In the event of the revenue of the several lines not being sufficient to meet the operating and all other charges, the deficits shall be paid by the City of Toronto. The bonds to be deposited by the city are declared to be collateral security held by the Commission and may only be used for certain specific purposes mentioned in the act and agreements.

During the discussion of the bill in the Legislature a section providing for the barring of any present or future claim by the County of York against the City of Toronto or the Metropolitan Ry. Co., or the Toronto & York Radial Ry. Co., arising out of any agreement between the county and the Metropolitan Ry., was dropped. This matter has to do with the agreement under which a certain number of express cars, principally carrying milk, are taken into Toronto daily, and negotiations are reported to have taken place between the county authorities, the H.E.P. Commission and the Toronto Ry. with a view to a settlement.

The second act authorizes the City of Toronto to buy the distribution systems of the Toronto & Niagara Power Co. and the Toronto Electric Light Co., or either of them, upon terms to be agreed upon, and the tracks, poles, lines and works of the Toronto & York Radial Ry. Metropolitan Division, situated on the highways within the city limits. The City Council is authorized to issue $7,811,295 of 20-year 6% debentures, dated Dec. 1, 1921, in payment for the properties. The properties acquired are to be placed under the Toronto Hydro Electric Commission for operation as part of the system for the supply of electric light, heat and power at present operated. The railway property acquired is to be controlled and operated as part of the city's municipal street railway system. The City Council is authorized to transfer to the H.E.P. Commission of Ontario certain railway assets it now owns within the city on the Kingston Road and on the Lake Shore Road, and to enter into an agreement with the Commission for the construction by the latter, or by the city, of a railway upon these roads, and for the giving by either party to the other of running rights or, in the case of the Lake Shore Road, of a right of way.

Alleged Car Ticket Thefts by Winnipeg Electric Railway Employes.

Walter Inman, who is reported to have had charge of fare boxes used on a section of the Winnipeg Electric Ry., and Charles Outerson, one of the company's office staff, were charged recently with dealing fraudulently with car tickets, involving an amount estimated at from $15,000 to $20,000, during the last eight months. Inman was arrested in Winnipeg, May 7, and Outerson was arrested in Montreal, on the same date, after having taken passage on the s.s. Minnedosa for England. Superintendent Brown of the Manitoba Provincial Police arrived in Montreal, May 10, to take Outerson back to Winnipeg. Inman was taken before the Winnipeg Police Magistrate, May 11, and remanded for a week, to await Outerson's arrival.

The two men arrested are alleged to have been taking about $70 worth of tickets a night, and to have been selling them in small bundles through some 35 accomplices. The case has been in police hands for about two months, and their investigations led to the arrest of Inman in the alleged act of selling tickets in a cobbler's shop at Norwood. Inman is stated to have made a confession in which he gave the names of a number of accomplices, and on the strength of which the Montreal police were telegraphed to arrest Outerson. Inman, who collected about 20 fare boxes every night at the north end car barns, is said to have appropriated quantities of tickets therefrom, which he handed over to Outerson, who disposed of them to a number of others who acted as wholesale distributors. The tickets were retailed in bundles of 100, tied with white string, in Norwood, Transcona, the Labor Temple, the Canadian National Rys. shops and at stores where passengers waited for cars. Prices ranged from $2 to $3.50 for 100 tickets, and credit is stated to have been extended to the retailers, who were called upon weekly for settlements. Six persons are said to have confessed to participation.

London Street Railway, Operation, Wages, Etc.

The Ontario Railway and Municipal Board made an order on April 20 declaring that the directors of the London St. Ry. Co., having undertaken to take possession of the railway property and to operate the railway upon terms and conditions agreeable to the Board, having regard to the company's revenues and the requirements of the property, plant and equipment of the company, the Board rescinded its order of May 5, 1920, under which it took possession of the company's railway, etc., and operated it under the management of A. B. Ingram, the Board's Vice Chairman. The Board fixed midnight, April 30, as the time when the railway would be handed back to the company.

In preparation for taking over the line the company's officials had a conference with the men's representatives on April 29 as to wages, and proposed to continue the guaranteed rate of 48c. an hour, but stipulated that the wage question might be re-opened by either party on giving 30 days notice, during the year for which the agreement would be made. The men at a meeting on April 30, did not take any action on the proposal. The company started to operate the line May 1, the men continuing to work under the old agreement. The men held an adjourned meeting May 5, when it was decided to take a secret vote as to whether there should be a strike or not. The principal question at issue does not seem to be the rate of wages, but the clause that the working agreement may be reopened by either party giving 30 days notice. The company having refused to comply with the men's demands as to the proposed agreement, the men's executive decided May 9 to apply to the Labor Department for a board of conciliation, and to withhold taking a strike vote until after the Board makes an award.

Street Railway Conductors as Church Ushers.

"How is it the Rev. Mr. Cooper always has the front seats in his church well filled?"

"His head usher is a street car conductor."—Winnipeg Electric Railway Service News.

Proposed Abolition of Manitoba Public Utilities Commission.

The usefulness of the Manitoba Public Utilities Commission was questioned in the Manitoba Legislature, April 22, by members of the labor party, and the Attorney General stated that while the Government would consider the question of doing away with the Commission, it would refuse to entertain proposals for a reduction in salaries, and the curtailment of the Commission's powers in regard to contracts entered into since the Public Utilities Act was passed, until after the British Privy Council's decision had been given. A motion to reduce the vote for the Commission's expenses from $17,700 to $10,000 was defeated.

Subsequently P. A. Talbot moved that the Commission, having outlived its usefulness, should be abolished, and its duties transferred to the Provincial Secretary's Department. The discussion was adjourned and resumed on April 28, when the Premier invited members to give a straight expression of opinion, but contended that the Commission had justified its existence, independently of matters affecting the Winnipeg Electric Ry. The Attorney General pointed out that the Commission had issued 441 orders, of which 107 were against the Winnipeg Electric Ry., 27 against the Rapid Transit Co., and 57 against the Winnipeg, Selkirk & Lake Winnipeg Ry. The motion was carried by 24 to 21.

The passing of this resolution does not mean that the Commission will cease to exist at once, but as an expression of the Legislature's opinion which the Government will have to consider, and possibly bring a bill next session to give effect to it.

A bill was introduced by J. Trisen to amend the Public Utilities Act by limiting the Commissioner's powers to change provisions of contracts, but it was rejected by the Legislature subsequent to the passing of the Talbot resolution.

Address in Ottawa on Service at Cost.

An address on the service at cost plan of street railway operation was given before the Ottawa Board of Trade recently by W. E. Cann, Street Railway Commissioner of Toledo, Ohio, where the street railways are operated on the service at cost plan. He pointed out that a street railway is as necessary to a community's development as water service or sewers. Almost everything is bought on a fluctuating scale, and there is no reason why street railways should sell transportation on a fixed price plan. It is the right of citizens to have transportation at cost as they have water service. Service at cost could not be satisfactorily supplied under municipal ownership. Of the 45,000 miles of street railway only 310 are under municipal ownership and these in every case charge higher fares than when under private ownership.

Private ownership had not proved a great success, for one, among other, reasons, viz., that capital for extensions cannot be obtained except at ruinous rates. The public will either have to pay higher fares or put up with a poor service, or else the investor will get no return on his money. Service at cost steers between these two conditions. It allows investors a fair return on their money, it allows a community to say just what sort of street car service, and what extensions it desires, and the community in question has to pay only for such service as it demands. Service at cost sets up company and municipal machinery that works in co-operation to provide a satisfactory service, and has to do with fixing suitable rates, upward or downward. The first object of any franchise is to give a good service to the public; the next is to give service at rates acceptable to the user, as low as the utility can give and still live. Under a service at cost system, there should be sufficient elasticity to allow the rates to be readily readjusted to meet fluctuating costs, otherwise somebody has to suffer. The preparation of such a franchise is a matter requiring great care, proper consideration being given to questions of existing trackage and future extensions; the valuation made should be the real values, and the rate of return to investors should be reasonable. Care should be taken in the appointment of the city's representatives on the board of management; the street railway commission should have absolute direction over the service, and the rate of fare should be on a sliding scale with provision for periodical adjustments, and a fund should be provided to take care of fluctuations.

The various points in the address were illustrated with facts from the experience of places where the service at cost plan is in operation. A number of pertinent questions were asked and answered.

Proposed Purchase of Ottawa Electric Railway.

Ottawa City Council passed a resolution April 5 asking the Hydro Electric Power Commission of Ontario to make a valuation of the Ottawa Electric Ry. Co.'s property. On April 30 the City Council was advised that T. U. Fairlie, of the Commission's engineering staff, would make the valuation, and he arrived in Ottawa May 5 to make arrangements for the work. The city board of control invited the company to give him permission to make the valuation, and on May 6 the company's Secretary-Treasurer replied that the agreement between the city and the company provides for the determination of the value of the company's assets by arbitration, and not by a valuation at the instance of either one party. If the company were to facilitate a valuation on behalf of the city alone the result would only be still more confusion in the minds of the ratepayers, who might not realize that such a valuation would not be binding on the company. It is reported, however, that Mr. Fairlie is proceeding with a valuation and that the city's commissioner of works is co-operating with him.

The company's position, in connection with the matter, is expressed as follows: "No one is more anxious for an early settlement of the street railway matter than we are, but we do not believe that a valuation of our property by Mr. Fairlie would help to attain a settlement, or result in anything more than an appraisal for, and at the request of, one party to the contract under which we operate. Nor would his report be of any more value because a representative of this company went over the ground with him and made a similar report at the same time. Thirty years ago we signed a contract for the operation of an electric railway in Ottawa. That contract was drawn up by the city, and considerable space in it is devoted to a description of how a valuation shall be made and what the basis of such a valuation shall be. It insists upon a board of arbitration instructed to determine the actual value of the tangible assets necessary for the operation of the railway. This was the method specified by the city, and is the only one that we can agree to under any circumstances. Any preliminary or tentative valuation which does not follow the procedure laid down in the contract will entail a needless waste of time and money and lead to unprofitable argument. It could only be regarded as an estimate by a man representing one party to the contract, and could never be used as a foundation for a new agreement. We do not question Mr. Fairlie's fitness as a valuator or as a member of a properly constituted board or arbitration. Nor do we know why the city should at this late date attempt to obtain a valuation by some other method than that prescribed by the contract. A fair valuation of the property is essential in the settlement of our street railway problem, and we stand ready to co-operate with the city at any time in a valuation conducted in accordance with the terms of our contract."

Guelph Radial Railway Transfer.

The Ontario Government passed an order in council April 27 authorizing the transfer of the Guelph Radial Ry., which is owned by the city, to the Hydro Electric Power Commission of Ontario. The order confirms the agreement made between the city, the Hydro Electric Power Commission of Ontario, and the Guelph Radial Ry. The terms of the agreement were stated fully in Canadian Railway and Marine World, and it was voted on by the ratepayers on Jan. 1, 1920. The city undertook to sell to the Commission the whole of the Guelph Radial Ry. Co.'s property and assets, for $150,000, payable in 20 instalments of $11,700 each. The city council agreed to bear the cost of acquiring, equipping, maintaining and operating the line as established by the Commission, and to provide the funds therefor, and agreed to issue $300,000 of 5% debentures to be deposited with the Commission either on completion of the agreement or as required. The agreement has been ratified by the Ontario Legislature.

The railway has been under the Commission's management for over a year, and its ownership has now been transferred to the Commission as from May 1. Conferences have been held to arrange for paving and other works to be taken in hand, and it is reported that 10 new one-man cars have been ordered.

Steady Employment on Electric Railways.—From surveys made it is shown that of the 2,000,000 unemployed men in the United States not one is a street railway worker. The street railway industry provides work for men year in and year out. Many industries which made fabulous profits during war years, while the street railways were struggling along on a bare existence, have been the first to cut wages and reduce staffs. In these uncertain times those men are fortunate who have steady positions with street railway companies.—Winnipeg Electric Railway Service News.

Electric Railway Notes.

The New Brunswick Power Co. will, according to a press report, place one-man cars in operation in June.

The Chatham, Wallaceburg & Lake Erie Ry. put in operation on May 1 Standard Freight Tariff C.R.C. 646.

Peterborough, Ont., Radial Ry. began operating Sunday cars on May 1. A 20-minute service is being given with a 10c. fare.

St. Thomas, Ont., Municipal Ry. began Sunday operation on May 8. Agitation for a Sunday car service there had been going on for about 20 years.

Lightning struck a street car on Ontario St., Montreal, on May 22, and in the panic that ensued when the car took fire a woman jumped from the car and fractured her skull and broke her arm.

Winnipeg Electric Railway has changed the system of handling fares on its Westminster Ave. and Stockyards motor busses, from pay-as-you-leave to pay-as-you-enter, the latter system being in force on its electric cars.

The Quebec Ry., Light & Power Co. has arranged for the showing in Quebec of a series of motion pictures illustrating street dangers. The first films, it was arranged, would be shown from May 23 to 28; the second from June 15 to 17, and the third later in the month.

The Calgary, Alta., City Council is reported to have had a discussion on seniority as affecting night work on the Calgary Municipal Ry., and to have adopted the Commissioners' recommendation that senior motormen work on night duty one month out of every four. The senior motormen have agreed to this recommendation.

D. W. Houston, Superintendent, Regina, Sask., Municipal Ry., is reported to have stated that the cost of converting the cars for one-man operation would be between $13,000 and $14,000. It is suggested that the cost be spread over two years instead of charging it all against 1921 revenues.

Edmonton, Alta., Radial Ry. officials have decided to enforce the rule that a passenger must pay his or her own fare on getting on a p.a.y.e car. A local paper says:—"The public will have to blame what inconvenience the rule imposes upon them, to that section of the public who are dishonest enough to cheat a crippled enterprise out of the price of a street car ticket."

Negotiations with respect to operating conditions, etc., authorized to be carried on by the Winnipeg City Council, with the Winnipeg Electric Ry. Co., details of which were given in Canadian Railway and Marine World for May, pg. 265, have been entrusted to a sub-committee of the public safety committee, the members of which are:—Mayor Parnell, Aldermen G. Fisher, J. K. Sparling and W. Douglas.

T. Blundell Brown, of London, Eng., one of the British Columbia Electric Ry. directors, who is visiting Vancouver, unveiled a brass tablet honor roll recently containing the names of all employes who served in the great war. The tablet is affixed to the wall in the main hallway of the company's Vancouver office. The number of employes serving in the war was 615, of whom 490 were from the mainland staffs, 117 from the Vancouver Island staffs, and 8 from the London, Eng., office.

The Quebec Court of King's Bench gave judgment recently, reversing a Superior Court judgment directing the Montreal Tramways Co. to pay $2,000 to the Compagnie d'Immeubles de Montreal for right of way over a piece of land on Queen Mary Rd., Cote des Neiges. The right to lay tracks on the land was originally granted by the then owner, D. J. Decaire, in June, 1895, on certain conditions. The Superior Court held that the conditions had not been complied with and that the "gift" was subject to the law of articles 776 and 791 of the Civil Court. A majority of the King's Bench judges were of opinion that the Tramways Co. had fulfilled all the obligations imposed upon it by the grant of the right of passage; it was not a conveyance of the land, but a granting of a right of passage, to be enjoyed by the company so long as it fulfilled the conditions. The judgment of the court below was therefore reversed.

Ontario Hydro Electric Railways Enquiry.

The commission appointed by the Ontario Government to enquire into the proposed system of hydro electric inter-urban railways to be built by the Hydro Power Commission of Ontario held a number of sittings in Toronto during May, when evidence in support of the proposals was given. The principal witnesses examined were Bion J. Arnold, of Chicago, and F. A. Sager, a member of his staff.

The Prime Minister of Ontario stated, during the closing sitting of the Legislative Assembly, on April 30, that it was impossible to state definitely when the enquiry would be completed, but that it was reasonable to hope that the taking of evidence, and counsels' arguments, would be finished by the end of May, or early in June. It was difficult also to estimate what time would be necessary to enable the commissioners to prepare and complete their report, but it would be done as soon after that as possible. There had been received by the Commission, and expended on the taking of evidence, and copies thereof, the fees of the commissioners, their secretary, counsel and experts' fees and expenses, about $55,000. The Commission did not feel that they could safely estimate how much further expense might be involved, beyond saying that it would be a very substantial sum.

Detroit United Railways and the City. Canadian Railway and Marine World for May stated on pg. 268 that Detroit voters had "approved of an ordinance to buy the company's lines as the franchises fall in." We are advised that the vote authorizes the Street Railway Commission to buy from the company certain tracks and properties built by the company from time to time, under "day-to-day" ordinances which specifically provided that the city, if it entered municipal ownership, would have the right to buy under the terms as set forth. The referendum vote was the public consent to the Commission conducting such negotiations, the price to come out of a $15,000,000 bond issue approved the year before. Further purchases, if made, will require further negotiations, involving the company's consent as well as the people's approval.

Answers to Questions on Electric Railway Topics.

Answers have been sent by Canadian electric railway officials, to questions through the American Electric Railway Association's question box, as follows:—

Wrecking Crews.—(a) Do emergency wrecking crews report to overhead line department or to transportation department? (b) Are emergency vehicles horse-drawn or motor operated? (c) How many men constitute the crew? (d) As a result of change to motor equipment has it been possible to increase radius of action and territory served and thus reduce number of stations? (e) What capacity of vehicle is used in this service? (f) What other advantages result from motor operation?

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry.—(a) Emergency crews looking after overhead work report to line department. If trouble is found by transportation department it is reported to line room. (b) Motor operated. (c) For a small trouble such as broken ear, one lineman goes out, the driver being a groundman. If wire down, at least two linemen are sent. Ordinary repair crew consists of two linemen and driver. (d) Have not used other than motor equipment since 1911. (See answer to f.) (e) One 3-ton and one 2-ton; the latter having higher speed is held for emergencies when the former is out on repair work. (f) Advantages of motor service are shorter time in getting away and reaching scene of trouble, and greater mobility while at the job.

F. L. Butler, Manager, Winnipeg Electric Ry.—(a) Emergency crew reports to overhead line department. (b) Emergency truck is motor driven. (c) Emergency lineman and driver form the crew. (d) Yes. (e) One-ton Studebaker. (f) Quicker service and more service with less men.

Car Body Balance.—What means have member companies used to balance car bodies on trucks, and what results have accrued, in riding qualities, wheel wear, etc., from same?

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry. — When arranging equipment, we obtain the weight of each piece, and as nearly as possible arrange the distance from center line X weight so that all pieces on each side will balance. This results in less side bearing friction, easier riding, and consequent saving in both power and maintenance of wheels.

H. E. Weyman, Manager, Levis County Ry.—We have had 12 safety cars in operation for 20 months now and have had no trouble from nosing. Some of them are operated on suburban lines at 20 miles an hour and no trouble has developed. We think that if such did develop it would be due entirely to the track condition and not the cars.

Car Failures.—Are many records of car failures kept; if so, what is the car mileage per failure?

D. E. Blair, Superintendent, Rolling Stock, Montreal Tramways Co.—Complete records of car failures are kept and a monthly analysis of these is sent to each car barn foreman. Average mileage per car failure, including trivial defects, year ended July, 1920, was 1,530 miles; eight months ended February, 1921, was 1,480 miles.

Marine Department

Canadian Government Merchant Marine, Ltd., Annual Report.

Canadian Government Merchant Marine Ltd. directors' second annual report for the calendar year 1920, has been issued over the signature of D. B. Hanna, President, adressed to the shareholders, as follows:—

Ships in Operation:—During 1920 your fleet of ocean going cargo steamships has been increased from the 19, covered by the first annual report, to 47 ships, with a total deadweight tonnage of approximately 255,000 gross tons. Of these, 25 are new ships completed by the various shipyards throughout Canada during the year, while the steamships Drummond, Sheba and McKee were transferred from the Railways and Canals Department on April 1. The financial statement herewith submitted covers the operations for the full year of the 19 ships delivered during 1919, for nine months only of the Drummond, Sheba and McKee, and for a portion of the year, according to the date of delivery, of the 25 new ships delivered during 1920.

Ownership.—As explained in the previous report, a separate company has been organized for each ship, and the capital stock of each company is owned by Canadian Government Merchant Marine Ltd. Under an operating agreement with each of these companies, Canadian Government Merchant Marine Ltd. operate all of the ships, and keeps separate accounts for each company. Promissory notes have been given to the Minister of Finance and Receiver-General of Canada for the total capital stock of each ship, with interest payable at the rate of 5½%. The results are here shown, for the sake of convenience, for the entire fleet.

The balance sheet submitted with the first annual report showed only the operating results, as it was impossible at the time, on account of the capital charges not having been settled with the builders, to include the capital cost of the ships, or make provision for interest and depreciation. Statements are submitted for both fiscal years 1919 and 1920:—

Income Account 1919.

Gross earnings, closed voyages		$ 2,779,633.98
Operating expenses, closed voyages		1,722,866.60
Operating profit		$ 1,056,767.38
Deduct—		
Interest due Dominion Government to Dec. 31, 1919	$415,358.36	
Depreciation	150,995.01	
		566,353.37
Balance to profit and loss account		$ 490,414.01

Income Account 1920.

Gross revenue, closed voyages		$10,027,442.77
Operating expenses, closed voyages		8,733,917.22
Operating profit		$ 1,293,525.55
Deduct—		
Reserve for depreciation	$667,665.46	
Reserve for outstanding liabilities	22,000.00	
Incorporation expenses	5,400.00	
		695,065.46
Net earnings after all charges, including depreciation, but before allowing interest		$ 598,460.09
Net earnings on voyages closed since January applicable to 1920		183,000.00
Total net earnings available for interest		$ 781,460.09

The above is equal to 2.35% on notes given the Dominion Government for purchase price of ships.

Conditions During the Year.—In reviewing this statement, it should be remembered that conditions during the year developed very unfavorably for all steamship companies, and the operating situation, particularly towards the end of the year, became one of great difficulty. As is well known, the total world tonnage has been tremendously increased, while business in practically all countries suffered a depression. Keen competition, therefore, existed for what business was offering, and rates for nearly all commodities declined; in fact, toward the end of the year some rates were down to less than one half of the former level. It is a matter of general knowledge that many ships of other lines were tied up through inability to secure cargoes, and it has required hearty co-operation of all officials and employes, and untiring efforts to keep your fleet in steady operation. Strikes, labor unrest, and dock congestion at various ports have also often delayed the movement of your ships, and have consequently had an adverse effect on the earnings. Considering the conditions which prevailed during the year, your directors feel that it is a matter for congratulation that all of the company's ships have been kept in operation. In view of the falling off in tonnage and the reduction in rates, the operating profit for the year may be considered satisfactory.

Organization.—The task of organizing the merchant marine service has been the more difficult on account of the large number of ships placed in service within such a short time. Ordinarily established steamship companies add to their fleets gradually as their business increases and as trade conditions warrant. In carrying out the policy of establishing a Canadian Merchant Marine to transport a substantial percentage of Canada's foreign ocean borne trade, your company has been called upon to place in operation 47 ships in less than two years. Efficient officers, engineers and crews, have had to be engaged, trade routes arranged, cargoes secured, and an organization created to properly handle what is a very large enterprise. In such an intensive development the difficulties encountered have naturally been many, but these have been largely overcome, with the result that a large proportion of Canada's trade is being carried in Canadian ships, the product of Canadian shipyards which are manned largely by Canadians, who are engaged and paid in Canada. In this way, a very large sum has annually been conserved to the country that would be disbursed elsewhere if the C.G.M.M. had not been established on the basis outlined.

Trade Routes.—With a view to obtaining first hand information as to trade and shipping conditions in various countries with which merchant marine services have been established, special representatives of your company have visited a number of such countries, and while the reports received are optimistic as to the possibilities of increasing trade, yet it is pointed out that there will have to be a closer co-operation between our exporters and importers, if full advantage is to be obtained for Canada of the ocean cargo services established and to be established by the C.G.M.M.

In addition to those inaugurated during 1919, new services were established during the year from Vancouver to Australia and New Zealand, and from Atlantic ports to British India and Straits Settlements, and on all of these a satisfactory business is being obtained under prevailing conditions. Regular cargo services are now established to points in the United Kingdom, to Australia and New Zealand, to British India and Straits Settlements, to the West Indies, to Newfoundland, and to South America. The present schedule provides regular sailings as follows:—

United Kingdom—Fortnightly services to Liverpool and to London; three weekly service to Glasgow; monthly services to Cardiff and Swansea, and to Liverpool via Sydney, N.S., in summer only.

West Indies—Fortnightly service to Barbadoes, Trinidad and Demerara; three weekly service to Nassau, Kingston and Belize; monthly service to Havana, Cuba.

South America—Monthly service to Pernambuco, Santos, Rio de Janiero, Montevideo and Buenos Ayres.

Orient—Monthly services to Mediterranean, Straits Settlements, Java and India, from Atlantic ports, and to Straits Settlements, Java and India from Vancouver.

Australasia—Monthly service to Australia and New Zealand; to Australia direct and to New Zealand direct.

Newfoundland—Three weekly service to St. John's, Nfld., via Charlottetown, P.E.I.

All of the above are freight services. The ships on the Nassau, Kingston and Belize service have some passenger accommodation, as will be referred to later. New cargo services are also in contemplation and will be established as additional ships are delivered, and as trade conditions warrant. Reports received indicate that there is a keen desire on the part of the various British possessions to increase trade direct with Canada, and your European Manager reports that

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

this same feeling exists with some of the continental powers. The question of foreign agencies has received careful attention, and your own representatives have been appointed where it was considered advisable, while at other points arrangements have been made with strong connections to look after the company's interests.

Services Performed.—During the year a total of 144 voyages were made, as follows, as compared with 47 during 1919, viz., to the United Kingdom 65, West Indies 45, St. John's, Nfld., 15, Australia and New Zealand 9, South America 8, India, Mediterranean, etc., 2.

Commodities Carried.—The importance of the C.G.M.M. to Canadian trade cannot be too strongly emphasized. Canadian goods to the value of over $50,000,000 were transported during 1920 in Canadian built ships, each named ship with its prefix "Canadian" being the best advertisement for Canada in the principal markets of the world. A wide range of goods and products is transported. The cargoes carried have been made up largely of the commodities included in the follow list:—

Exports.

United Kingdom—Lumber, paper, newsprint, pulp, grain, apples, hardware, steel goods, cheese, miscellaneous.

Australia and New Zealand—Lumber, paper, cement, fish, machinery, rubber goods, corsets, paint, etc.

India, Ceylon, etc.—Agricultural implements, grain, flour, iron pipe, autos, miscellaneous, tires, enamelware.

South America.—Newsprint, agricultural implements, malt, lumber, dried fish, steel goods, etc.

West Indies.—Grain, lumber, newsprint, furniture, paints, hardware, steel rails, etc.

Newfoundland—Flour, hay, oats, cement, iron and steel goods, butter, etc.

Imports.

United Kingdom—Whiting, lead, tea, salt, jute, rope, oakum, general, firebricks, linoleum.

Australia and New Zealand.—Hemp, tallow, copra, gum, hides, dried fruits.

India, Ceylon, etc.—Dried fruits, nuts, onions, etc.

South America—Maize, hides, coffee, casein, etc.

West Indies—Sugar, molasses, cocoanuts, cocoa.

Newfoundland—Cod liver oil, codfish, etc.

West Indies Passenger Service. — In accordance with the trade agreement consummated during the year with the British West Indies, two of your ships, Canadian Fisher and Canadian Forester, of 5,100 tons each, have been fitted with passenger accommodation, and a regular service every three weeks is being established between Canada and the Bahamas, Jamaica and British Honduras. While the ships now in commission only carry 26 cabin passengers, the accommodation provided is of such excellent character that they should attract a full passenger list for each sailing. It is hoped that the regularity of the service will build up a fine freight business in the interchange of the products of these islands and Canada. The first ship sailed from Halifax on Jan. 25, 1921, with a full complement of passengers and a cargo of flour, potatoes, oats, cement and general merchandise. It must be remembered in connection with this service that the C.G.M.M. is pioneer in opening up a new route with a view to developing and extending Canada's trade. As it has been the practice of many governments to supplement the earnings of companies engaged in this work, and as steamship subsidies are paid by the Dominion Government for services that are much more remunerative than this West Indies service, it would only be reasonable that your company should be gauranteed against loss, when engaged, as in this case, in opening up a new route at the request of the Government.

Insurance and Accidents.—Your directors have continued the policy of fully insuring all ships. A very favorable insurance contract is in effect. Your directors are pleased to be able to report that the ships of your fleet were free from any serious accidents during the year. The Canadian Recruit, which became stranded in the St. Lawrence in Dec. 1919, and which threatened to be a total loss, was floated during the summer, and drydocked, where she was completely repaired. She was placed in service again in Dec. 1920, and sailed from Halifax for the West Indies on Dec. 31. It is also gratifying to your directors that they are able to report arrangements having been made with the underwriters whereby the officers and crew of the Canadian Spinner, whose gallant efforts for three weeks in Dec. 1919, saved the ship and cargo from destruction, are to receive a reward of $10,000, which is to be distributed among them.

Maintenance.—From the first the policy of maintaining all ships in a high state of repair has been adopted; all are regularly dry docked and necessary repairs are made.

Co-operation with Canadian National Rys.—Your directors again call attention to the valuable connections between the C.G.M.M. fleet and the Canadian National Rys. Traffic to both companies has benefitted to a large extent by the co-operation of both services.

Employment of Canadian Officers and Crews.—In all cases preference is given to Canadians in filling the various positions, and it is a matter of considerable satisfaction to find that a large number of Canadians realize the opportunities which the service has to offer and are identifying themselves with their country's merchant marine. In co-operation with the Navy League of Canada, training is being given to young Canadians to qualify them to become ship's officers.

Management.—The handling of such a large fleet, the development of a proper organization, pioneering new routes and securing cargoes to keep all ships in operation throughout a year of unfavorable conditions, has entailed heavy work on the part of your officials and employes. To them, as well as to the ships' officers and crews who have performed their work faithfully and well, often under difficulty, the directors wish to express their thanks.

Consolidated Balance Sheet.

Assets.

Fixed assets—		
Ships at cost		$50,005,892.71
Less depreciation reserve		815,841.32
		$49,190,051.39
Plant and equipment at cost	$ 27,243.25	
Office furniture at cost	29,128.66	
	$ 56,371.91	
Less depreciation reserve	2,818.60	
		53,553.31
		$49,243,604.70
Current assets—		
Cash in banks and on hand	$ 426,816.02	
Accounts receivable	1,750,161.36	
Advances to captains, crews and agents	54,605.09	
Adjusted losses due by underwriters	67,860.82	
Insurance claims, estimated amount recoverable	686,805.51	
Interest receivable accrued	4,583.33	
Inventories of stores and supplies	44,821.84	
		3,035,653.97
Dominion of Canada Victory Loan, 1934		500,000.00
Insurance unexpired		908,390.73
		$53,687,649.40

Liabilities.

Capital stock—		
Authorized, 10,000 shares $100 each	$1,000,000.00	
Issued, 4,709 shares, $100 each		$ 470,900.00
Notes payable, due Dominion Government, secured by mortgages on ships		49,535,892.71
Accounts payable		1,712,803.03
Balances of uncompleted voyages		963,820.65
Surplus		1,004,233.01
Contingent liabilities, non ascertained.		
		$53,687,649.40

Operating Account for calendar year 1920.

Revenue from ships		$ 9,990,315.45
Other revenue—		
Commission on handling outside ships	$ 11,055.01	
Interest	22,987.31	
Profit on exchange	3,085.00	
		37,127.32
Total revenue		$10,027,442.77
Expenses—		
Operation of ships	$8,375,847.22	
Operation of wharves	40,707.84	
General expenses—		
Management and office salaries	207,731.78	
Rent, taxes and insurance	11,305.27	
Travelling expenses	22,947.98	
Printing and stationery	21,101.69	
Advertising	12,991.66	
Cables, telegrams and telephones	20,964.69	
Miscellaneous	20,319.09	
		8,733,917.22
Net earnings		$ 1,293,525.55
From which deduct—		
Reserve for depreciation	$ 667,665.46	
Reserve for outstanding liabilities	22,000.00	
Incorporation expenses	5,400.00	
		695,065.46
Profit for year before providing for interest charges		$ 598,460.09

Note.—No profit has been included in the operl ating account shown above in respect of uncompleted voyages at Dec. 31, 1920. It is estimated by the company's officials that the profit from these will amount to $290,000, of which $183,000 would be applicable to the year 1920.

General Officers.—The C.G.M.M. general officers are as follows: D. B. Hanna, President, A. J. Mitchell, Vice President, A. J. Hills, Assistant to President, R. P. Ormsby, Secretary, C. E. Friend, Comptroller, H. G. Foreman, Treasurer, C. H. Hickie, Assistant Treasurer, Toronto; R. B. Teakle, Manager, Montreal; W. Phillips, European Manager, London, Eng.; H. Milburne, Assistant to Manager, Montreal; I. J. Tait, Superintending Engineer, Montreal; Capt. E. E. Tedford, Marine Superintendent, Montreal; Capt. L. M. Hatfield, Assistant Marine Superintendent, Halifax, N.S.; Capt. R. H. Monks, Assistant Marine Superintendent, Montreal; W. A. Cunningham, General Freight Agent, Montreal; Capt. W. B. Finglass, Assistant Marine Superintendent, Vancouver; F. G. Wood, General Ontario Freight Agent, Toronto; J. P. Doherty, Export Freight Agent, Montreal; W. H. Thomson, Import Freight Agent, Montreal; B. C. Keeley, General Agent, Vancouver; Geo. Bunting, Manager for Australasia, Auckland, N.Z.; F. A. Young, Special Representative, Toronto; W. Y. Muirhead, Insurance Commissioner, Toronto; F. Davidson, Accountant, Montreal; J. W. Corbett, Purchasing Agent, Montreal.

Montreal-New York Transport Co. Ltd. has been incorporated under the Dominion Companies Act, with $50,000 authorized capital and office at Montreal, to carry on business as shipping agents, etc., and to own and operate ships of every description for navigation within and without Canada. The incorporators are: F. Callaghan, F. X. A. Biron, J. D. Kearney, J. E. Duckett and P. A. Gregory, Montreal.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Launchings of Steamships.—We have been advised of the launching of the following steel cargo steamships, for Canadian Government Merchant Marine, in addition to those mentioned in previous issues:—

May 12, s.s. Canadian Pathfinder, Marine Department contract 48, builder's yard no. 1, approximately 3,500 d.w. tons. The contract for this ship was given the Dominion Shipbuilding & Repair Co., Toronto, and after that company became bankrupt the Collingwood Shipbuilding Co., Collingwood, Ont., was given a contract to complete her, on a cost plus basis, the work being done at Toronto.

May 12, s.s. Canadian Scottish, Marine Department contract 42, builder's yard no. 1, approximately 8,390 d.w. tons. The contract for this ship was given the Prince Rupert Drydock & Engineering Co. and after that company became bankrupt the Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., was given a contract to complete her, on a cost plus basis, the work being done at Prince Rupert.

Steel Cargo Steamship Canadian Coaster, approximately 3,890 d.w. tons, built for Canadian Government Merchant Marine, by Collingwood Shipbuilding Co., Kingston, Ont.

Deliveries of Steamships.—In addition to the ships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation.

April 26, s.s. Canadian Commander, Marine Department contract 52, builder's yard no. 79, approximately 8,390 d. w. tons, built by Canadian Vickers Ltd., Montreal. This ship was delivered provisionally to the Marine Department, Dec. 21, 1920, subject to satisfactory trials at the opening of navigation this spring. These having been made, she was delivered to the C.G.M.M. for operation, and sailed from Montreal, May 6, for Birkenhead and Avonmouth, Eng., with a general cargo below, and livestock on deck.

May 5, s.s. Canadian Coaster, Marine Department contract 58, builder's yard no. 16, approximately 3,890 d.w. tons, built by Collingwood Shipbuilding Co., Kingston, Ont. She was delivered to the Marine Department May 5, sailed for Montreal May 7, arrived there May 9, was transferred to Canadian Government Merchant Marine, and loaded for Barbadoes, Trinidad, and Demerara, sailing May 21.

May 6, s.s. Canadian Leader, Marine Department contract 53, builder's yard no. 80, approximately 8,390 d.w. tons. She was built by Canadian Vickers Ltd., Montreal, and delivered provisionally to the Marine Department, Dec. 21, 1920, subject to satisfactory trials on the opening of navigation this spring. These trials having been held, she was delivered to Canadian Government Merchant Marine on May 6, and was loaded with cargo, sailing May 18 for India, via the United Kingdom.

May 16, s.s. Canadian Skirmisher, Marine Department contract 56, builder's yard no. 104, approximately 8,390 d.w. tons, built by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C. We were officially advised May 18 that this ship was being loaded for New Zealand and Australia, and was expected to sail from Vancouver May 30.

May 17, s.s. Canadian Harvester, Marine Department contract 61, builder's yard no. 45, approximately 3,890 d.w. tons, built by Port Arthur Shipbuilding Co., Port Arthur, Ont. We were officially advised May 18 that this ship was taking a cargo of grain from Fort William to Montreal, where she would be loaded for Swansea, Wales.

The above deliveries leave 10 ships to be delivered to complete the Dominion Government's shipbuilding programme as follows:—Canadian Cruiser and Canadian Constructor, Halifax Shipyards, Ltd.; Canadian Scottish and Canadian Thrasher, Prince Rupert Drydock & Engineering Co. (being completed by Wallace Shipbuilding & Drydock Co.); Canadian Pathfinder and Canadian Engineer, Dominion Shipbuilding & Repair Co. (being completed at Toronto by Collingwood Shipbuilding Co); Canadian Logger, Midland Shipbuilding Co.; Canadian Challenger, Davie Shipbuilding & Repair Co., Lauzon, Que.; Canadian Transporter and Canadian Freighter, J. Coughlan & Sons, Vancouver, B.C.

Officers of Steamships.—The following masters of steamships have been appointed, or transferred, in addition to those mentioned in previous issues:—Canadian Freighter, Capt. A. B. Watson, heretofore master, Canadian Inventor; Canadian Harvester, Capt. J. Slater, heretofore master, Canadian Recruit; Canadian Inventor, Capt. F. Dudley, vice A. B. Watson, transferred to Canadian Freighter; Canadian Miner, Capt. A. E. Seaman, vice Capt. W. G. Tudor; Canadian Prospector, Capt. W. Wallace, vice Capt. H. S. Hilton, transferred to Canadian Skirmisher; Canadian Recruit, Capt. H. Makepeace, heretofore master, Canadian Rover, vice Capt. J. Slater, transferred to Canadian Harvester; Canadian Rover, Capt. A. Forson, vice Capt. H. Makepeace, transferred to Canadian Recruit; Canadian Skirmisher, Capt. H. S. Hilton, heretofore master, Canadian Prospector.

Ports of Registry.—We are officially advised that ships now under construction for Canadian Government Merchant Marine at Halifax, N.S., and Vancouver, B.C., will be registered at those ports respectively. This decision does not affect any of the ships built at those ports, and now registered at other ports.

Montreal Sailings. — The following dates have been arrounced:—

Liverpool service—Canadian Conqueror (cold storage, June 15; Canadian Trapper, June 29; Canadian Mariner, June 15; Canadian Victor, July 13; Canadian Conqueror, July 27.

London service—Canadian Rancher, June 8; Canadian Raider, June 22.

Glasgow service—Canadian Aviator, June 11; Canadian Navigator, July 2.

Cardiff and Swansea service—Canadian Hunter, June 25.

India and Far East service—B.I.S.N. Co. Trehawke, June 11; Canadian Pioneer, July 11.

Australia and New Zealand service—Canadian Commander (cold storage), June 25; Canadian Ranger, July 23.

Rio, Santos, Montevideo and Buenos Aires service—Canadian Explorer, June 23; Canadian Miller, July 20.

Barbadoes, Trinidad and Demorara service—Canadian Observer, June 7; Canadian Gunner, June 21; Canadian Harvester, July 5.

Nassau, Kingston and Belize service—Canadian Fisher, June 14; Canadian Forester, July 5.

Havana, Cuba, service—Canadian Sealer, June 3; Canadian Adventurer, June 17; Canadian Miner, July 1.

St. John's, Nfld., service,via Charlottetown, P.E.I.—Canadian Sapper, June 17; Canadian Sapper, July 8.

Vancouver Sailings. — The following dates are announced:—For Australia and New Zealand, Canadian Importer, June 20. For the Orient, Canadian Exporter, June 20.

The s.s. Canadian Explorer, which sailed from Halifax, N.S., March 10, for Galveston, Texas, to load grain for Greece, ran ashore at the mouth of the River Kara, near Salonica, Greece, Apr. 29, and was refloated May 1, after having had about 5,000 tons of cargo lightered. She proceeded to the harbor at Salonica, where, after examination, she was reported to have suffered little or no damage.

Canadian Vickers Ltd., Montreal. — The s.s. Canadian Commander, Marine Department contract 52, builder's yard no. 79, approximately 8,390 d.w. tons, was delivered provisionally to the Marine Department, at Montreal, Dec. 21,

1920, subject to satisfactory trials at the opening of navigation this spring. These having been held, she was transferred to Canadian Government Merchant Marine on April 26, and sailed from Montreal, May 6, for Birkenhead and Avonmouth, Eng., with general cargo below deck and live stock on deck.

The s.s. Canadian Leader, Marine Department contract 53, builder's yard no. 80, approximately 8,390 d.w. tons, was delivered provisionally to the Marine Department at Montreal, Dec. 1, 1920, subject to satisfactory trials at the opening of navigation this spring. These having been held, she was transferred to Canadian Government Merchant Marine on May 6, loaded at Montreal, and sailed May 18, for India via the United Kingdom.

Collingwood Shipbuilding Co., Collingwood, Ont. See Dominion Shipbuilding & Repair Co., Toronto.

Collingwood Shipbuilding Co., Kingston, Ont.—The steel cargo steamship Canadian Coaster, Marine Department contract 58, builder's yard no. 16, approximately 8,390 d.w. tons, built for Canadian Government Merchant Marine, the keel of which was laid May 6, 1920, and which was launched March 24, 1921, underwent her trials on the Bay of Quinte May 2, developing an average speed of 12.42 knots. She was delivered to the Marine Department May 5, was transferred to Canadian Government Merchant Marine, and left for Montreal May 7, where she arrived May 9. She was loaded there and sailed May 21 for Barbadoes, Trinidad and Demarara.

J. Coughlan & Sons Ltd., Vancouver, B.C., is building two steel cargo steamships for Canadian Government Merchant Marine, viz., Canadian Transporter and Canadian Freighter, Marine Department contracts 62 and 63, builder's yard nos. 20 and 21, the keels of which were laid Jan. 6, 1921. We were advised recently that approximate dates for the launchings had not been decided.

Davie **Shipbuilding & Repair** Co., Lauzon, Que., is building a steel cargo steamship, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, the keel of which was laid May 14, 1920. We are advised that she will probably be launched about the end of June.

Dominion Shipbuilding & Repair Co., Toronto, which went into liquidation, July 31, 1920, had under construction for Canadian Government Merchant Marine, two single screw steel cargo steamships, Canadian Pathfinder and Canadian Engineer, Marine Department contracts 48 and 49, builder's yard nos. 10 and 11, each approximately 3,500 d.w. tons, the water bottoms of both ships being about 75% complete, and the hulls about 60% framed. After some negotiations the Marine Department decided, in view of the unemployment prevailing, that the ships be completed and arranged with the Collingwood Shipbuilding Co., Collingwood, Ont., to carry out the work on a cost plus basis, at the Toronto yard. The company was placed in possession of the yard, Dec. 14, 1920, but on account of delays in obtaining the necessary workmen, and material, active work did not actually start until about the middle of January. Owing to the unwillingness of Dominion Shipbuilding & Repair Co.'s employes to accept the wages fixed by the Minister of Marine and the Collingwood company it was necessary to get a new staff. At the outset the Collingwood company made it known that it desired to obtain as many men in the yards as possible who had seen overseas service. A great number of these had no previous knowledge of the particular work, but special opportunities for training were afforded them. As a result, in a short time a very strong and effective organization was built up and the progress made has been very satisfactory. H. B. Smith, President, Collingwood Shipbuilding Co., who lives in Toronto, has taken a very active interest in the work, which is under the general direction of J. S. Leitch, Managing Director, who is also Assistant to the President, Halifax Shipyards Ltd., another of Mr. Smith's positions.

The Canadian Pathfinder was launched May 12, being christened by Miss Jean Smith, daughter of President H. B. Smith, and she was presented with a gold mesh bag by J. S. Leitch, on behalf of the builders. The Canadian Pathfinder is expected to be ready for delivery about the middle of June. The Canadian Engineer will probably be launched in June.

These ships are of the single deck type, with poop deck and forecastle. They are canal size, built for ocean service, their dimensions being,—length over all 261 ft., breadth moulded 43 ft., depth moulded 24 ft., draft loaded 21 ft. They will be equipped with triple expansion engines with cylinders 20-33-54 x 40 in. stroke, which were being built by the Dominion Shipbuilding & Repair Co. at the time of its failure, and have been completed by John Inglis Co., which firm also supplied the two Scotch boilers, 14½ ft. diameter by 11 ft., working under forced draft at a pressure of 180 lb. Four large hatches will be provided and 7 winches and 8 derricks for handling cargo. The ships will have a speed of about 11 knots.

Halifax Shipyards Ltd., Halifax, N.S., is building two steel cargo steamships for Canadian Government Merchant Marine, viz., Canadian Cruiser and Canadian Constructor, Marine Department contracts 38 and 39, builder's yard nos. 3 and 4, respectively, each approximately 10,500 d.w. tons, the keels of which were laid Oct. 2, 1919 and Oct. 6, 1919. We are advised that Canadian Cruiser is expected to be launched early in June, and Canadian Constructor during July.

Midland Shipbuilding Co., Midland, Ont., is building a steel cargo steamship, Canadian Logger, for Canadian Government Merchant Marine, Marine Department contract 54, builder's yard no 10, approximately 3,890 d.w. tons, the keel of which was laid June 9, 1920. No date for launching has been announced, much delay having been caused by non-delivery of the engines.

Port Arthur Shipbuilding Co., Port Arthur, laid the keel of the steel cargo steamship Canadian Harvester, Marine Department contract 61, builder's yard no. 45, approximately 3,890 d.w. tons, March 30, 1920, and launched the hull Nov. 20, 1920. The ship was completed and delivered to Canadian Government Merchant Marine for operation, on May 17, and was loaded with a cargo of grain at Fort William for Montreal, where she will be loaded with another cargo for Swansea, Wales.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—When this company went into bankruptcy in 1919, it was building for Canadian Government Merchant Marine, two steel cargo steamship, Canadian Scottish and Canadian Thrasher, Marine Department contracts 42 and 43, builder's yard nos. 1 and 2, respectively, each approximately 8,390 d.w. tons, the keels of which were laid Sept. 27, 1919 and Oct. 20, 1919, as stated previously in Canadian Railway and Marine World. When work on the ships was suspended by the Prince Rupert company, the Canadian Scottish was about 90% completed, and the Canadian Thrasher about 60%. The ships are being completed, at Prince Rupert, by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., on a cost plus basis, as stated previously in Canadian Railway and Marine World, the work being supervised by H. A. Butt, Overseer for the Marine Department. H. Turney is in charge for the Wallace Shipbuilding & Drydock Co., T. Allen being the hull superintendent. The Canadian Scottish was launched May 12, being christened by Mrs. C. W. Peck, wife of Lt. Col. C. W. Peck, V.C., M.P., 26 members of whose old regiment, the Canadian Scottish, formed a guard of honor. The Canadian Thrasher is expected to be launched about the middle of August.

Wallace Shipbuiding & Drydock Co., North Vancouver, B.C., laid the keel of the steel cargo steamship Canadian Skirmisher, Marine Department contract 56, builder's yard no. 104, approximately 8,390 d.w. tons, Oct. 14, 1920, and launched the hull March 17, 1921. The ship was completed and delivered to Canadian Government Merchant Marine for operation, on May 16, when she proceeded to load for New Zealand, and was expected to sail from Vancouver May 30.

See also Prince Rupert Drydock & Engineering Co.

Shipbuilding in Canada in 1920.

Returns for 1920, prepared by the Marine Department, show that Canadian shipbuilders turned out 351 ships, with a total gross tonnage of 204,635 ships, built and registered in 1920, numbered 329, as follows:—Wooden sailing ships 121, wooden steam ships 53, wooden gas ships 119, metal ships, steam 35, gas 1. In gross tonnage the steam metal ships led with 120,127 tons; wooden sailing ships, 22,758 tons; steam wooden ships, 12,829 tons; gas wooden ships, 3,495 tons; gas metal ships, 116 tons. Twenty-two ships were built, but not registered, in Canada during 1920, 13 of them being wooden steam, 9 steel steam and 1 wooden sailing, with the following gross tonnage: steel steam, 31,135 tons; wooden steam, 13,829 tons; sailing, 348 tons.

British Columbia, with 138 ships to her credit, led the provinces in the number of ships turned out, but Quebec, with only 96, led in gross tonnage, with 103,339 tons, compared with British Columbia's 66,561 tons. Nova Scotia turned out 90 ships, all small. Ontario is credited with but 17, showing how the industry has fallen off in that province. New Brunswick turned out 5, Prince Edward Island 4, and Saskatchewan 1. Prospects for 1921 are not as good. There were 15 ships for the Canadian Government Merchant Marine at Dec. 31, 1920, still to be delivered, these representing about 100,000 d.w. tons.

On Dec. 3, 1920, there were 7,909 ships of all kinds on the Canadian register, of which 3,623 were sailing and 4,281 steam. The gross tonnage of sailing ships was 505,630, and of steam 1,105,010 tons, making a total of 1,610,640 gross and 1,151,880 net tonnage.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	Apr. 9, 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	Aug. 8, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Aug. 19, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	May 12, 1921	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	May 12, 1921	.....
49	Sept. 2, 1919	Canadian Engineer	" " "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	Apr. 26, 1921
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	May 6, 1921
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	Mar. 17, 1921	May 16, 1921
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	Mar. 24, 1921	May 5, 1921
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	May 17, 1921
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
							$79,296.80						
							$72,818,073.19						

Canada Steamship Lines Finances, Etc.

A special general meeting of shareholders of Canada Steamship Lines Ltd. was held at Montreal May 14 to consider and if, found advisable:—

Confirm and sanction a bylaw to authorize the creation and issue of such further amounts of first mortgage 5% debenture stock or bonds as the directors may consider advisable, not to exceed in the aggregate $8,186,521.80 par value, or its equivalent in sterling at $4.86 2/3 to the £, until the total outstanding issue of such debenture stock and bonds, including the amount thereof now outstanding, but excluding the amount purchased and held by the trustees for sinking fund purposes, be brought up to an aggregate amount of $15,000,000, the whole in accordance with the terms and conditions set forth in trust deeds entered into between the company and Prudential Trust Co. and the Royal Exchange Assurance, and the execution by the company of such further supplemental trust deed or deeds and such mortgages and hypothecs upon certain properties, and pledges and transfers of same, and other documents and instruments as may be considered proper in connection with the creation and issue of such debenture stock and bonds, and the securing of same in accordance with the terms of the bylaw and trust deeds.

Authorize the directors to pledge, hypothecate and transfer, should they deem it advisable so to do, the said $8,186,521.80 par value of the company's debenture stock and bonds, or its equivalent in sterling, or such part thereof as they may consider proper, to secure advances or loans to the company of an aggregate amount not exceeding $5,000,000, or its equivalent in sterling, with interest not exceeding 8%, upon such terms and conditions as the directors may consider proper, and confirm and sanction a bylaw to authorize the directors to create and issue, at such time or times as they see fit, 8% collateral trust debenture stock and bonds or notes, or bonds or notes of such other designation and description and of such denominations as they may consider advisable, for an aggregate amount not exceeding $5,000,000, or its equivalent in sterling, same to be secured by pledge, hypothecation and transfer of the said $8,186,521.80 of the company's first mortgage 5% debenture stock and bonds, or of such amount thereof as the directors may consider advisable, and in connection therewith to enter into a trust deed with such trustee as may be chosen, the trust deed to contain such provisions with reference to redemption and sinking fund and such other terms and conditions as the directors may consider proper, as also to execute such pledges, hypothecations and transfers of such first mortgage 5% debenture stock and bonds, or any part thereof, and such other documents and instruments as may be considered proper in connection with the creation and issue of said collateral trust debenture stock and bonds or notes, and the securing of same in accordance with the terms of the bylaw and the trust deed or deeds to be entered into, as aforesaid.

The notice to shareholders was accompanied by the following statements of Canada Steamships Lines Ltd. and subsidiary companies:—

Consolidated Balance Sheet, Dec. 31, 1920.

Assets.

Fixed assets—		
Ships as at Dec. 31, 1919		$25,697,823.81
Add, net additions for year, being excess of additions to fleet over ships lost and sold		1,611,136.46
		$27,308,960.27
Real estate, buildings, docks and wharves as at Dec. 31, 1919	$6,351,017.10	
Add, net additions for year	334,047.20	6,685,064.30
Other fixed assets as at Dec. 31, 1919	1,432,992.48	
Add, net additions for year	41,699.44	1,474,691.92
		$35,468,716.49
Less depreciation reserve		6,261,584.53
		$29,207.131.96
Current and working assets—		
Cash in banks and on hand	$378,787.26	
Cash in hands of debenture stock trustees	304,645.57	
	$683,432.83	
Accounts receivable less reserve for doubtful accounts	3,796,523.29	
Adjusted losses due by underwriters	743,716.86	
Insurance and other claims, estimated amount recoverable	1,758,263.92	
Interest receivable accrued	5,440.31	
Inventories of stores and supplies and shipyard work in progress	1,030,316.33	
		8,017,693.54
Advances to associated company (Since reduced to $385,629.67.)		1,483,391.82
Charges deferred to future operations—		
Insurance unexpired	$365,859.81	
Repairs, etc., applicable to 1921	107,863.48	
Miscellaneous	20,157.95	
		493,881.24
Investments		1,245,930.88
Funds deposited with trustees for mortgage bonds and debenture stock		21,718.62
		$40,469,748.06
Leases, contracts and goodwill		8,424,646.79
		$48,894,394.85

Liabilities.

Capital stock—		
125,000 shares 7% cumulative preference stock.		$12,500,000.00
120,000 shares common stock		12,000,000.00
		$24,500,000.00
Funded debt—		
5% debenture stock	$7,120,506.66	
Less amount held in treasury $598,400.00		
Less amount retired by operation of sinking fund 970,916.10		
	1,569,316.10	
	$5,551,190.56	
Firt mortgage bonds	$1,653,293.37	
Less amount held in treasury 703,000.00		
	950,293.37	
		6,501,483.93
Current and accrued liabilities—		
Bank and other loans	$2,163,715.78	
Balance of purchase price Montreal Transportation Co. and accrued interest	1,350,000.00	
Accounts payable	3,302,129.04	
Bond interest accrued	117,082.19	
Government war tax reserve	396,322.41	
Preference dividend declared payable Jan. 2, 1921)	218,750.00	
		7,547,999.42
Bank advances on behalf of associated company (Since reduced to $385,629.67.)		1,483,391.82
Balances of uncompleted voyages		74,595.39
Reserves—		
For freight and other claims	$10,000.00	
For premium on redemption of Richelieu & Ontario Navigation Co. bonds	998.10	
Surplus arising from sinking fund purchases of debenture stock	164,778.76	
		175,776.86
Surplus		8,611,174.43
Contingent liability on notes endorsed for allied company	$1,000,000.00	
		$48,894,394.85

Operating Account for calendar year 1920.

Operating revenue—		
Ships		$19,338,465.22
Docks and wharves		210,713.12
Miscellaneous		322,283.64
		$19,871,461.98
Other revenue		377,149.94
Total revenue		$20,248,611.92
Expenses		16,220,337.71
Net earnings		$4,028,274.21
From which deduct—		
Interest on mortgage bonds	$ 82,547.48	
Interest on debenture stock	283,515.57	
Other interest	255,793.25	
Reserve for depreciation	1,349,245.58	
Reserve for doubtful debts and claims	30,000.00	
Directors fees	34,400.00	
Reserve for income tax	60,000.00	
		2,095,501.88
profit for year		$1,932,772.33

Surplus Account, Dec. 31, 1920.

Balance at Dec. 31, 1919		$6,764,910.91
Profit for calendar year 1920	$1,932,772.33	
Net profit on sales, etc., of fixed assets	1,628,464.19	
		3,561,236.52
		$10,326,147.43
Dividends for calendar year 1920—		
Preference stock 7%	$875,000.00	
Common stock 7%	840,000.00	
		1,715,000.00
Surplus as per balance sheet		$8,611,147.43

Chats Falls Navigation Co. Ltd. in Difficulties.—This company, which was incorporated under the Dominion Companies Act in March 1919, with $50,000 authorized capital and office at Ottawa, has submitted a proposal to its creditors under the Bankruptcy Act, offering its unsecured creditors 40c. on the dollar in full settlement of all claims. The statement shows nominal assets of $19,100, current liabilities $13,907.90, and stock liabilities $16,200, less unpaid calls of $348.10. The principal creditors are Royal Bank of Canada $6,805.39, and Aylmer Coal & Supply Co. $3,288.87. The only asset is the s.s. Weldon, valued at $18,900, but which the trustee states would probably not realize anything like that amount. She was built at Aylmer, Que., in 1919, and is screw driven by engine of 24 h.p. Her dimensions are,—length 88.4 ft., breadth 19 ft., depth 6.9 ft., tonnage 197 gross, 65 net. She was operated between Britannia Bay and Fitzroy Harbor on Lake Dechenes and the Ottawa River, making two trips a day.

Vancouver Terminal Charges Abolishment.—G. C. Dew, Asiatic Freight Agent, C.P.R., advises that it has been the practice to assess a terminal charge at Vancouver of 30c. per 2,000 lb. on export traffic and 25c. a ton (eight or measurement) on import traffic. Arrangements are being completed whereby these charges will be abolished.

Vancouver Harbor Pier and other Development Work.

Canadian Railway and Marine World for January contained some general information about the Vancouver harbor development work, including the Ballantyne pier, an illustration of which was given. This pier will be on the main 1⅜ miles from the city post office. The harbor front in Burrard Inlet, nearly opposite the foot of Hawks St., and about pier will be approximately 1,200 ft. long by 340 ft. wide, with a shore quay about 900 ft. long by 350 ft. wide. Several alternative designs for different types of construction were prepared by the engineer, such as concrete crib walls, with cellular block foundations; the same type of wall, on rubble foundations; reinforced concrete cylinder pier; reinforced concrete pile pier; solid sand and gravel embankment filling, with reinforced concrete cylinders along the sides and outer end, etc., and the last mentioned design has been adopted, as it affords a thoroughly substantial, permanent, fireproof structure.

The sand and gravel filling, forming the heart of the pier, will be about 134 ft. wide at the top, and at the inner berths, where the basins are to be dredged 35 ft. below ordinary low water, there will be four rows of reinforced concrete cylinders, resting on solid rock, and carrying pre-cast concrete trusses, which will support the floor or deck of the pier. At the outer berth, where there is a minimum of 45 ft. below average ordinary low water, there will be three rows of reinforced concrete cylinders.

The front line of the transit sheds will be built about 30 ft. back from the cope line of the pier, so as to allow two lines of railway tracks to run along the front of the shed, as well as a single rail at cope level, for the semi-portal cranes. Transit sheds, three of which will be 500 ft. long, and one 400 ft., are all to be of reinforced concrete, two stories high, by 110 ft. wide, with loading platform in addition at the back of the shed. Between the sheds, along the center line of the pier, there will be accommodation for three railway tracks and for a roadway for cart and motor traffic. The floor of the sheds at the front will be at the same level as the cope of the pier, and the ground floor of the sheds will be constructed on an easy gradient, from the front to the back, so as to obtain the requisite height to permit of the floors of the railway cars being at the same level as the floor of the shed, the roadway level being practically the same as the cope level.

In addition to the four transit sheds, a warehouse for the storage of canned salmon, or other merchandise, will be built on the shore quay. This building will be about 200 x 82 ft., and three stories high, all of reinforced concrete, and will be equipped with electrical conveyors, for the rapid handling of goods from vessels, as well as with spiral chutes and elevators, for handling goods inside the warehouse.

The most modern mechanical quayside equipment will be provided, consisting of a number of semi-portal electrical cranes, running along the front of the sheds, and capable of handling cargo between both floors of the sheds and the hold of the largest steamship afloat. Inside the sheds, motor trucks, electrical conveyors and elevators will be provided.

The approximate total cost of the harbor commissioners' work, the first unit of which is now being proceeded with, will be about $7,500,000, and when the pier transit sheds and warehouses are completed, the commissioners hope to have one of the most up-to-date, commodious and best equipped piers in Canada and one that will compare favorably with any in the world.

The plans and specifications were prepared by A. D. Swan, M.Inst.C.E., Montreal, who is consulting engineer to the harbor commissioners. Major W. G. Swan, the commissioners' Chief Engineer, is in direct charge of the work. As stated previously, the contractors for the dredging are Grant & MacDonald, Vancouver; and the Northern Construction Co. and Stewart (Major General J. W. Stewart, C.B., C.M.G.) have the contract for the other work mentioned above, including the pier and transit sheds.

On Shipboard.

She: "Goodness! What is that horrible noise?"

He: "Why, my dear, that was nothing but the dog-watch barking at a passing cat-boat."—Brown Jug.

Great Lakes Levels.

The U.S. Lake Survey reports mean stages of the Great Lakes, in feet above mean sea level, for April, as follows:—Superior, 601.69; Michigan and Huron, 580.34; St. Clair, 575.41; Erie, 572.79; Ontario, 246.38.

Lake Superior was 0.14 ft. higher than March, 0.52 ft. lower than April 1920, 0.01 ft. below the average April stage of the last 10 years, 1 ft. below the high stage of Apr. 1860, and 1.15 ft. above the low stage of Apr. 1911.

Lakes Michigan and Huron were 0.44 ft. higher than March, 0.20 ft. lower than April 1920, 0.05 ft. above the average April stage of the last 10 years, 2.89 ft. below the high stage of April 1886, and 1.12 ft. above the low stage of Apr. 1896. During the last 10 years the April level has averaged 0.3 ft. higher than the March level, and 0.3 ft. lower than the May level.

Lake Erie was 0.67 ft. higher than March, 1.17 ft. higher than April 1920, 0.44 ft. above the average April stage of the last 10 years, 1.39 ft. below the high stage of Apr. 1862, and 1.53 ft. above the low stage of Apr. 1895. During the last 10 years the April level has averaged 0.7 ft. higher than the March level, and 0.4 ft. lower than the May level.

Lake Ontario was 0.59 ft. higher than March, 0.83 ft. higher than April 1920, 0.06 ft. above the average April stage of the last 10 years, 2.05 ft. below the high stage of Apr. 1886, and 1.54 ft. above the low stage of Apr. 1872. During the last 10 years the April level has averaged 0.7 ft. higher than the March level, and 0.3 ft. lower than the May level.

Government Radiotelegraph Operators. The following promotions of Naval Service Department radiotelegraphic operators are announced:—E. G. Bennett, senior operator, to chief operator, east coast; W. J. Bowerman, senior operator, to chief operator, west coast; R. Ainslie, senior operator, grade 2, to chief operator, west coast; S. C. Jackson, senior operator, to chief operator, west coast; T. C. Raine, senior operator, grade 2, to chief operator, west coast; W. Howard, chief operator, to radiotelegraph inspector, west coast.

Ships Registered in Canada During February, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. N.h.p.	Owner or Managing Owner
150245	Canadian Explorer*	Montreal	Halifax, N.S. 1920	400.0	52.3	28.4	5408	3321	266 Sc.	Minister of Marine, Ottawa.
150346	Canadian Fisher*	"	Three Rivers, Que. 1920	331.1	46.8	23.2	3687	2200	231 Sc.	" " " "
150347	Canada Forester*	"	Three Rivers, Que. 1920	331.5	46.8	23.2	3673	2192	231 Sc.	" " " "
138470	Lindrup	Sault Ste. Marie, Ont.	Manistee, Mich. 1891	56.4	15.0	7.3	54	27	10 Sc.	Lyons Fuel & Supply Co., Sault Ste. Marie, Ont.
137438	Rose Castle*	Montreal	Sunderland, Eng. 1915	455.0	58.0	31.1	7546	4351	606 Sc.	Dominion Shipping Co., Halifax, N.S.

*Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
150277	C. W. 7	Vancouver, B.C.	Scow	North Vancouver, B.C. 1913	84.0	26.0	6.0	110	110	Champion & White, Vancouver, B.C.
150276	C. W. 8	"	"	Vancouver, B.C. 1912	78.7	29.8	7.5	148	148	" " "
150331	James Rye No. 2	Sault Ste. Marie	"	Saulte Ste. Marie, Mich. 1904	95.0	24.7	6.7	144	144	Lyons Fuel & Supply Co., Sault Ste. Marie, Ont.

Canadian Pacific Railway's Atlantic and Pacific Steamships.

E. W. Beatty, President, C.P.R., in moving the adoption of the directors' report at the annual meeting on May 4, said:—"The general trade depression has, of course, reflected itself in the results during the present year's operations of the company's steamships, but the passenger business is well maintained and the prospects of immigration on a large scale are very promising. The construction of the new steamships for the Atlantic and Pacific, to which reference is made in the annual report" (as published in Canadian Railway and Marine World) "has been very seriously delayed by the joiners' strike in Great Britain, which is still apparently far from settled, and which will defer the delivery of these ships until at least the end of this year. They are of a class that would render great service during the summer and autumn of this year, and the fact that they will not be available is to be regretted, as both the direct and indirect benefits of the continuation of an adequate service is very great. It may be desirable to purchase other ships if such can be obtained at moderate prices."

The shareholders subsequently passed the following resolution:—"Whereas the company has statutory power to issue consolidated debenture stock, in aid of the acquisition of steamships, to the extent of their cost, upon being authorized so to do by the votes of at least two thirds of the shareholders present, or represented, at an annual meeting, or at a special meeting, called for the purpose, and whereas there are now being built for the company under contract the following steamships for the Atlantic and Pacific services, viz., the Empress of Canada, 625 ft. long, with beam of 77 ft., moulded depth of 53 ft., and having a gross tonnage of about 22,000 tons; and the Montrose and Montclare, each 545 ft. long, with beam of 70 ft., moulded depth of 51 ft., and having a gross tonnage of about 15,600 tons; the aggregate cost of which steamships, including rigging, appurtenances and auxiliaries, is estimated at $22,500,000, therefore be it resolved that, for the purpose of paying the cost of the steamships above described, the directors are authorized to issue and dispose of consolidated debenture stock bearing interest at 4% a year, to such an amount as they may deem expedient, not exceeding in the aggregate the cost of the said ships."

Canadian Railway and Marine World is officially advised that the C.P.R. has bought the German steamships Kaiserin Auguste Victoria and Prinz Friedrich Wilhelm from the Reparations Commission, and have renamed them Empress of Scotland and Empress of China respectively. Their principal dimensions are as follows:—Empress of Scotland, length 677.5 ft., width 77.3 ft., depth 50.2 ft, tonnage 24,581 gross; Empress of China, length 589.9 ft., width 68.3 ft., depth 38.6 ft., tonnage 17,082 gross. The Empress of Scotland will be operated between Quebec and Liverpool, and the Empress of China between Vancouver and Hong Kong, etc.

The Canadian Ship and Boat Building Industry During 1919.

A preliminary report on the ship and boatbuilding and repairing industry in Canada has been completed by the Dominion Bureau of Statistics for the calendar year 1919. The report is divided into two sections, the first of which deals with the shipbuilding and the second with the boatbuilding industry. The number of plants engaged in each section is given below by provinces:—

	Shipbuilding.	Boatbuilding.
Alberta	....	2
British Columbia	14	12
Manitoba	1	....
New Brunswick	4	1
Nova Scotia	37	20
Ontario	11	51
Quebec	11	13
Total	78	99

Capital Invested.

	Shipbuilding plants.	Boatbuilding plants.
Land, buildings and fixture	$30,053,277	$481,924
Machinery and tools	8,614,218	203,550
Materials on hand, stocks in process, fuel, etc.	20,713,206	354,015
Cash, trading and operating accounts and bills receivable	11,473,327	221,174
Total	$70,854,028	$1,250,663

Capital invested, by provinces.

	Shipbuilding plants.	Boatbuilding plants.
Alberta	....	$24,938
British Columbia	$6,541,003	133,527
Manitoba	....	....
New Brunswick	54,223	54,449
Nova Scotia	6,732,419	279,949
Ontario	29,911,885	680,483
Quebec	27,614,498	87,317
Total	$70,854,028	$1,260,663

Employes, salaries and wages.

	Number Male	Number Female	Salaries and wages paid
In shipbuilding plants—			
Officers, superintendents, managers	271	2	$985,899
Clerks, stenographers, etc.	976	135	1,552,008
Wage earners, average number	22,286	32	27,084,870
Outside pieceworkers	1,727	....	214,071
Total	25,260	169	$29,836,848
In boatbuilding plants—			
Officers, superintendents, managers	31	....	$65,500
Clerks, stenographers, etc.	9	8	13,526
Wage earners, average number	781	3	840,465
Outside pieceworkers	2	....	950
Total	823	11	$920,441

Production.

Number, tonnage and value of ships constructed or under construction, and value of repairs to ships and boats during the year.

	Shipbuilding No.	Shipbuilding Value	Boatbuilding No.	Boatbuilding Value
War ships	14	$4,742,936	.....	.....
Steel ships, 5 gross tons and over, launched during year—				
Steam	49	37,466,996	.....	.....
Motor	....	.....	3	$44,000
Sail	4	259,900	.....	.....
Unrigged	2	35,000	.....	.....
Wooden ships, 5 gross tons and over, launched during the year—				
Steam	63	20,307,551	1	44,000
Motor	2	121,286	25	55,223
Sail with auxiliary	7	768,779	3	120,000
Sail without auxiliary	38	1,937,303	6	176,000
Unrigged	9	270,000	3	72,000
Small boats, less than 5 gross tons, launched during year—				
Steam	....	.....	10	9,350
Motor	1	400	514	244,879
Sail and row	7	515	3,278	184,725
Canoes	8	710	4,012	235,956
Scows, canal boats, dredges, etc.	3	10,500	245	61,183
Ships being built but which were not launched during year	43	9,176,101	9	17,088
Repairs to ships and boats during year, including custom work	....	8,282,914	.....	256,608
All other unspecified products	....	1,071,754	.....	412,284
Repairs and additions to plants	....	2,037,068	.....	22,130
Total value of products	.....	$86,489,713	.....	$1,964,426

Tonnage of Ships, 1919.

Gross and net tonnage of ships completed during the year, and of those in course of construction.

	No.	Gross tons	Net tons
Naval or war ships	14	15,302	8,574
Steel ships, 5 gross tons and over	58	164,273	93,923
Wooden ships, 5 gross tons and over	157	53,459	42,444
Totals	229	236,034	144,940

Fuel Consumption.

Quantities and values of different classes of fuel delivered at works and used in the industry.

	Shipbuilding plants Quan.	Shipbuilding plants Value	Boatbuilding plants Quan.	Boatbuilding plants Value
Bituminous coal, slack....tons	12,946	$86,264	.....	.....
Bituminous coal, lump ....tons	15,744	126,243	146	$1,109
Bituminous coal, run of mine ....tons	36,235	272,746	32	260
Anthracite coal, lump ....tons	1,029	10,669	22	262
Anthracite coal, dust or slack ....tons	363	1,830	11	147
Lignite coal, run of mine ....tons	3	31	3	30
Coke ....tons	3,474	44,478	14	113
Gasoline ....gals.	36,349	12,706	22,359	7,893
Fuel oil ....gals.	658,787	54,158	5,605	2,082
Wood ....cds.	44,416	329,701	748	5,050
Gas ....m.c.ft.	30,274	8,709	.....	99
All other fuel not specified	9,075	.....	.....	80
Total fuel cost	.....	$956,610	.....	$17,125

Of the fuel mentioned above, the value of that of Canadian origin was $641,480, and of foreign origin $332,255.

Miscelaneous Expenses.

	Shipbuildings plants	Boatbuilding plants
Rent of offices, works and machinery	$374,909	$11,890
Rent of power	368,335	5,180
Insurance (premiums only)	436,297	14,640
Taxes (municipal, provincial, federal)	517,496	14,102
Royalties, use of patents, etc.	1,434	255
Advertising expenses	50,480	7,986
Travelling expenses	289,276	8,498
Repairs to buildings and machinery	1,831,432	14,166
All other sundry expenses	3,407,928	37,204
Totals	$7,277,587	$113,921

Materials Used.

	Shipbuilding Quan.	Shipbuilding Cost value	Boatbuilding Quan.	Boatbuilding Cost value
Iron castings, bar, etc. ....tons	9,136	$1,250,987	80	$12,603
Steel castings, bars, billets ....tons	5,502	1,854,493	46	8,705
Steel plates and shapes ....tons	90,227	10,523,154	5	928
Brass and bronze castings ....tons	470	230,935	5	5,438
Bolts, nuts, rivets, spikes, nails ....tons	8,077	1,056,686	....	37,652
Brass fittings and valves ....tons	540	501,441	....	4,650
Boilers and engines ....No.	288	6,908,482	77	24,615
Dynamos	79	104,372	1	374
Electrical apparatus, fittings and fixtures....	.....	283,037	....	4,823
Lumber ....m. ft.	30,580	2,314,339	5,520	188,746
Timber	.....	1,579,896	....	36,158
Masts, spars, knees and blocks....	12,875	209,776	2,702	7,801
Sailcloth, sails and corage	.....	541,559	....	13,238
Calking materials	.....	137,145	....	10,249
Paints, oils and varnishes	.....	364,250	....	38,388
Cabin and stateroom fittings and fixtures	.....	514,576	....	88,848
Contract work	.....	2,170,092	....	12,335
All other materials	.....	5,424,107	....	92,073
Total	.....	$35,969,327	....	$587,624

Classification of employes according to certain specified groups of weekly wage payments, as at Dec. 15, 1919.

Groups of weekly wages.	Over 16 years Male No.	Over 16 years Female No.	Under 16 years Male No.	Under 16 years Female No.	Total Employes No.
In shipbuilding plants—					
Under $5 a week	180	1	7	....	188
From $5 to under $10 a week....	328	9	17	....	354
From $10 to under $15 a week....	712	120	77	....	909
From $15 to under $30 a week....	1,712	22	1,	....	1,735
From $20 to under $24 a week....	4,979	31	.....	....	5,010
From $24 to under $30 a week....	3,495	1	.....	....	3,496
$30 a week and over	5,225	....	.....	....	5,225
Total	16,681	184	102	....	16,917
In boatbuilding plants—					
Under $5 a week	49	1	.....	....	50
From $5 to under $10 a week....	64	....	6	....	70
From $10 to under $15 a week....	99	....	.....	....	99
From $15 to under $20 a week....	153	....	.....	....	153
From $20 to under $24 a week....	156	....	.....	....	156
From $24 to under $30 a week....	139	....	.....	....	139
$30 a week and over	240	....	.....	....	240
Total	900	1	6	....	907

Disposal of British Government's Trawlers and Drifters in Canada.

We are officially advised that after the war there were 60 trawlers, and 89 drifters, owned by the British Government, in Canadian waters, to be disposed of. Of the trawlers 14 were sold, and the remaining 46 were taken to Great Britain for disposal. Of the drifters 35 were sold, one was presented by the British Government to Dr. Grenfell's Labrador Mission, one was retained by the Canadian Naval Service Department, one was retained by the British Government at Bermuda, one still remains to be disposed of at Norfolk, Va., and the remaining 49 were taken to Great Britain for disposal. Following is a list of sales made in Canada:—

Trawlers.

Nos. 2, 3, 6, 12, 22 and 35, Mexican Government.
Nos. 41, 42 and 43, Pecheries et Armaments, La Rochelle Ocean, France.
No. 44, Anglo Newfoundland Development Co., Grand Falls, Nfld.
No. 45, Gulf of St. Lawrence Shipping & Trading Co., Quebec, Que.
Nos. 50, 56 and 57, Dominion Steamship Co., New York, N.Y.

Drifters.

Nos. 3 and 4, Puerto Monte Agency Co., Peru.
Nos. 15 and 33, W. N. MacDonald and T. H. MacDonald, Sydney, N.S.
Nos. 26, 29, 36 and 83, W. N. MacDonald, Sydney, N.S.
Nos. 30 and 46, Empreza de Pesca Vianese Limitada, Portugal.
No. 35, A. M. Smith & Co., Halifax, N.S.
No. 41, T. Hogan & Co., Halifax, N.S.
Nos. 45 and 47, Georges Latel, Cette, France.
Nos. 50, 58, 59, 61, 65 and 99, T. M. Kirkwood, Montreal.
No. 67, Frank J. D. Barnjum, Annapolis Royal, N.S.
Nos. 70 and 95, Capt. Alex. Smith, Dartmouth, N.S.
No. 74, Richmond Steam Shipping Co., Sydney, N.S.
Nos. 78, 94 and 100, Dr. T. N. MacDonald, Meteghan, N.S.
No. 81, Equador Breweries Co., Equador.
No. 89, Job Brothers, St. John's, Nfld.
Nos. 90 and 92, Salaverry Agencies Co., Peru.
No. 96, Rosanne Neville, Halifax, N.S.
No. 97, Clayton W. Collins, Annapolis Royal, N.S.
No. 98, Hugh Cann & Son Ltd., Yarmouth, N.S.

Northern Alberta Water Transportation.

The Alberta & Arctic Transportation Co. Ltd., the organization of which was announced in a previous issue, is chiefly for providing modern transportation facilities to the Fort Norman oil fields and points throughout the Mackenzie River basin. The organizers are the owners of the British Columbia Express Co., now out of business, and which operated transportation facilities throughout the Caribou district of British Columbia, from the time of the gold rush there early in the 60's, and, up to a short time ago, had in operation about 1,000 miles of horse stage lines, and an extensive river service on the Upper Fraser River.

The company has bought the British Columbia Express Co.'s equipment, including its steamboats, and these have been transferred to the new territory. In addition to these, the company has bought the transportation equipment of the Lamson & Hubbard Canadian Co., which was operating steamboats on the rivers and lakes in Northern Alberta and Mackenzie District. The steamboats owned and operated by the new company include the D. A. Thomas, Distributor, Lady Mackworth and Slave River, and in addition it operates several gasoline boats for special trips off the regular routes.

It is building at McMurray a river steamboat, to be named B. C. Express, which will have the following dimensions,—length 165 ft., breadth 29 ft., draft 18 in. She will be equipped with modern conveniences, staterooms, electric light, steam heat, etc., and will be run from Vermilion Chutes, on the Peace River, to Fitzgerald, and from McMurray, on the Athabasca River to Fitzgerald, and is expected to be ready for service during June. Another steamboat, to be named B.X., is to be built at Fort Smith, and will have the following dimensions,—length 175 ft., breadth 30 ft. She will be equipped with compound condensing engines, with up to date accommodation for passengers, and will be operated on the Mackenzie River out of Fort Smith.

On the route going north on the Peace River to Fitzgerald, the company has provided equipment for the transfer of freight and baggage at the portage of about 5 miles around the Vermilion Chutes, and on the portage between Fitzgerald and Fort Smith, on the Slave River, a caterpillar tractor has been provided, at a cost of $35,000, for transfer of freight.

From Peace River, the time taken by the s.s. D. A. Thomas to the upper end of Vermilion Chutes, going down stream, is about 24 hours, returning up stream in 48 hours, the distance being 330 miles. The s.s. Slave River, from the lower end of Vermilion Chutes to Fitzgerald, on the Slave River, going down stream, takes 20 hours, and returning up stream 50 hours, the distance being about 300 miles. The s.s. Distributor, from Fort Smith to the Fort Norman oil well, will take about 3½ days, going down stream, and about 5 days returning up stream. From McMurray to Fitzgerald, the trip down stream will take 24 hours, and up stream 50 hours.

Return tickets are being sold for use on the company's connecting steamships from Peace River on the Peace River, and from McMurray on the Athabasca River, to the Fort Norman oil well about 25 miles below Fort Norman for $200, berths being provided at $1.50 for lowers and $1 for uppers, and meals at $1 each.

Canadian Navigators' Federation Pacific Division.

The Canadian Navigators' Federation has been organized, with the following board of management:—President, Capt. F. H. Parker; Secretary, Andrew Goodlad; Treasurer, Capt. O. G. Kinnie. Vice Presidents — Vancouver, Capt. W. W. Best; Victoria, Capt. T. H. Brown; Prince Rupert, Capt. J. J. Mulligan; New Westminster, Capt. C. J. House; Nanamio, Capt. D. Martin; Yukon District, Capt. J. O. Williams; B.C. Lakes, Capt. F. L. Orr. Representatives for—Ocean going ships, Capt. H. E. Lawrey; local passenger ships, Lieut. H. Shadforth, R.N.R.; local freight ships, Capt. B. Owen-Jones; Government ships, Capt. H. R. Bilton; licensed pilots, Capt. C. J. Harris. The trustees, who are not members of the board of management, are Captains L. R. W. Beavis, T. S. Guns and J. E. Noel.

The Pacific Division is not divided into districts, as the Great Lakes Division is, the whole wor being conducted through the head office. The vice presidents are elected by the resident members for each port having not less than 10 members.

The head office is at 1101 Rogers Building, Vancouver. There are branch offices at 308 Union Bank Building, Victoria, and Exchange Building, Prince Rupert, for the accommodation of members who may live at thosep orts, or call there.

The Federation is working under the constitution of the Canadian Merchant Service Guild, which was incorporated by the Dominion Parliament in 1919.

Uniform Shipping Legislation.

The report of the Imperial Shipping Committee, which was appointed some time ago, to enquire into matters connected with ocean freights and facilities, and with the development and improvement of sea communication between different parts of the Empire, was issued recently. The main point dwelt on is the advantage of uniformity of the shipping laws of the several countries forming the Empire. With respect to the limitation of shipowners' liability under bills of lading, legislation is already in existence, as between the United Kingdom, Canada, Australia and New Zealand, but there is no corresponding legislation between the United Kingdom, India, South Africa and Newfoundland.

The committee made analyses of the Canadian, Australian and New Zealand acts, which showed that they are not uniform, and it was shown that considerable advantage would accrue if a uniform law on the subject prevailed throughout the Empire. It therefore advises that uniform legislation dealing with shipowners' liability be obtained, on the lines of existing legislation, but more precisely on the lines of the Canadian Water Carriage of Goods Act of 1910, subject to further provisions as to exceptional cases, where goods should be carried at owners' risk; the precise definition of the physical limits to shipowners' liability; and the fixing of maximum values for packages, up to which shipowners would be liable to pay. The committee states: "We make the Canadian Water Carriage of Goods Act, and not the Harter Act, which it closely resembles, the basis of our recommendation, because it embodies the latest experience."

Canadian Grain Taking its Proper Route.

Buffalo, N.Y., press dispatch May 8.—The recent reduction in rail rates on grain from Georgian Bay, and other ports to Montreal has caused diversion of an immense quantity of grain from Buffalo to Canadian ports. Large stocks of grain in Chicago, Milwaukee, and at the Canadian head of the lakes are scheduled for delivery at Canadian ports. Yesterday there were eight grain-laden ships waiting at Port Colborne to be unloaded, while the greater number of elevators in Buffalo are idle, and hundreds of empty cars are waiting on side tracks of the trunk lines. The Buffalo Corn Exchange has asked trunk line associations to meet the rate reduction made by Canadian railways immediately, and a reply is expected within a day or two.

Royal Mail Steam Packet Co.'s Atlantic and Pacific Services.

The Royal Mail Steam Packet Co., which has not operated any steamships in the trans-Atlantic service for nearly 60 years, has re-entered that service with its steamships Orbita, Orduna and Oropesa, which will be operated between Liverpool and other United Kingdom ports and New York. It is stated that, in addition to the Atlantic service, the company will operate a line between U. K. ports and Vancouver, B.C., in co-operation with the Holland-America Line. The company's history since its organization in 1839 is very interesting. It commenced business with a small fleet if iron paddle wheel steamships with sails, ranging from the s.s. Actaeon, of 650 tons, to the Dee of 1,849 tons, which in those days were considered large ships. Each of the ships at that time was armed with guns, after the style of a war frigate, the chief reason for this being that steamships mostly carried mails, and piracy on the high seas was at that time in a fairly flourishing condition. In 1849 the company organized a combined transportation service, consisting of mules and canoes, across the Isthmus of Panama, thus opening a route via Colon to South American ports and to San Francisco, and many of the "forty-niners" travelled to California by this route. In that year the company put into service its first screw driven steamship. Today, with its affiliated companies, including the Pacific, Lamport & Holt, Union-Castle, Elder-Dempster and Shire Lines, it controls approximately 2,000,000 tons of shipping.

The Owen Sound Transportation Co. Ltd., Owen Sound, Ont., the incorporation of which was announced in a recent issue, owns the s.s. Michipicoten, owned formerly by the North American Bent Chair Co., of which it is practically a subsidiary. The steamship is operated between Owen Sound and Sault Ste. Marie. The officers of the company are: President, W. G. Hay; Vice President, J. H. Hay; Secretary-Treasurer, J. Garvey.

Eastern Stevedores Ltd. has been incorporated under the Dominion Companies Act, with $50,000 authorized capital, and office at Montreal, to carry on business as stevedore, shipowner, shipwright, wharfinger, etc., and general carrier by land and water, and to own and operate other ships of every description. The incorporators are: J. McNaughton, J. G. Cartwright, J. B. Taylor, A. McIntyre and T. J. Griffin, Montreal.

North Atlantic Ice Patrol.

For the purpose of carrying on the International Ice Observation and Ice Patrol Service, provided for by the International Convention for the Safety of Life at Sea, 1913-1914, the United States coast guard cutter Seneca is locating icefields and icebergs near the Newfoundland Grand Banks, and is communicating information by radiotelegraph to passing ships and to the U.S. branch hydrographic office at New York, for general dissemination. A continuous patrol has been established by the cutters Seneca and Yamacraw, the calls being NRE and NRY respectively. The patrol will continue throughout the system of dangerous ice conditions. Communication will be dispatched to passing ships on a wave length of 600 meters.

The work of these cutters, which is continuous throughout the season of dangerous ice conditions, generally April, May and June, will be greatly facilitated if the principal trans-Atlantic steamship companies instruct their captains to report the following data by radiotelegraph,—icebergs or obstructions sighted, giving date, time, latitude, longitude, and direction of drift, if an iceberg, together with the temperature of the water at the time of observation, temperature of the sea water every 4 hours at the surface and at the bottom injection between lat. 39 deg. and 48 deg. north, when crossing long. 51 deg. and 44 deg. west, bound east or west, giving latitude and longitude, course and speed at the time of each observation. This data will facilitate the plotting of a temperature curve which will be useful in locating the branches of the Labrador current.

C.P.R. Asiatic Traffic Arrangements. The C.P.R. have completed traffic arrangements with the Osaka Shosen Kaisha (Isaka Mercantile Steamship Co.) and the Nippon Yusen Kaisha (Japan Mail Steamship Co.) whereby these two companies' ships will call at the C.P.R. docks at Vancouver, and will handle import and export freight in conjunction with the C.P.R. The C.P.R. have also completed traffic arrangements with all the principal steamship companies operating to and from the Far East, whereby traffic can be handled on either steamship bills of lading or through C.P.R. bills of lading.

Proposed Ontario Taxation of Navigation Companies.—A bill to amend the Corporation's Tax Act, introduced at the Ontario Legislature's recent session, contained the following section:—"Every navigation company, and every company transacting business in Ontario by operating, leasing, or hiring steamboats, shall pay a tax of one-tenth of 1% per annum on the paid up capital thereof." The Dominion Marine Association protested very strongly to the Ontario Government respecting this provision, and the section was withdrawn during the passage of the bill through the house.

Radiotelegraph Operators' Working Conditions.—It is reported that the Naval Service Department's radiotelegraph operators on the Atlantic and Pacific coasts are to have their wages increased and working conditions bettered. It is stated that there will be shorter hours of service, increased leave of absence and higher wages, and that there will be some increase in the staffs, with better housing accommodation at the different stations.

Ships Added to and Deducted From the Canadian Register During February, 1921.

	Steam.			Sailing		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross	Net	No.	Gross	Net
Built in Canada	5	12,821	7,760	3	300	300
Other ships	1	51	22	....	.....	.....
Purchased from foreigners	1	54	27	1	144	144
Transferred to United Kingdom	1	7,546	4,351	....	.....	.....
Totals	8	20,472	12,160	4	444	444
Deducted.						
Wrecked or otherwise lost	7	87	62	10	1,432	1,345
Broken up or unfit for use	17	375	247	37	983	959
Sold to foreigners	1	15	5	1	353	287
Transferred to British Possessions	2	37	34	....	.....	.....
Other ships	....	.....	.....	1	792	699
Totals	27	514	348	49	3,560	3,290

Atlantic and Pacific Ocean.

Between May 1 and 11, 191 ships were cleared from Montreal for the ocean.

The Cunard Line s.s. Venusia, which arrived at Montreal Apr. 28, was the first trans-Atlantic steamship to arrive there this year. The master, Capt. L. Doyle, was presented with a gold mounted cane by the Harbor Commissioners.

The Nippon Yusen Kaisha has announced increases in its steerage fares between Japan, Manila and Puget Sound ports, covering Victoria, Vancouver and Seattle, the new fares being $70 to Yokohama, Kobe and Nagasaki, and $75 to Shanghai, Hong Kong and Manila.

The C.P.R. s.s. Empress of France is said to have established a record on the trans-Atlantic route recently, in making the run from Liverpool to St. John, N.B., in 6 days, 8 hours and 42 min. actual running time, an average of 19.01 knots an hour. She carried 1,466 passengers.

Canadian Western Steamships Ltd., a subsidiary of J. Coughlan & Sons, shipbuilders, Vancouver, B.C., is reported to be arranging to operat a steamship service with the s.s. City of Victoria from Vancouver to Halifax, N.S., and Montreal, via the Panama Canal, calling at the West Indies.

The Cunard Line, which opened the St. Lawrence Navigation season this year with its s.s. Venusia, is reported to have decided not to continue its passenger steamships up the St. Lawrence for the present, and it is stated that the steamships Carmania, Caronia, and Saxonia will land passengers at Halifax, N.S.

A Liverpool, Eng., press report states that 165 ships, aggregating 282,294 tons, are tied up in the Liverpool and Birkenhead docks, due almost wholly to the coal strike, and the impossibility of obtaining coal for bunkers. Most of the trans-Atlantic passenger steamships have been able to obtain coal from overseas ports.

Some of the British steamships arriving at Montreal, instead of taking coal on this side, as is usual when there is coal trouble in England, are filling their bunkers at Rotterdam, for the westbound trip. This is stated as being arranged through the Reparations Commission dealing with the German indemnities.

It is reported from England that British shipowners have locked out about 30,000 members of the national union of ship stewards, butchers and bakers, on account of their refusal to accept a reduction in wages. In several cases passenger ships across the Atlantic are carrying a number of members of local office staffs who volunteered to take the place of the strikers.

The C.P.R. s.s. Montreal, formerly the German s.s. Koenig Friedrich August, was scheduled to sail from Antwerp, Belgium, May 31, via Havre, France, for Montreal and is expected to arrive about June 11. She will make another trip over the same route, arriving at Montreal about July 23, when, it is announced, she will be placed on the route between Montreal and Genoa, Italy, in conjunction with the Navigazione Generale Italiana Co.'s s.s. Caserta, the two steamships providing a monthly service between the two ports. The s.s. Montreal was bought some time ago by the C.P.R. from the British Government and has been thoroughly overhauled and reconditioned at Antwerp. She was built at Hamburg in 1906 and her dimensions are,—length 476 ft., breadth 55 ft., depth 31 ft. She has accommodation for two classes of passengers, viz., cabin and third class. The s.s. Caserta was built in 1904, by Sir W. G. Armtrong-Whitworth & Co., Newcastle-Upon-Tyne, Eng.

The Canadian Robert Dollar Steamship Co. has issued a schedule of its sailings for this year. It operates 7 steamships on both oceans via the Panama Canal. The s.s. Robert Dollar was expected to arrive at New York, May 30, and to leave there June 15 for Vancouver, whence she will sail about July 20 for the Orient, returning to Vancouver about Oct. 24. The s.s. Melville Dollar is expected to reach Vancouver from the Orient June 14, sail for New York via the Panama Canal June 21, arrive at New York about July 19, and return to Vancouver via the same route by Sept. 1, leave for the Orient about Sept. 8, and return to Vancouver about Dec. 11. The s.s. Harold Dollar will operate on the same route between June 23 and Dec. 29, and the steamships Esther Dollar, M.S. Dollar and Grace Dollar will run on the round-the-world service, making calls at New York, San Francisco, Vancouver, Kobe, Shanghai, Hong Kong, Manila, Singapore, Calcutta and Colombo.

Maritime Provinces and Newfoundland.

The C.P.R. shipped out of the port of St. John, N.B., last winter, 9,414,000 bush. of grain.

The s.s. Constance is reported to have been placed in service between Pictou, N.S., and Charlottetown, P.E.I.

The U.S. s.s. Chickamauga, bound from New York to Svenborg and Copenhagen, had to put in at Halifax May 7, with disabled steering gear.

The name of the s.s. Manola, owned by Canada Steamship Lines, and operated between Montreal and St. John's, Nfld., has been changed to Mapledawn.

The name of the s.s. Clare Hugo Stinnes I, formerly German owned, and now owned by H. A. Powell, K.C., St. John, N.B., has been changed to Phillip T. Dodge.

Halifax lightship no. 15 was removed from her station at Sambro, May 13, for general overhaul, before taking up her station for the summer in the Gulf of St. Lawrence.

Magdalen Transports Ltd., incorporated recently, has acquired the s.s. R. W. Hendry for operation between Pictou, N. S., Souris, P.E.I., and the Magdalen Islands. The Managing Director is W. Fraser, Pictou, N.S., and R. W. Hendry and W. Leslie, Halifax, are interested.

The following Nova Scotia companies have had their certificates of registration revoked:—La Have Shipping Co., Tusket Shipbuilding Co., William Duff Shipping Co., Shipping Syndicate Ltd., Steam Trawlers Ltd., Schooner D.W.D. Ltd., McKay Shipbuilding Co., and Baker Shipping Co.

The s.s. Bernard M., which has been operating for about 3 months in freight service between Yarmouth and Halifax, N.S., has been withdrawn, owing, it is stated, to the owners' failure to obtain a subsidy from the Dominion and Provincial Governments. She is being overhauled at Wedgeport, N.S.

The French s.s. Pro Patria, bound from Halifax for North Sydney, N.S., and St. Pieyre, Miquelon, went ashore at Cranberry Head, May 18, with a full cargo of freight, but no passengers. She was reported as resting on a rocky bottom in a somewhat dangerous position. It was hoped to refloat her at high tide.

Imperial Oil s.s. Impoco, which stranded on Blonde Rock, off the Nova Scotia coast Apr. 6, was refloated May 4, by the Maritime Wrecking Co., Halifax, N.S. She was hauled to deep water by the company's tugs Maggie Marshall and Sarnia City. She is stated to be the first ship to be refloated after stranding on Blonde Rock.

The s.s. North Shore, which arrived at Quebec, Que., towards the end of April from North Shields, Eng., is intended for the Clarke Steamship Co.'s service between Quebec and Gulf ports. She is a screw driven steamship of about 800 tons, with good passenger and cargo facilities. A second ship for service to south shore ports is reported to be in Halifax undergoing general overhauling and was expected to be ready for service toward the end of May.

Province of Quebec.

Montreal Harbor Commission's employes' salaries were reduced on May 1 by 10 to 12%.

Anticosti Island (Henri Menier Estate) owns the s.s. Savoy, with Capt. E. Caron as master and N. Lecours as chief engineer.

The Quebec Harbor Commission has entered a seizure action against the French Government s.s. Bouzonville, one of the French wooden steamships built at Three Rivers, Que., recently. A claim for $35,000 is made for damage caused to the drawbridge at the Louise basin when the ship was being towed in there by the tug Belle.

The icebreaking steamship John D. Hazen, which was built for the Dominion Government, by Canadian Vickers Ltd., Montreal, in 1916, for use on the St. Lawrence, and which, at the British Government's request was sold to the Russian Government at cost in the early stages of the war, is reported to be at Cherbourg, France. When she was handed over to the Russian Government, she was intended for keeping open ports in the White Sea. After the Russian revolution, all trace of her was lost for some time. It is possible that she may be acquired by the Dominion Government again.

Ontario and the Great Lakes.

The s.s. Prince Ito, owned by B. Dick, Jr., Welland, Ont., has had her name changed to Baxter Dick.

The Spanish River Pulp & Paper Mills has changen the name of its s.s. John Hunsader to Puckasaw.

The steam tug P. S. Hiesordt, owned by E. F. and D. J .Burke, Midland, has had her name changed to Ruth B.

The s.s. Traveller, owned by the Lake Superior Paper Co., Sault Ste. Marie, has had her name changed to G. R. Gray.

The s.s. Minnie A. Clark, owned by Booth Fisheries Canadian Co., Toronto, has had her name changed to Red Fox.

The George Hall Coal Co.'s s.s. John B. Ketchum 2nd, bound from Lorrain, Ohio to Montreal, with a cargo of coal lost her rudder near Farrans Point in

the St. Lawrence River, May 6. She anchored opposite Croils Island and awaited a tug.

The Governor in council has approved the transfer of the license for the operation of a ferry across the St. Clair River between Port Lambton, Ont., and Roberts Landing, Mich., from J. H. Ansell to W. G. Dawson for 10 years from Jan. 1, 1921, at an annual rental of $1.

The motor ship Schoolcraft, owned by Manly Chew, Midland, Ont., which sank after burning last autumn, near Wolfe Island, in the St. Lawrence River, is to be salved. It is stated that when she is raised the machinery will be removed to Midland for installation in another hull.

The s.s. Iona was offered for sale by tender up to May 14, by the Marshal of the Admiralty Court, Toronto Admiralty District, Exchequer Court of Canada. She was built at Meaford, Ont., in 1904, and is screw driven by steeple compound engine of 9 h.p. Her dimensions are,—length 58.2 ft., breadth 13.2 ft., depth 5.6 ft.; tonnage, 29 gross, 20 net.

The Great Lakes Transportation Co., Midland, Ont., has bought the steam tug Mary R., owned formerly by A. J. Brydges, Cornwall, Ont., and has changed her name to Strathbungo. She was built at Port Colborne, Ont., in 1897, and is screw driven, by engine of 27 h.p. Her dimensions are,—length 47.3 ft., breadth 16 ft., depth 9.6 ft.; tonnage, 44 gross, 30 net.

The Honey Harbor Navigation Co., the incorporation of which was announced in our last issue, was formed to take over the business operated formerly by the Motor Boat Transportation Co., Midland, Ont., of which N. K. Wagg was sole owner. The company has bought the s.s. City of Dover, and now owns, in addition to that, the yacht Tenno and the launch Water Bus. The officers are: President and Manager, N. K. Wagg; director, M. G. Wagg, Secretary-Treasurer, R. R. Wilson.

The Dominion Public Works Department is reported to have served notices on owners of dismantled ships in and about Port Arthur harbor, that immediate steps must be taken to remove all derelicts and hulks which have been lying around the harbor for some years, as soon as possible. It is stated that between no. 5 dock and the Booth Line dock upwards of 20 of these derelicts are impeding navigation for small craft and giving the water front a very untidy appearance. Where owners cannot be located, the Department will probably remove the obstructions.

James Richardson & Sons Ltd., grain merchants, Kingston, Ont., have bought the s.s. Susie Chipman, from Cheboygan Steamship Co., Cheboygan, Wis., for the coal trade. She is of the well deck type, with oak hull, and was built at Milwaukee, Wis., in 1885, and rebuilt there in 1913. Her dimensions are,—length b.p. 122 ft., breadth moulded 26 ft., depth moulded 9 ft. She is equipped with high pressure non condensing engine, with cylinder 24 in. diar. by 24 in. stroke, 225 h.p., at 104 r.p.m., supplied with steam by a firebox boiler 6½ ft. diar. by 12 ft. long, at 90 lb. She is 216 tons gross, 164 tons net, and has a carrying capacity of 400 tons.

The Georgian Bay Tourist Co. is reported to have bought the s.s. America from Canada Steamship Lines, for operation in Georgian Bay district summer trade. The America was built at Kingstone, Ont., in 1895, and named Maud. She has a composite hull, her dimensions being length b.p. 153 ft. 2 in.; breadth moulded 33 ft. 2 in., depth moulded 6 ft. 4 in.; tonnage 521 gross, 266 net. ' She is equipped with an inclined tangent compound engine, with 2 cylinders 20 and 36 in. diar. by 36 in. stroke, 400 i.h. p., at 65 r.p.m., supplied with steam by a firebox boiler 7½ ft. diar. by 13 ft. long. She was overhauled and repaired by Davis Drydock Co., Kingston, during May.

Manitoba, Saskatchewan and Alberta.

The Mackenzie River Transportation Co. Ltd. has been incorporated, with head office at McMurray, Alta.

James Anderson, of Peace River, Alta., is reported to have been in Vancouver, B.C., during May to order a steamboat for operation on the Peace and Mackenzie Rivers. It is stated that the boat is for an Eastern syndicate, which is exploring for oil north of Fort Norman.

The fiftieth anniversary of the sailing of the s.s. Selkirk down the Red River, from Grand Forks, N.D., to Fort Garry (now Winnipeg), Man., was celebrated, May 1. This is not claimed to have been the first boat to have navigated the river, as this was accomplished in the early part of 1859 by the s.s. Anson Northrup, some details of which, with an illustration of the boat, were given in Canadian Railway and Marine World in Sept. 1919.

British Columbia and Pacific Coast.

The Dominion Public Works Department received tenders to May 26, for building a pile bent and timber decking wharf, at Ioco townsite, Burrard Inlet, B.C.

Navigation was opened on the Yukon River about May 13, when the main river south of Dawson, between Lake Labarge to Carmache, was reported practically clear of ice.

A Dawson, Yukon, press report of May 13, stated that U.S. ships will be allowed to carry silver lead ore from Mayo Landing this year, owing to the shortage of Canadian bottoms anh andle the increased output of the silver works at Ceno Hill.

The ferry steamboat North Vancouver, No. 1, originally named North Vancouver, and owned formerly by the City of North Vancouver, B.C., at present owned by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., has had her name changed to Norvan.

The C.P.R. s.s. Princess Victoria, which had three new funnels fitted by Victoria Machinery Depot Co., recently, had her interior furnishings overhauled at Victoria, and new propeller shafts fitted by Yarrows Ltd. during May, and was placed in service on the Gulf route May 23.

The Hudson's Bay Co. is having built at Vancouver, by its own builder, Geo. Askew, two gasoline tugs, each 60 ft. long, with tunnel screw, and 90 h.p. Wisconsin motor engines; also three freight barges, 75 ft. long, with a freight capacity of from 50 to 60 tons, for Mackenzie and Athabaska Rivers transport.

Lt. Col. G. H. Kirkpatrick, President, Vancouver Harbor Commissioners, returned to Vancouver recently, after spending some time in Ottawa, where he consulted with the Minister of Marine on matters concerning the port. It is stated that among them were the letting of a contract for the North Vancouver ferry service and the title to certain waterfront property which is in dispute between the C.P.R. and the Commissioners.

The steamships War Charger and War Chariot, built by J. Coughlan & Sons, Vancouver, B.C., for the British Government, under orders from the Imperial Munitions Board, and subsequently sold to Greek interests, and renamed Navarchos Koundouriotes and Iocasti, respectively, have both been destroyed by fire. They were both steel cargo steamships, and during construction in 1918 were both damaged by fire in the shipbuilder's yard.

The Grand Trunk Pacific Coast Steamship Co.'s summer schedule becomes effective June 12. The steamships Prince Rupert and Prince George will run between Seattle, Wash., Victoria, Vancouver, Ocean Falls, Swanson Bay, Prince Rupert, Anyox and Stewart, the s.s. Prince Rupert leaving Seattle, Sunday, arriving at Anyox, Thursday and returning to Seattle the following Sunday; the s.s. Prince George leaving Seattle, Wednesday, arriving at Stewart, Sunday, returning to Seattle the following Wednesday. The s.s. Prince Albert will continue on her present route to Prince Rupert and Queen Charlotte Islands.

Senator Taylor, New Westminster, B. C., called attention in the Senate, recently, to the undertakings of successive governments to maintain the Fraser River as a highway for ocean traffic and to the failure to make satisfactory progress with the permanent improvements at the sand heads at the river entrance; and asked who assigned to three Public Works Department employes the investigation of prospective trade on the Fraser River; the namesand addresses of the three persons assigned and their qualifications; were any opinions they made, if offered, to the Minister of Public Works accepted as superior to those of Fraser Valley business men and those representing that their interests are suffering loss because of the delay in making the river accessible to shipping. On an assurance being given that satisfactory arrangements had been made for an enquiry into the matter the questions were withdrawn.

The Supreme Court of Canada reserved judgment recently in the appeal of Thorndyke Trenholme Co. against the British Columbia Court of Appeal's judgment in favor of William Lyall Shipbuilding Co., on a claim for $135,000, being commission of 5% upon six ships built and sold by the respondent company to a Belgian purchaser in Paris, France. In the original trial it was held that the purchaser did not carry out the sale by paying the money as required, and as a matter of fact he refused delivery of the ships, and was condemned to pay the building company $1,300,000 damages for breach of contract. The B.C. Court of Appeal held that there had been no contract, and in the Supreme Court it was held by Mr. Justic Galliher that the commission became due only when the whole purchase money had been paid. The other two judges, Martin and McPhillips, dissented, holding that the commission was due from the moment the contract had been agreed on.

Mainly About Marine People.

Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and of the Naval Service, will probably sail for England in June, accompanied by Mrs. Ballantyne and their sons, to spend most of the summer.

H. P. Cousins, first officer of the C.G.S. Arras, and E. G. McCormick, first officer of the C.G.S. Laviolette, have been appointed fishery officers in the Fisheries Protection Service.

Capt. G. Edmund Mack, Superintendent of Bay Transport, Hudson's Bay Co., Montreal, paid a brief visit to England recently.

J. W. Norcross, President, Canada Steamship Lines, Montreal, and family, will spend the summer at their country house at Dorval, Que.

Sir Frederick Orr-Lewis, President, Canadian Vickers, Ltd., Montreal, returned to Canada, May 8, from England, via New York, having sailed on the s.s. Mauretania.

R. R. Russell has been appointed harbor master, Digby, N.S., succeeding Capt. O. R. Dakin, deceased.

Miss Jean K. Smith, only daughter of Horace B. Smith, President, Collingwood Shipbuilding Co., Halifax Shipyards Ltd., etc., Toronto, will be married on June 1 to Lt. Col. W. G. Barker, V.C., D.S.O., M.C., etc.

R. M. Wolvin, President, British Empire Steel Corporation, and who is interested in several steamship enterprises, and Mrs. Wolvin, have opened their country house at Dorval, Que., for the summer.

Longshoremen's and Shipliners' Wages at Montreal.

The Shipping Federation of Canada has made agreements with the Montreal longshoremen and shipliners on the basis of those in force during 1920, the only changes being in the rates of wages. Following are the new rates compared with those for 1920:—

	General cargo	Bulk cargo	Grain	Coal
7 a.m to 6 p.m.				
1921	60c.	75c.	75c.	65c.
1920	70c.	85c.	85c.	75c.
7 to 11 p.m.				
1921	85c.	95c.	95c.	95c.
1920	$1.05	$1.27½	$1.27½	$1.27½
12 to 5 a.m.				
1921	90c.	1.12½	1.12½	97½c.

The agreement with the shipliners provides for a reduction of about 15%, the new rates being 60c. an hour for day work, 75c. an hour for night work, and double time for Sundays.

The Glen Transportation Co. Ltd.

Some details of the management of this company's ships were given in Canadian Railway and Marine World for May. We have since been officially advised that the company owns the following steamships:—Cicoa, Glenadam, Glenafton and Glenclova, and that these will be operated on the Great Lakes, by the company, of which James Playfair, President, Great Lakes Transportation Co., Midland, Ont., is President; A. E. Matthews, President, Matthews Steamship Co., Toronto, is Vice President and Manager, and E. P. Farley, 6 North Michigan Ave., Chicago, Ill., is Secretary. The names of these steamships were included under the name of the Mathews Steamship Co. in our list of ocean, coast, lake and river steamship officers for 1921, published in the April issue, according to information supplied, but this was an error, as they should have appeared under the name of Glen Transportation Co.

The s.s. Cicoa was owned formerly by the Charcoal Iron Co., Detroit, Mich., and has a steel hull with the following dimensions,—length overall 260 ft., length b.p. 255 ft., breadth 41 ft.; tonnage 1,614 gross, 2,600 cargo capacity. She has six 12 ft. cargo hatches spaced 24 ft. centers, and the hull is divided into 3 compartments. She is equipped with triple compound engines with cylinders 14, 25 and 42 in. diar. by 30 in. stroke, supplied with steam by 2 Scotch boilers, each 11 x 11 ft. Details of the other three ships were given in our May issue, pg. 282.

Welland Ship Canal Contracts.

The contract for the completion of the work on section 5 of the Welland Ship Canal, the bulk of which consists of dredging, has been awarded by Railways and Canals Department to Canadian Dredging Co., Midland, Ont., which has done all the work on this section up to date. In addition to the remaining portion of the dredging, which was included in the original section 4, has been incorporated with section 5, the Canadian Dredging Co.'s new contract covering the whole.

We are officially advised that tenders for sections 1 and 2 will be invited within the next month or two, and for section 3 later on. Section 1 covers the construction from Lake Ontario for about 3 miles, including pier and trestle work at the entrance to the canal, construction of lock 1, and canal work to bridge 2. The original contract was given to the Dominion Dredging Co. Aug. 1, 1913, the amount of the contract based on schedule rates at that time was $3,487,727, and when the work was suspended, it was considered to be about 69% completed. Section 2 covers the work from bridge 2 to bridge 5, about 4½ miles, including locks 2 and 3. The contract was let Dec. 31, 1913, to Baldry, Yerburgh & Hutchinson, the amount based on schedule rates at that time being $5,377,185.75, and when work was suspended it was considered to be about 59% completed. During the last two years considerable additional work has been done on section 2 by the original contractors, an the basis of cost, plus 8%.

U.S. Marine Strike.—A general strike of the mariners in the U.S. was called May 1, as a response to the United States Shipping Board's proposal to reduce wages by 15%. Most of the ports in the U.S. were affected, although some attempts were made, more or less successfully, to operate some ships. Representations were reported to have been made on the matter to the President, who is said to have declined to interfere. The matter has been left with the U.S. Secretary of Labor to deal with, and conferences were held during May with the different parties affected, but up to the time of writing, May 21, no settlement had been reached, the U.S. Shipping Board confirming its stand and insisting on a 15% reduction. The number of men affected is estimated at 125,000, of whom about 40,000 are in New York port.

Certificated Masters for Auxiliary Powered Schooners.

Some trouble arose at Quebec, Que., recently, stated to be on the initiative of the Masters and Mates Association, relative to the operation of schooners, equipped with auxiliary power, without the services of a certificated master or other officer. The law requires that all ships equipped with auxiliary power be registered as steamships, a steamship being described as "any ship propelled wholly or in part by steam or motive power other than sails or oars." On the one side it was held that such ships, sailing without a certificated officer, are a menace to navigation, and on the other a registered tonnage of 10 and even less, side it was urged that many ships, with are so equipped, and that it would be impossible for such ships to earn sufficient to pay for such services, and that in any case there is not menace to navigation, as they are in charge of competent men. In addition it was urged that such ships are operated into, and out of, Montreal without certificated masters. It is reported that on the submission of the matter to the Marine Department, instructions were sent to the Quebec customs officers that ships under 100 tons register and equipped with auxiliary power are to be cleared at Quebec without certificated masters. The Collector of Customs at Montreal is reported to have stated that only sailing ships of 150 tons and over, equipped with auxiliary power, are required to be in charge of certificated masters.

Welland Canal Lock Gate Accident.—Canada Steamship Lines' s.s. Arabian, while upbound, light, struck and carried out the two upper gates of lock 8, in the Welland Canal, May 3. The water from the reach above washed out the rear slopes of the banks at the head of lock 7. Two spare gates were placed in position, and navigation was resumed the same day, after a suspension of approximately 16 hours, a number of ships being delayed. The Arabian had her rudder stock, propeller shaft, and one propeller blade damaged, and was docked at Port Dalhousie for repairs. It is said that the accident was due to the ship entering the lock at too great speed, and failure to get out the lines on the snubbing posts, on account of their fouling in the compressor. The cost of the repairs to canal works is estimated at $9,000.

The Dominion Government s.s. Arctic is being overhauled and equipped at King's wharf, Quebec, and we are officially advised that she will sail for northern waters shortly under the Interior Department's orders. One report from Quebec states that she will sail in June in another attempt to reach the North Pole, and another report states that she will sail in July for the Mackenzie River to act as a patrol vessel in connection with the oil discoveries in that district. She made a cruise in Arctic waters a few years ago in charge of Capt. J. Bernier.

The Hudson's Bay Co.'s Motorship Lady Kindersley, the launching of which by B.C. Marine Engineers & Shipbuilders Ltd., Vancouver, B.C., was announced in a recent issue, will, when completed, sail from Vancouver through Behring Sea and Strait round Cape Barrow to Mackenzie River. Capt. G. Toellmer has been appointed master and G. R. Priestman, chief engineer. The ship has been registered at Vancouver.

Wreck Commissioners Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Stranding of s.s. Princess Beatrice.

Held at Vancouver, B.C., March 9, by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Commander F. W. Evans, R.D., R.N.R., and Capt. A. P. W. Williamson, as assessors, into the stranding of the C.P.R. British Columbia Coast Service s.s. Princess Beatrice on Jedidiah Island, Sabine Channel, Feb. 10. The evidence showed that she left Vancouver on the night of Feb. 9, for Prince Rupert, and after clearing the Narrows, and before reaching Cape Roger Curtis, the mate, F. R. Springall, took charge of the watch, the weather being clear, sky overcast, wind moderate, and visibility good. The master, Capt. W. J. Boyce, after writing the night orders up, and assuring himself that the ship was on her proper course, retired to rest, which, under the circumstances, the court considered he was justified in doing. A proper course was set for Bare Island, where the course would have to be altered to enter Malaspina Strait. After passing Merry Island light, where the change should have been made, it was, for some unaccountable reason, which there was not sufficient evidence to establish, not made by F. R. Springall, the officer in charge of the watch, and the ship proceeded on her course some 50 mins. longer than she should have done, with the result that she entered Sabine Channel, instead of Malaspina Strait, thus making Texada Island on the starboard, instead of on the port, bow. When the officer realized his mistake, there were two evolutions left for him to perform, either of which would have averted the casualty. One was to proceed on through the Sabine Channel, which, though narrow and congested, is perfectly safe and navigable, and the other, the more prudent and seamanlike action, was to stop the ship, verify his position, and turn her round under port helm, with the aid of the engines, the ship having a right handed propeller. He, however, presumably acting on the assumption that there was ample space in which to turn the ship around at full speed under starboard helm, ordered the helm put hard a starboard, with the result, there being insufficient room, she struck on Jedidiah Island, with the engines still going at full speed. The force of the impact was such that she was extensively damaged, and took water rapidly. The master, on coming from his cabin, quickly realized the situation, and anticipating that the ship would slip off the rocks with the rising tide, very properly and prudently gave instructions to lower the boats and land the passengers without delay. The passengers were no sooner landed than, as the master surmised, the ship floated off into deep water, and he at once proceeded, with all possible dispatch, to Tucker Bay, the nearest anchorage, about 5 miles distant, with the view of beaching her if necessary. The court expressed the opinion that considerable credit is due to the master for the energy and initiative he showed under very trying circumstances, and also to the owning company, for the prompt manner, in response to wireless messages from the s.s. Princess Beatrice, in which another of the company's ships was diverted from her usual run, to re-embark the stranded passengers and carry them to their destinations with little loss of time. The court held that the casualty was entirely due to the inexcusable negligence, and inattention to his duties, displayed by the first mate, F. R. Springall, who was in charge of the watch at the time, and therefore found him solely in default, and suspended his certificate of competency, no. 5,539, as master of a passenger steamship in the coasting trade, for three months, with the remark that this leniency is shown in consideration of his hitherto good record and long service in the C.P.R., coupled with the fact that his services have been dispensed with by the company. No blame was attached to the master, or any member of the crew, or to the owners, but on the contrary, it was stated that considerable credit was due to all concerned for the prompt manner in which all the passengers were safely landed, and shortly after re-embarked on another of the company's ships.

Stranding of the s.s. Kaduna.

Held at Halifax, N.S., March 15, before Capt. H. St. George Lindsay, commissioner, assisted by Capts. C. L. Willate and Neil Hall, as nautical assessors, into the stranding of Elder Dempster & Co.'s s.s. Kaduna on Pot Rock near Fourchu Head, N.S., Feb. 23. The evidence showed that the ship sailed from Barry Roads, Wales, in ballast, for Louisburg, N.S., Feb. 9. The compasses had been adjusted before sailing, and observations for errors were taken on all possible occasions, and apparently all corrections were properly applied to the courses. The ship was fully supplied with charts, sailing directions, etc. The position of the ship on Feb. 23 was ascertained by good cross bearings and verified off St. Esprit Island light, and the compass course set was a safe and proper one under the conditions. The lead was not used, as there was apparently no necessity, and a good lookout was kept. The ship struck off Pot Rock, having been, in the court's opinion, gradually carried inshore by ice pressure to starboard, which was not perceivable to those in charge. The unanimous opinion was expressed that the ice drift was to the north and westward, or toward land. The navigation was carried out in a careful and seamanlike manner, and the court exonerated the master and officers from blame, but expressed the opinion that the risk undertaken in navigating a ship during darkness, in such close proximity to land, and under the then existing circumstances, was not justifiable, and therefore cautioned the master, Capt. R. Owens, for the future not to allow his better judgment to be influenced by information and reports, somewhat belated when received, on ice conditions, which are liable to continuous and rapid change, more especially in light winds and fine weather. The court also expressed the opinion that had the master been aware of the non existence of the light on Fourchu Head, the casualty would not have occurred, and therefore strongly recommended that all shore lights and lighted buoys in the Light Lists, which are either extinguished or removed during winter, should have a note to that effect in the remark column of that publication.

Loss of s.s. City of Colombo.

Held at St. John, N.B., March 29, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. A. J. Mulcahy and John Hall, as nautical assessors, into the stranding and loss of the British s.s. City of Colombo, about 16 miles west of Digby, N.S., in the Bay of Fundy, March 20. The evidence showed that the City of Colombo left St. John, N.B., March 20, and that, after dropping the pilot near Partridge Island, a course was steered to make the outer St. John harbor buoy, after passing which a course was set to pass Pointe Lapreau, when another course was shaped, and the master, Capt. J. J. Robertson, after hearing the fog signal at Pointe Lapreau, determined that he was about 2½ to 3 miles from it, but did not cast the lead nor obtain a cross bearing. His intention was to pass west of Grand Manan, but the weather becoming thicker, he changed his mind. His first error, especially for one who was a stranger, and not having noticed whether his cargo of iron had affected his compass, was his failure either to take cross bearing of the fog horn, or cast the lead, to assure himself as to the position of his ship. This was necessary, in view of the fact that nothing could be seen, owing to the fog, and more especially as he admitted lack of knowledge, and the error of his log which he thought was fast, even erratic, and the possible drift of his ship, it then being ebb tide. The court refrained from saying that at the distance the iron was from the standard compass, the magnetic influence would have necessitated a greater deviation than that observed on the passage out, but a disturbance was possible under the circumstances. The lead was cast frequently, and had not the master had a fixed idea that he was near Grand Manan it is possible soundings would have been taken oftener still, especially as he felt he was lost in his calculation. The court expressed its surprise that he did not avail himself of the direction finding station at Red Head. He had a wireless equipment on board and could have cleared the situation by availing himself of this very useful aid to navigation, and he could have asked for several bearings, more especially as no charge is made. At the time of grounding, the ship was going half speed, and had it remained stationary, with the southwest wind, it would have been brought toward deeper water, or the master could have let his anchor run down slowly and awaited events. The court felt that the master, who remained constantly at his post, used the lead with some frequency, and this precluded a charge of carelessness, but it considered that he erred gravely in not availing himself of the means, easily obtainable, to determine his position. The court therefore found that the master was solely in default and suspended his certificate for three months, from March 29 to June 28, inclusive. The officials and engineers were exonerated from all blame. A rider was added, on the pilot pointing out to the court that he had often seen fishing vessels at a point which he marked on the chart 45.35n. 66.20w., which is only an approximate bearing, which is supposed to be shoaler than other places, and which is not shown on the chart amongst the soundings. In view of this, the court

suggested that further enquiries as to the existence of such a bank should be made. From the court's knowledge of the Bay of Fundy, it was stated that fishermen have frequently been seen in all parts of the bay fishing, but that does not indicate that such places are shoaler than shown on the chart.

Stranding of s.s. Impoco.

Held at Halifax, N.S., Apr. 14, before Capt. L. A. Demers, Dominion Wreck Commissioners, assisted by Capt. Neil Hall, Port Warden, and Capt. T. R. Coffin, master of Canadian Government Merchant Marine s.s. Canadian Forester, into the stranding of Imperial Oil's s.s. Impoco, on Blonde Rock, off the Nova Scotia coast, Apr. 5. The evidence showed that the ship was supplied with three compasses, and all the necessary apparatus to carry on navigation. The compasses were adjusted in New York in Aug. 1920. The navigation book was left on the ship, but the log had been brought off. The ship was bound from Halifax, N.S., for St. John, N.B., and left Halifax, Apr. 4, at 1.35 p.m., striking on Blonde Rock at 6.36 a.m. the following day, the sea being smooth. The master was asleep in the chart room, having been up during the night. He had allowed two points deviation on the compass, and the ship steered well. He had given the course to the chief officer, with instructions to call him when Blonde Rock buoy was sighted. After the ship had struck, the chief officer had stated that he had not seen the buoy, but the master saw it later, and it appeared to be in position. It was daylight, and the chief officer had kept his watch on the bridge. He appeared to be a reliable officer, and had been on the ship since February. The course steered should give a mile clear of Blonde Rock buoy. The tide was flood, and the ship struck about two hours before high water. He knew the influence of the tides in the neighborhood. He took soundings after the striking. She went aground to 'midships and was practically open from the forepeak to 'midships, with 2 fathoms of water forward, 3 amidships and 3 to 6 fathoms aft. She was abandoned Apr. 7, after attempts had been made to float her off at high tide. The chief officer, Charles Pope, who holds a Newfoundland sailing ship command certificate, granted in 1920, stated that his experience was nearly all in deep water, and he joined the ship in February as second officer, and was promoted during this last trip. At the time he got the course, which would lead about a mile from Blonde Rock buoy, no reference was made, by the master, to the tide. He watched the course by the steering wheel, and all the time she seemed to be making inside her course, and he thought it might be due to tide. He looked for the buoy, but did not see it, and after the ship struck, the buoy was 3 points on the port bow. He could not account for not seeing it. The ship was setting in to starboard all the time, and his idea as to compensation was to steer a little bit on the other side.

The court found that the master, W. R. Smeltzer, had, in view of the weather conditions, plotted down and given a proper course, which, with steering and attention, would have cleared the ship of all outstanding danger, viz., Blonde Rock; also that upon coming on the bridge at the time the ship touched, and after, he used proper and necessary means to get her out of her dangerous position. He was therefore exonerated from all blame. The loss of the ship was found to be due, solely to the default of the chief officer, C. Pope, in failing to supervise the steering properly, which was carelessly executed; failing to make himself acquainted with the stage of the tide and its possible influence; for not calling the master when instructed to do so; for not taking proper bearings of the objects in view, and for lack of proper and efficient lookout. The court could not detect from the evidence that there was wilfulness in bringing about the stranding of the ship. It therefore suspended the certificate of the chief officer, Charles Pope, no. 421 Newfoundland, for 12 months from Apr. 13.

Harbor Development and Drydock Construction at St. John, N.B.

A very complete illustrated description of the work being done in Courtenay Bay, St. John, N.B., for the Dominion Government, by the St. John Drydock & Shipbuilding Co., was published in Canadian Railway and Marine World for May 1920. As therein stated, the company's contract provides for the construction of 2,500 lin. ft. of breakwater extension; dredging of an entrance channel, 500 ft. wide, with 22 ft. depth at lowest water (maximum tide 28 ft.), involving the removal of about 2,500,000 cu. yd. of sand, gravel and clay; dredging for a turning basin to a depth of 32 ft. at lowest water, requiring the removal of about 4,500,000 cu. yd. of sand, gravel and clay; the removal of some 140,000 cu. yd. of submarine rock, leading into the entrance of the drydock; and the construction of a series of deep water piers.

When the article referred to above was published in May 1920 the rock excavation in the prism of the drydock, and the construction of the breakwater, were under way, and the cofferdam for unwatering the entrance channel to the drydock had been completed. Excavation of the rock within the cofferdam area was started in May 1920, and has been carried on concurrently with the excavation in the drydock prism. Up to the end of April approximately 120,000 cu. yd., of the total of 140,000 cu. yd. of rock in the entrance channel, had been removed without any serious trouble from water, a 6 in. centrifugal pump taking care of the water coming in. About 18,000 cu. yd. of rock remain in the drydock prism. It will thus be seen that the excavation, both in the entrance channel and the drydock prism, are very near completion.

The 20 in. hydraulic pipe line discharge dredge Tornado started work in the basin towards the end of Oct. 1920, and by the beginning of March had very nearly completed the reclamation to the north of the drydock. During this period some 900,000 cu.yd. of material were pumped, to make up an area of 40 acres, which will be the location of the proposed ship repair plant and service ground. The dredge Tornado has been undergoing repairs and renewals and during May resumed dredging operations in the basin and main channel.

The breakwater is completed, with the exception of the laying of some 15,000 cu. yd. of cover stone.

Drydock.—Under the terms of the Drydocks Subsidies Act 1910, and the Drydocks Amendment Act 1917, the St. John Drydock & Shipbuilding Co. has undertaken to build and operate a drydock of the first class, for naval and general purposes, which will have the following dimensions,—length 1,150 ft., width at coping 133 ft., depth on sill at high water 44 ft. The drydock will be the only one on the Canadian Atlantic coast capable of taking ships over 600 ft. long, and will embody in its construction the latest and most efficient features of drydock construction. Provision will be made, by an intermediate sill and caisson, to use separate portions of the dock, 650 ft. and 500 ft. long, to suit the size of ships to be accommodated. The inner and outer entrances will be closed by floating caissons, two of which will be provided. The pumping equipment will consist of three 52 in. vertical centrifugal motor driven pumps, capable of unwatering the dock in 2½ hours. The dock will be equipped with a travelling crane, capable of lifting 40 tons at a reach of half the width of the dock. Preparations are being made to proceed with the concrete construction of the drydock during this summer.

A. R. Dufresne, B.A.Sc., C.E., is the company's Engineer and Manager.

The Dominion Coal Co.'s steamships Daghill, Lingan and Maskinonge, loaded 11,000, 7,000 and 7,000 tons of coal respectively, during May, for British ports.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during April, 1921:

Articles			Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B. M.	.....	.....	.....
Flour	"	Barrels	.....	54,540	54,540
Wheat	"	Bushels	809,000	7,783,826	8,592,826
Grain, other than wheat	"	Bushels	1,088,806	6,330,702	7,418,708
Copper	"	Short tons	.....	145	145
Iron Ore	"	Short tons	.....	95,328	95,328
Pig Iron	"	Short tons	.....	.....	.....
Stone	"	Short tons	.....	.....	.....
General Merchandise	"	Short tons	1	1,456	1,457
Passengers	"	Number	.....	.....	.....
Coal, soft	Westbound	Short tons	.....	259,288	259,288
Coal, hard	"	Short tons	.....	109,719	109,719
Iron Ore	"	Short tons	.....	.....	.....
Manufactured Iron and Steel	"	Short tons	.....	1,296	1,296
Salt	"	Short tons	.....	3,045	3,045
Oil	"	Short tons	.....	52,526	52,526
Stone	"	Short tons	.....	.....	.....
General Merchandise	"	Short tons	5,095	7,704	12,799
Passengers	"	Number	5	.....	5
Summary					
Vessel Passages		Number	104	266	370
Registered Tonnage		Net	104,243	535,259	639,502
Freight—Eastbound		Short tons	43,991	474,467	518,458
Westbound		Short tons	5,095	433,578	438,673
Total Freight		Short tons	49,086	908,045	957,131

Canadian canal opened Apr. 9; U.S. canal opened Apr. 7.

General Shipbuilding Matters Throughout Canada.

B.C. Engineers and Shipbuilders Ltd., Vancouver, B.C. — The Hudson's Bay Co.'s motor ship Lady Kindersley, the launching of which was mentioned in our last issue, is nearing completion at this company's yard. Her dimensions are,—length overall 200 ft., length at loaded wated line 188.6 ft., beam 36 ft., moulded depth 15 ft., draft loaded 12 ft., tonnage 714,48 gross, 549.76 registered. She is a three masted schooner equipped with auxiliary power, consisting of a 2-cycle Beardmore semi Diesel engine of 360 h. p. She has been built especially for the Arctic trade, and the hull, from the keel to the lower guard, is entirely sheathed with 2 in. iron bark. The stem and forefoot are cut away for ice breaking, and are further protected by a heavy electrically welded shoe. Her speed will be 7 knots an hour. The accommodation for officers and 6 passengers is arranged aft, and that for the crew in the forecastle. The trial trip has been arranged for June 6 and it is expected that she will saill shortly after for Herschel Island and the mouth of the Mackenzie River.

H.M.C.S. Patriot and Patrician, and the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, at Yarrows Limited, shipyard, Esquimalt, B.C.

The company is also building 4 small schooners for the Hudson's Bay Co.'s Mackenzie River trade, which will be taken north by the Lady Kindersley. Two of them are 43 ft. long overall, and two 35 ft. long overall.

B.C. Yacht & Boatbuilders Ltd., Victoria, B.C.—The first of the two 75 ft. motor patrol boats named Birnie, built by this company for the Marine Department's British Columbia coast patrol service, was handed over to the Department early in May, and left Victoria for Prince Rupert May 11. The second, which is named Berens, was expected to be put in service during May. The Birnie will be operated out of Prince Rupert and the Berens out of Victoria.

Canadian Government Merchant Marine.—For particulars of shipbuilding for Marine Department, see under "Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.," on another page.

Canadian Vickers Ltd., Montreal. — A sister ship of the s.s. Idefjord, the launching of which was announced in our last issue, was launched from this yard May 5, and named Topdalsfjord, by Mrs. G. M. Bosworth, wife of the Chairman, Canadian Pacific Ocean Services. This ship, like her sister, is for the Norwegian America line, Christiania, Norway, and was designed and built under the personal supervision of A. Macfarlane, naval architect, New York, assisted by F. H. Bodin, Capt. Halvorsen and M. Yggerseth, chief engineer, officers of the Norwegian America Line. She will be classified under Norwegian Veritas, and is capable of carrying a cargo of 6,400 tons on 23¾ ft. draft. Her dimensions are,—length 365 ft., breadth 49½ ft., depth 29 ft. The propelling machinery consists of triple expansion engines, with cylinders 27, 43 and 70 in. diar., by 48 in. stroke, equipped with Mitchell thrust bearing for which Canadian Vickers Ltd. is Canadian licensee, and they will develop sufficient power for a speed under full load of 11½ knots an hour. Steam will be generated by three Scotch boilers, each 14¾ ft. diar. by 11½ ft. long, fitted with forced draft, and superheaters. They are adapted to burn either coal or oil as fuel. The hull is exceptionally strong, and reinforced in the bow, for navigation in ice. The windlass and winches are of the Clarke-Chapman design, made by Canadian Vickers Ltd., steering gear of the Wilson-Pirrie, direct acting type, operated by telemotor from the bridge, all made in Montreal. In addition to the usual equipment of derricks, the foremast has a powerful derrick, with capacity of 30 tons. Life saving equipment is in accordance with the requirements of the Norwegian Sea Control and the holds are equipped with fire extinguishing apparatus.

The Cranes' Shipyards Ltd. has been incorporated under the British Columbia Companies Act, with $10,000 capital, and office at North Vancouver, to carry on business as shipbuilders, ship repairers, drydock owners and operators, and to own and operate ships of all kinds.

Eastern Canada Stevedores Ltd., Quebec, Que., launched a schooner named St. Christophe, 117 tons, at its plant at Ottawa Cove, on the St. Charles River, May 11. She will operate along the north shore, carrying provisions to the various settlements. The company is operating two other schooners on the same route.

B. M. Melanson, Gilberts Cove, N.S., has completed the s.s. R. W. Hendry for Magdalen Transports Ltd. Her dimensions are,—length overall 150 ft., length b.p. 139 ft., breadth 28.4 ft., depth 11.1 ft., tonnage 479 gross, 353 net. She is equipped with triple expansion engine, with cylinders 12½, 19⅝ and 31⅞ in. diar. by 20 in. stroke, by New Burrill Johnson Iron Co., Yarmouth, N.S. The boilers were supplied by John Inglis Co., Toronto. She has accommodation for 20 first class and 25 second class passengers and a crew of 28. The accommodation on the upper deck consists of four staterooms and a smoking room, and on the lower deck a ladies' room and several staterooms. Forward on the main deck are thed ining room and galley, and under thef orecastle is accommodation for second class passengers. She is classed for 12 years in Bureau Veritas, and in addition to her passenger accommodation has considerable cargo capacity.

Port Arthur Shipbuilding Co., Port Arthur, Ont., reduced its employes wages 17% from May 1.

The President, Jas. Whalen, has issued a statement to shareholders, in which he says:—"In view of the present situation in regard to ship construction, your directors have deemed it advisable to authorize the company to enter upon other work than shipbuilding, to which your plant is adaptable. Work has already been commenced upon a contract for 20 compressed air mine shovels for one company, and negotiations with other companies requiring this class of machine have advanced to a point where other contracts seem assured."

Sydney Foundry & Machine Works Sydney, N.S., is building a 1,200 ton marine railway. The cradle will be 200 ft. long and 50 ft. wide, and will be equipped to haul up a ship in 20 minutes, from the time she is laid on the keel blocks. The work is being done by Crandall Engineering Co., East Boston, Mass., all machinery and iron work being made by the Sydney Foundry & Machine

Works. It is expected that the marine railway will be in operation during July. The drydock, which the company also proposes to build, is still under consideration, and negotiations are proceeding with the Dominion Government for aid for its construction under the Drydock Subsidies Act.

Victoria (B.C.) Shipowners, Ltd., Victoria, B.C.—No decision has been announced as to any further progress on the four barquentines which are being built at the Cholberg shipyards under special Dominion Government aid. The first of these, which was launched some time ago, and named S. F. Tolmie, is practically completed, the work on the other three has been suspended, and there are no indications as to when it will be resumed. Reports state that up to the present the S. F. Tolmie has cost $94,000 more than the estimated price, and the cost of building the others is said to have already exceeded the estimates. Among the causes for this are mentioned the inefficiency of the yards and also of the staff in general.

Yarrows Ltd., Victoria, B.C., did the following repair work during April:—U.S. Shipping Board's s.s. Wenatchee, 15,000 tons, minor repairs; Imperial Oil s.s. Talaralite, 2,631 tons, new propeller blades and minor repairs; C.P.R. s.s. Princess Maquinna, 1,777 tons, cleaned, painted and general repairs; Canadian National Rys. car ferry Canora, 2,383 tons, cleaned, painted and repaired; Dominion Government fishery protection s. s. Armentieres, 357 tons, cleaned, painted and repaired; Consolidated Whaling Corporation's s.s. St. Lawrence, 111 tons, hull bottom repair; Dominion Government fishery protection, s.s. Thiepval, 357 tons, minor repairs; H.M.C.S. Aurora, general refit and engine overhaul; H.M.C.S. Patriot and Patrician, cleaned, painted, general refit and engine overhaul; Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, 3,379 tons, completely refitted and reconditioned after having been totally submerged in Swanson Bay for over two months. The accompanying illustration shows H.M.C. S. Patriot and Patrician, and the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert at this yard.

The s.s. Prince Rupert was completed and delivered to the Grand Trunk Pacific Coast Steamship Co. May 7, and she sailed fom Esquimalt for Vancouver, May 9. She was wrecked at Swanson Bay, Sept. 28, 1920, and was handed over to Yarrows Ltd. for overhaul and repair Jan. 10, the contract calling for completion in 115 working days. The actual working time taken is estimated at 92 days. About 700 men were engaged on the work.

A Victoria press dispatch of May 17 said H.M.C.S. Patriot, which grounded in Nanaimo harbor, May 10, had been damaged seriously enough to require about two weeks at a repair plant and that the departure of the Canadian naval ships for the Atlantic, which was fixed for May 27, had been postponed until early in June.

Vancouver Shipping Statistics.—During 3 months ended March 31, 2,455 coastwise ships of 1,620,000 gross tons, entered and left the port, leaving 172,000, and shipping 75,000 tons of cargo; 105 deep sea ships of 690,000 gross tons used the port during the same period, landing 69,000 tons, and shipping 119,000 tons of cargo.

Canadian Notices to Mariners.

The Marine Department has issued the following.

British Columbia.

The fixed white oil light, on the west side of Denman Island, Baynes Sound, 1 1/5 miles southward of Village Point, will be replaced about May 15, by an occulting white acetylene gas light shown from a lens lantern. The red and white sectors remain as at present. The light will be unwatched.

Vancouver Island.—The wreck of the floating drydock, which was lying for some time in Esquimalt harbor, has been removed, and now lies on the beach near Albert Head.

The fixed white light on Patey Rock, at the entrance to Saanich Inlet, on the east coast, will be replaced about July 1, by an occulting white acetylene gas light, shown from a lens lantern. It will be unwatched.

New Brunswick.

Country Harbor.—About May 1, a new light, occulting white acetylene gas, shown from a lens lantern, at an elevation of 42 ft., from a pole with small shed at base, will be established immediately north of the existing light, on the end of Shingle Point, at the northwest end of Harbor Island, and on its establishment, the existing light will be discontinued.

Miramichi Bay.—Buoys have been established in Vin harbor, as follows:—Sand Point, off south point of Vin Island, 3½ cables 181 deg. 30 min. from Vin Island back range light; Gardners Point buoy, east side of sand spit off the point and 3½ cables 101 deg. 30 min. from Vin Island back range light. The first is a black, and the second, a red, wooden spar buoy.

Nova Scotia.

Cape Breton Island.—About the opening of navigation a new front range light will be established on the south side of the entrance to Glace Bay harbor, consisting of a fixed red catoptric light, shown from a headlight lantern elevated 30 ft. on a pole with small shed at base . The existing back range light will be moved to a new position, 1,280 ft. 206 deg. 46 min. from the front light.

Halifax approach, Chebucto Head.—The flashing white light on the summit of the head, showing 4 flashes every 30 sec., will, without further notice, be replaced by a flashing white light showing 4 flashes every 20 sec., with intervals of 3 sec. between each of the 4 flashes, and 11 sec. interval after each 4 flashes. For half the time of the revolution, or 10 sec., the light will be totally eclipsed, and for the other half, a fixed light of 800 c.p. will be visible, through which the flashes of 20,000 c.p. will show.

North Canso.—The black and white striped whistle buoy in 23 fathoms, 3 miles, 33 deg. from North Canso lighthouse, will be discontinued without further notice.

Restigouche River.—The Public Works Department announces that the limiting depth in the ship channel below Campbellton is 14 ft.

Ontario.

Lake Ontario.—During 1920 the Public Works Department dredged Whitby harbor as follows,—from 370 ft. south of the outer end of the west pier, the center of the channel was dredged to 100 ft. wide to opposite the end of the pier, and then northward 50 ft. wide for 543 ft.; an area 50 ft. wide, by 150 ft. long, was dredged in front of Blow's coal wharf, and an irregular area was dredged in front of Watson's coal wharf; all to a least depth of 14 ft. below zero of the gauge, which is 245 ft. above mean sea level at New York.

About May 14, the Point of the Woods range will be changed in position, as follows: Front range light ,205 ft. 39 deg. from present position, occulting red light at an elevation of 26 ft., structure consisting of a white diamond shaped daymark on concrete pier with tankhouse at base; bank range light, 330 ft. 314 deg. 16 min. from front light, fixed red light at an elevation of 42 ft., structure consisting of concrete base surmounted by a white diamond shaped daymark on black skeleton tower, with white tankhouse at base. This range will mark the center line of the improved channel.

Lake Huron. — On the reopening of navigation, the revolving white light on the extremity of the low point at Point Clark will be changed to a flashing white light, showing a flash every 2½ sec.

Lake Superior.—On the reopening of navigation, the fixed white light on the point of the west end of Pie Island, at the west entrance to Thunder Bay, will be replaced by an occulting white acetylene gas light shown from a 7th order lens, and the fog horn will be discontinued; the light will be unwatched.

Lake Superior.—The black spar buoy, heretofore maintained on the west side of the inner end of dredged cut, at the Richardson elevator wharf, Port Arthur harbor, Thunder Bay, will be discontinued without further notice.

Ottawa River.—The fixed white light on the north extreme of Ile Cadieux, Lake of Two Mountains, will be replaced, on the opening of navigation, by an occulting white gas light, shown from a lens lantern, and it will be unwatched.

Prince Edward Island.

Range lights at Darney Basin, Malpeque Bay, on the northwest coast, will have their positions changed without further notice as follows,—front light, on west side of basin half a mile 293 deg. 45 min. from present position; back light, 650 ft. 201 deg. 45 min. from front light.

Quebec.

Saguenay River.—About June 1 the fixed white catoptric light on Pointe Noire, near its east extremity, will be replaced by a fixed white dioptric light, shown from a 4th order lens. The light will be visible from all points of approach by water.

Richelieu River.—On the reopening of navigation, a new front range light will be established on the site of the former light, at the southwest end of Chambly Basin. It will consist of a mast, with small white shed at base, showing a fixed red catoptric light, from a headlight lantern.

St. Lawrence River.—The front range light above Cap Charles Calvaire, in the ship channel between Quebec and Montreal, has been moved 188 ft. back from its former site on line of range.

St. Lawrence River, Escoumains. — Owing to the total destruction, by storms, of the government wharf on the west side of the entrance to the bay, the light and fog horn have been discontinued, and a red wooden spar buoy has been established, immediately south of the ruins.

River St. Lawrence.—The submarine bell, off Metis Point, 1 1/3 miles, 335 degrees, from Little Metis lighthouse, will be discontinued without further notice.

The back range light at Portneuf-en-bas has been moved eastward of its old position, and 323 ft. 319 deg. 30 min. from the front light.

United States.

Detroit River.—The light on the west side of the south end of Fighting Island channel will be changed to a flashing red light, on the reopening of navigation.

The light at Mamajuda light station, on the easterly edge of the island, will be changed to a flashing white light, showing a flash of 0.5 sec. duration every 2 secs.

The light at Grassy Island light station, on the easterly edge of the island, will be changed to a flashing white light, showing a flash of 0.5 sec. duration every 2 sec.

Canada Steamship Lines' Montreal-Gulf-Newfoundland Service.

Canada Steamship Lines will place its twin screw steamship Manoa in service this summer, between Montreal, Quebec, and Gaspe, Que., Charlottetown, P.E.I., and St. John's, Nfld., making seven round trips of about a fortnight each, leaving Montreal June 11, and 28, July 15, Aug. 2 and 19, and Sept. 6 and 23. The Manoa's principal dimensions, etc., are, length 246 ft., beam 48.5 ft., depth 35.3 ft., horse power effective, 3,480, displacement 6,000 tons. Her stateroom accommodation includes parlor rooms with baths en suite.

The route will be along the south shore of the St. Lawrence, round the Gaspe peninsula, and Perce Rock, and thence via Charlottetown to St. John's. The passenger rates will range as follows, according to accommodation, first class fares including berths and meals. To Gaspe, one way, $30 to $70; steerage, $20; no round trip fares to Gaspe. To Charlottetown, one way, $45 to $85; round trip, $75 to $150; steerage, one way, $30. To St. John's, one way, $70 to $100; round trip, $125 to $175; steerage, one way, $40. There will be local rates between Gaspe and Charlottetown, Gaspe and St. John's and Charlottetown and St. John's. Children under 5, if occupying seats at table, will be charged 50c. a meal, but no charge for passage or berth; children 5 years and under 12, half fare; and over 12 full fare. All fares exclusive of war tax.

An Extraordinary Solicitation of Marine Business.

During the discussion of the Customs and Inland Revenue Department estimates, in the House of Commons, on May 7, Hon. R. Lemieux read a photographic copy of the following letter, which he said had been written on the Department's official letter paper, headed with the Royal coat of arms.

"Ottawa, Jan. 13, 1921.

"French Purchasing Commission, care of French Embassey, London, E.C., England.

"Dear Sirs,—I am informed that your Government will have quite a few French steamers taking grain from the port of Saint John, N.B., Canada, this winter. The firm of Nagle & Wigmore, of which I am a member, are very anxious to secure this business. We are the largest firm of shipbrokers in Saint John and have done a very large amount of business along these lines. We have our own tow-boats, tend to all stevedoring and all matters in connection with the general brokerage business.

"As you are no doubt aware, I am Minister of Customs and Inland Revenue in the Canadian Government and I spoke to Sir George Foster, my colleague in the cabinet, who has just returned from England, being Canada's representative at the League of Nations' conference, which has just been concluded at Geneva, and he advised me to write to you.

"We are in a position to handle your business to your satisfaction and would refer you to the Bank of Nova Scotia as to our financial ability. We are agents for the Canada Steamship Lines Limited, the Compagnie Canadienne Transatlantique, Limited, the Fracanda line and the Acadian Shipping Company Limited.

"I would very much appreciate your giving us your business. Thanking you in anticipation, I remain, yours very truly,

"R. W. WIGMORE."

Shipping Notes from New York. — New York press dispatch, May 17.—Grain is still waiting ships for this month and June is open at 6s. 3d., top 6s. 4½d., Montreal to United Kingdom, with Gulf of Mexico to United Kingdom at 7s. 6d. to 7s. 9d., and West Italy 8s. to 8s. 3d. There are a few enquiries in the Canadian trade and from North Atlantic ports the West Indies. The action of a Canadian line in establishing a service between British Columbia and California has been followed by th ePacific Steamship Co.'s inauguration of a new schedule on the part of the similar units of its fleet operating between Seattle and California cities, so that some of the coastwise fleet will call at Vancouver to compete with the new Canadian service.

Charts have been published by the Naval Service Department, Hydrographic Survey, as follows: No. 417, Liscomb Island to Egg Island, N.S.; no. 4, Ile Marie to foot of Ile Bouchard, Que.; no. 20, St. Nicholas to Quebec bridge; No. 20, Quebec harbor.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Diamond State Fibre Co., Toronto, P. J. McFadden, Ontario representative, is convalescent, after being in Port Hope hospital, for several weeks, with pleurisy.

The Superheater Co., Montreal, advises that the two steel cargo steamships ordered by the Norwegian America Line, Christiania, Norway, from Canadian Vickers Ltd., and which were described in Canadian Railway and Marine World for May, pg. 276, are equipped with superheaters built at the company's Sherbrooke, Que., plant, which it says are the first marine superheaters of the fire tube type made in Canada, and probably the first marine superheaters made in Canada.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Webster, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario —T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

June 8.—Railway Accounting Officers Association, Atlantic City, N.J.; E. R. Woodson, 116 Woodward Building, Washington, D.C.

June 15, 16.—American Railway Association, Mechanical, Chicago, Ill.; V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

June 20.—American Association of Freight Agents; R. O. Wells, Illinois Central Rd., Chicago, Ill.

June 20.—American Train Dispatchers' Association, Kansas City, Mo.; C. L. Darling, Northern Pacific Ry., Spokane, Wash.

June 20-24.—American Society for Testing Materials, Asbury Park, N.J.; C. L. Warwick, Pennsylvania University, Philadelphia, Pa.

Aug. 9-11.—American Railway Tool Foremen's Association, Chicago, Ill.; R. D. Fletcher, 1145 East Marquette Road, Chicago, Ill.

Aug. 16-18.—International Railroad Master Blacksmiths Association, Chicago, Ill.; W. J. Mayer, Michigan Central Rd., Detroit, Mich.

Aug. 24-26.—American Asosciation of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, St. Louis, Mo.

Sept. 12-14.—American Railroad Master Tinners, Coppersmiths and Pipefitters Association, Chicago, Ill.; C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

Sept. 12-15.—International Railway General Foremen's Association, Chicago, Ill.; W. Hall, 1061 West Wabasha Ave., Winona, Minn.

Sept. 20-22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry., Sterling, Ill.

Oct. 4-6.—Maintenance of Way Master Painters' Association, Buffalo N.Y.: E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Oct. 18-20.—American Railway Bridge and Building Association, New York, N.Y.; C. A. Lichty, Chicago & North Western Ry., Austin Station, Chicago, Ill.

Canadian Sailors Excluded from U.S. Ships. — Windsor, Ont., press dispatch, May 12.—Canadian seamen are being refused employment by United States owners at Detroit and other lake ports, on ships now being fitted out for the season, because of legislation enacted by the last Congress that changes the status of Canadian and other foreign seamen. Heretofore nearly every crew in the passenger and freight service on the Great Lakes contained a number of Canadian sailors. The legislation which is causing the trouble is an act providing for treatment of diseased alien seamen, which becomes operative May 16, and will make ship owners responsible for hospital expenses for sailors not U.S. citizens, as well as for burial expenses in event of death.

Cedar Rapids Wing Dam.—The Dominion Marine Association has protested to the Dominion Public Works Department, against the building of a wing dam, northwesterly from Isle aux Vaches, in the Cedar Rapids, St. Lawrence River.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

The Strauss Bascule Bridge Co.

Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

Get Our Prices on **NEW and USED TANKS**

Steel—Wood—Enameled—Rectangular—Cylindrical—For Gasoline—Oil—Tar—Acid—Air—Tanks and Towers
Kettles—Jacketted Tanks—Coils, etc.

EVERYTHING IN **TANKS**

The CURTISS-WILLIS Co., 30 Church St., N.Y.

THE CANADIAN NORTHERN RAILWAY COMPANY.

Toronto, May 2, 1921.

NOTICE is hereby given thta the annual general meeting of the shareholders of The Canadian Northern Railway Company will be held in the head offices of the company, 9 Toronto Street, Toronto, on Tbursday, the 9th day of June, 1921, at the hour of eleven o'clock a.m., for the purpose of considering and if thought fit to approving the directors' report to the shareholders and the consolidated balance sheet showing the financial position of the Canadian Northern System for the fihscal year ending December 31st, 1920; also for the purpose of considering and if thought fit transacting any other business which may properly come before the meeting.

By order,
R. P. ORMSBY,
Secretary.

NOTICE.

The General Railway Signal Company of the United States of America, the owner of the exclusive rights to Canadian patents No. 92323, No. 93127, No. 96256, and No. 97758, issued to Young and Townsend, and covering methods of signalling electrified railways, wishes to call the attention of all possible users of the devices and systems covered by such patents to the fact that it is prepared to sell and furnish, at short notice, all such devices and to install such systems upon any railway in the Dominion of Canada.

All inquiries regarding the above should be addressed to The General Railway Signal Company of Canada, Limited, Lachine, Province of Quebec, Canada.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

CANADIAN PACIFIC RAILWAY CO.

DIVIDEND NOTICE.

At a meeting of the Board of Directors held today a dividend of two and one-half per cent. on the Common Stock for the quarter ended 31st March last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account, was declared payable on 30th June next to Shareholders of record at 3 p.m. on 1st June next.

By order of the Board,
ERNEST ALEXANDER,
Secretary.

Montreal, 4th May, 1921.

THE VICTORIA ROLLING STOCK & REALTY CO. OF CANADA, LTD.

NOTICE is hereby given that a dividend of 4% on the paid-up capital stock of the Company for the six months ended May 31st, 1921, has been declared payable June 1, 1921, to the shareholders of record as of the 31st of May, 1921.

By order of the Board,
G. T. CHISHOLM, Secretary.
Toronto, May 20, 1921.

JUDICIAL SALE

In the Matter of the Dominion Permanent Loan Company, and
In the Matter of the Winding-up Act and Amendments thereto.

PURSUANT to the Winding-up Order made on 6th day of February, 1918, tenders will be received up to the 16th day of June, 1921, for the purchase of:—

(1) Bonds secured by a Trust Deed covering all the real and personal property of the Spokane & British Columbia Railway Company, dated the 25th day of April, 1905, being the total issue of bonds secured by the Trust Deed, and amounting to $1,500,000.

(2) Total issue of capital stock of said company, amounting to $10,000 with par value of $100 each.

Said bonds and shares comprise all securities issued by the said Railway, which commences at Danville, on the line between the United States and Canada, near Grand Forks, B.C., and runs to Republic, in the State of Washington, U.S.A., a distance of about thirty-six miles, more or less. The Railway Company have power to complete their line from Republic to Spokane, and surveys of the proposed right of way have been completed. The track consists of 3,428 tons of sixty-pound rails and 264 tons of fifty-six pound rails, with switches attached thereto, and an equipment of:—

3 Locomotives,
2 Combination Passenger and Baggage Cars,
13 Flat Cars,
10 Dump Cars,
3 Box Cars.

All taxes, insurance, water rates and similar items are to be adjusted to the date of acceptance of tender.

Terms of payment will be twenty-five per cent. (25%) of the amount tendered must be paid on the acceptance of tender, and the remainder of such tender in three, six and nine months, with interest at six per cent. per annum, secured to the satisfaction of the Liquidator.

Tenders will be opened at Osgoode Hall, Toronto, on the 17th day of June, 1921, at eleven o'clock in the forenoon.

All tenders must be accompanied with a marked cheque payable to the Liquidator for ten per cent. (10%) of the amount tendered, which will be returned if the tender is not accepted, and forfeited if the tender is accepted and not completed by the purchaser.

The highest or any tender not necessarily accepted.

The Purchaser will search the title at his own expense, and the Liquidator is not required to furnish any abstract or produce any deeds, declarations or other evidence of title except those in his possession.

The Purchaser shall have ten days in which to make any objection or requisition in respect of title, and in case the purchaser shall at such time make any objection or requisition which the Vendor shall from any cause be unable or unwilling to remove or answer, the liquidator may then rescind the sale, in which case the purchaser shall be entitled only to return of deposit money without interest, cost or compensation.

The conditions will be the standing conditions of sale of the Supreme Court of Ontario.

Further particulars as to the property and inventory may be had on application to the Liquidator, G. T. CLARKSON, 15 WELLINGTON STREET WEST, TORONTO, ONT.; WINSTON BUCKWORTH, 1367 28TH AVENUE WEST, VANCOUVER, B.C., or to BAIN, BICKNELL, MACDONELL & GORDON, LUMSDEN BUILDING, TORONTO, Solicitors for the Liquidator.

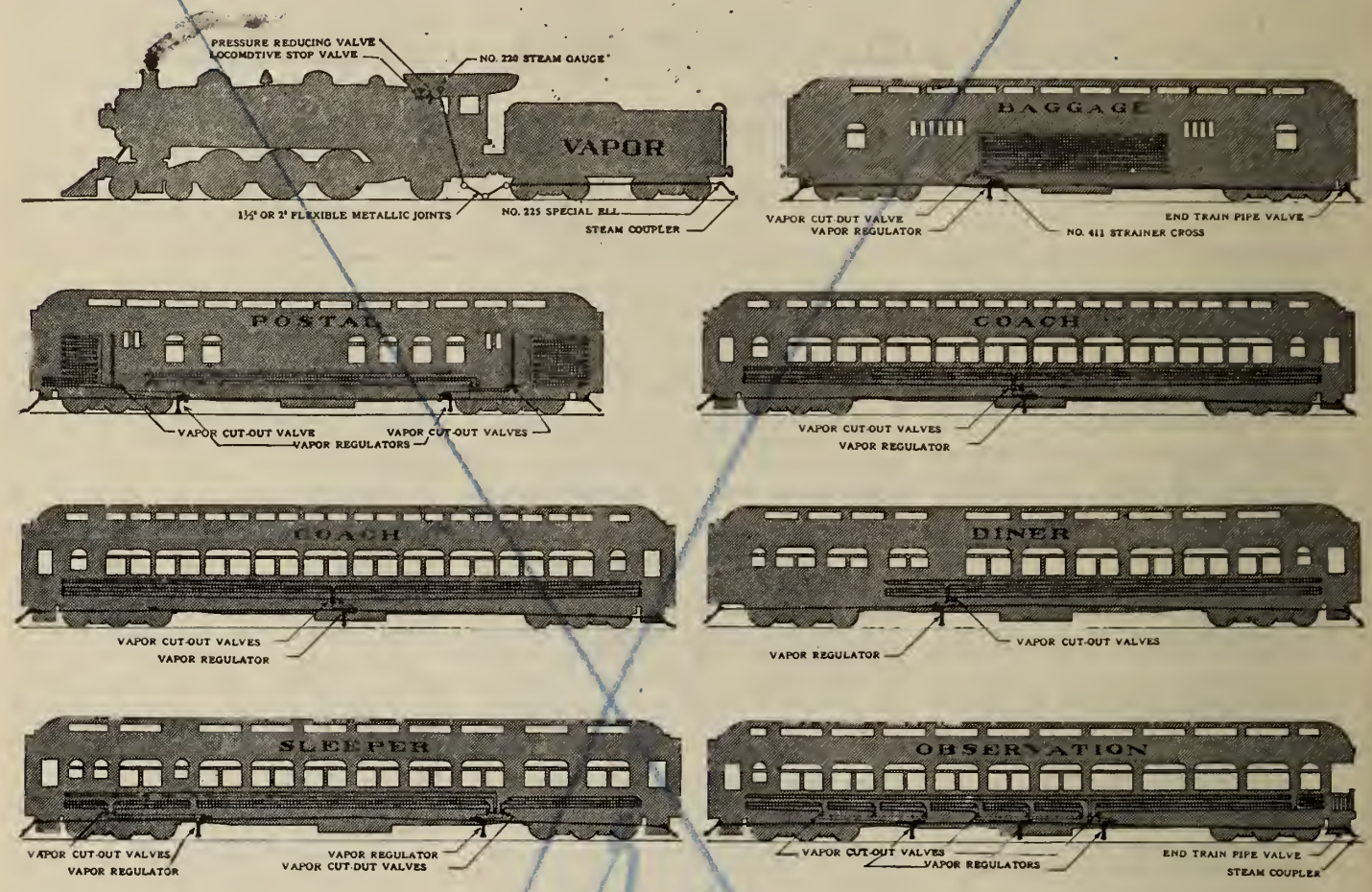
Dated at Toronto this 5th day of May, 1921.

J. A. CAMERON,
Official Referee.

Vapor Car Heating Co.

Of Canada, Limited

61 Dalhousie Street, Montreal, Quebec



The **VAPOR SYSTEM** is so designed that the cost of installation and operation is reduced to a minimum.

The **VAPOR SYSTEM** of heat control, embodying a series of independent units in each car, makes it possible to establish and maintain an even temperature regardless of outside weather conditions. This effects a noticeable saving in fuel, particularly in mild weather.

The entire **VAPOR SYSTEM** is constructed to drain automatically, eliminating the possibility of frozen coils, resulting in freedom from repairs and low maintenance cost.

All devices and parts are made in Canada, insuring prompt service.

Let us acquaint you with the merits of the **VAPOR SYSTEM** by writing the

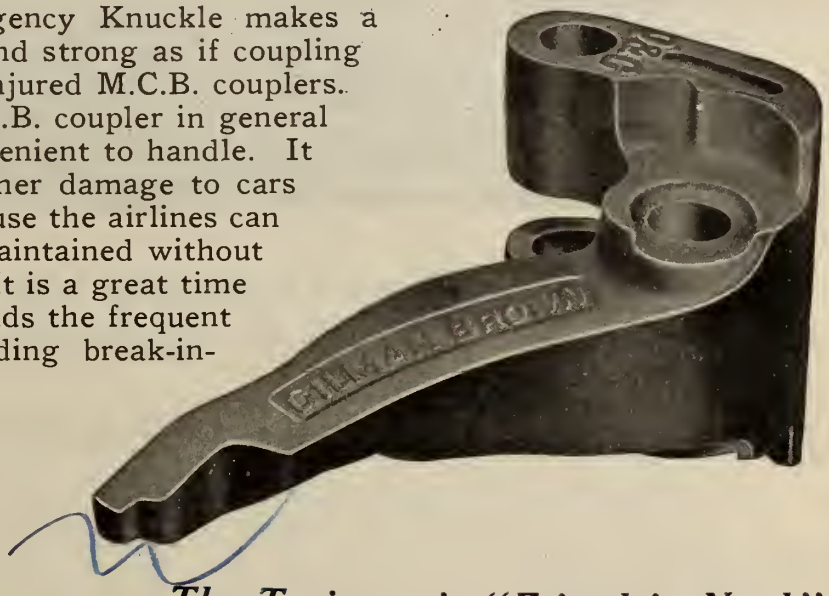
VAPOR CAR HEATING CO.

OF CANADA, LIMITED

61 Dalhousie Street, Montreal, Quebec

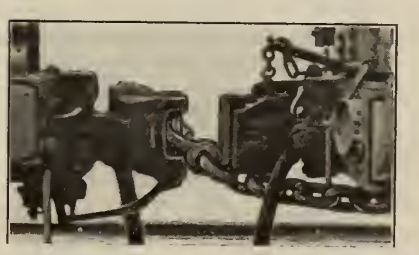
Gilman-Brown Emergency Knuckle

The Gilman Brown Emergency Knuckle makes a normal coupling, as close and strong as if coupling was made between two uninjured M.C.B. couplers. It fits practically every M.C.B. coupler in general use. Being light, it is convenient to handle. It reduces possibilities of further damage to cars due to chaining up. By its use the airlines can be safely coupled up and maintained without the use of a dummy hose. It is a great time saver for train men and avoids the frequent traffic delays due to mending break-in-twos.



The Trainman's "Friend in Need"

The Right Way



The Wrong Way

Information gladly given on request.

The General Supply Co. of Canada, Ltd.

MONTREAL
TORONTO

356-360 Sparks Street
OTTAWA

WINNIPEG
VANCOUVER

The Building of Canada's Merchant Fleet Is Nearly Completed

Now comes the need for equipment and supplies

Of the sixty-three steamships, constituting the Canadian Government Merchant Marine, 54 have been launched, and the other 9 are nearing completion.

The furnishing, equipping and provisioning of these 63 ships calls for much the same kind and quantity of materials and supplies that would be bought by 63 sky-scraper hotels, 63 machine shops, laundries, hospitals, paint shops, carpenter shops, electric light plants and countless other things that ship operators buy—first for equipment, and later, current supplies.

Add to this the purchases made by the famous fleet owned by the Canadian Pacific Railway, and by other marine interests in Canada, and you have some conception of the buying power of the marine audience reached by CANADIAN RAILWAY AND MARINE WORLD.

The interlocking interests of the Canadian railways, steamship companies and the Government give peculiar significance to the only publication in the Dominion that covers both the railway and marine fields, and functions effectively in those departments of the Dominion Government.

The buying-power of this combined audience for a very wide range of products is almost beyond computation.

And a page advertisement each month costs so little that the investment appeals immediately to any business house developing Canadian markets—once the facts are known.

CANADIAN RAILWAY AND MARINE WORLD

Toronto *Member of* **Canada**

Audit Bureau of Circulations, Associated Business Papers, Canadian National Newspapers and Periodicals Association, Canadian Press Association.

CARTER'S

CARTER'S GENUINE DRY RED LEAD

For Ship-Bottoms of Wood or Metal, Steam Pipes and Metal Work.

Carter's genuine dry red lead furnishes lasting protection against rust or corrosion and furnishes it at little cost.

It is always uniform in film and spreads very easily, covering more space than other red leads.

Write for prices on this and the other Carter Products—
Genuine Dry White Lead, Genuine Orange Lead and Litharge.

The CARTER WHITE LEAD Co., of Canada, Limited, 91 Delorimier Ave., Montreal

The Canadian Bridge Co., Limited

Walkerville, Ontario

Locomotive
Turntables
Roofs
Steel Buildings

Manufacturers of

Railway and Highway

BRIDGES

Montreal Office in New Birks Building

Structural
Iron Work
of all
Descriptions

Canadian Gold Car Heating & Lighting Company, Limited

ECONOMICAL—SYSTEMS OF MERIT—WILL NOT FREEZE

Vapor Systems, Pressure Systems, Vapor and Pressure Systems, Hot Water Systems, Electric Systems
Automatic Heat Control for all Systems—Ventilators

346 ST. JAMES STREET **MONTREAL, CANADA**

The Imperial Guarantee and Accident Insurance Co. of Canada

Imperial Protection. Accident and Sickness Insurance. Guarantee Bonds.
Plate Glass and Automobile Insurance. Automobile Fire Insurance

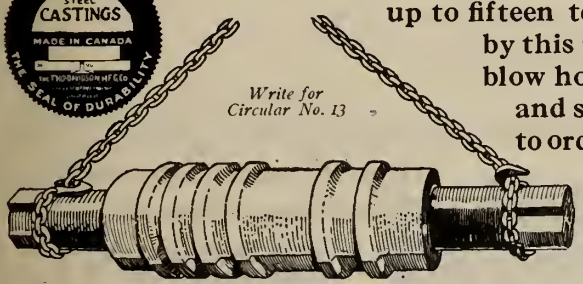
A Strong Canadian Company — Head Office, 20 Victoria St., Toronto, Ont.

Branch Offices:
Montreal, Que., Canada Life Bldg. Winnipeg, Man., Merchants Bank Bldg. Calgary, Alta., Canada Life Bldg. Vancouver, B.C., 530 Seymour

STEEL CASTINGS

DAVIDSON'S STEEL CASTINGS MADE IN CANADA THE SEAL OF DURABILITY

Write for Circular No. 13



Made by the Acid Electric process up to fifteen tons. Castings made by this process are free from blow holes, easy to machine, and superior in every way to ordinary Steel Castings.

Castings supplied for shipbuilding, cars, locomotives, all classes of machinery, etc.

The Thos. Davidson Mfg. Co. Limited

Head Office: MONTREAL
Branches: TORONTO and WINNIPEG

DAVIDSON

Steel Foundry Division: Lachine Canal Turcot

IMPERIAL BANK OF CANADA

Capital Authorized	$10,000,000
Capital Paid Up	7,000,000
Reserve Fund	7,500,000

Head Office: Toronto.

Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.

Sterling and New York Exchange bought and sold.

Savings Department: Interest allowed on deposits at best current rates.

Branches throughout the Dominion of Canada.

GRIFFIN & BRINKERHOFF

P.O. Box 97, Windsor, Ont.

Canadian manufacturers of the Celebrated Wheel Truing Brake Shoe. Best Wheel Grinders in the World.

IT PAYS to carry an advertisement in the Canadian Railway and Marine World every issue of the year because you obtain proportionately better RESULTS.

Engineers and Contractors

VIVIAN T. BARTRAM
Railroad
and
Harbour Works
Head Office
Bank of Toronto Bldg. TORONTO

ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.
Robert W. Hunt & Co., Limited
Consulting and Inspecting Engineers
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Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.
Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.
REPORTS ON PROPERTIES AND PROCESSES.
Head Office and Laboratories:
McGill Building, - - - - - - - MONTREAL, QUE.
Branches: TORONTO VANCOUVER LONDON, ENGLAND

ANGUS SINCLAIR, C. E.
Railway Contractor
OFFICE: EXCELSIOR LIFE BUILDING,
Adelaide and Toronto Sts., Toronto

CANADIAN BRONZE LIMITED
Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITTS. Miscellaneous Brass Castings for Railroads.
Works and Office: 69 Delorimier Avenue, MONTREAL, QUE.

Roger Miller & Sons Limited
Engineers and Contractors
Docks Harbors Breakwaters
Canals Foundations Industrial Plants
Head Office: Lumsden Bldg., - TORONTO.

General Railway Signal Company of Canada, Limited
Consulting Railway Operating Engineers
Reports, Freight and Passenger Yards and Terminals, Single Track Capacity, Side Track Location, Interlocking and Block Signal Design and Construction.
Head Office - Lachine Quebec

MILLER BOILER WASHING SYSTEM—FOR LOCOMOTIVES
Washout Water at 120°. Refill Water at 200°.
F. W. MILLER HEATING CO.
McCORMICK BUILDING - - - - - CHICAGO, ILLINOIS

Malleable Castings High Grade Material First Class Service
Galt Malleable Iron Co., Limited - GALT, ONT.

DOMINION TOWING & WRECKING CO., LIMITED
Tug Strathmore
" Strathbell
Harbour Tug Service
Lighter Strathbuoy—Capacity, 700 tons.
Equipped for all kinds of Towing, Wrecking, Etc.
Sand and Gravel supplied for Concrete Work, Rock and Soil Filling for Cribwork.
Dock Telephone, South 184; Head Office, South 2383. JOHN BELL, General Manager, 509 Grain Exchange, Fort William, Ont.

PRODUCTS

Quality First

NATIONAL TROLLEY GUARD

The Ounce of Prevention

A grade crossing is a most likely, and the most dangerous place for the trolley to jump. There is no "cure" for grade crossing accidents after they have happened. But National Trolley Guard will prevent a car stalling on the track due to a wild trolley.

It is a trough made of wire mesh and inverted over the trolley wire. When the wheel jumps it runs on the guard which furnishes power to carry the car to safety.

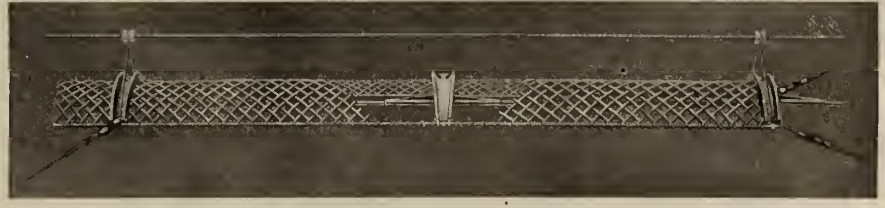
National Guard is far less expensive than its protection warrants.

Because it is made of open wire mesh it is not seriously troubled by ice, snow, wind or locomotive exhaust. It is not hard to install and it is durable.

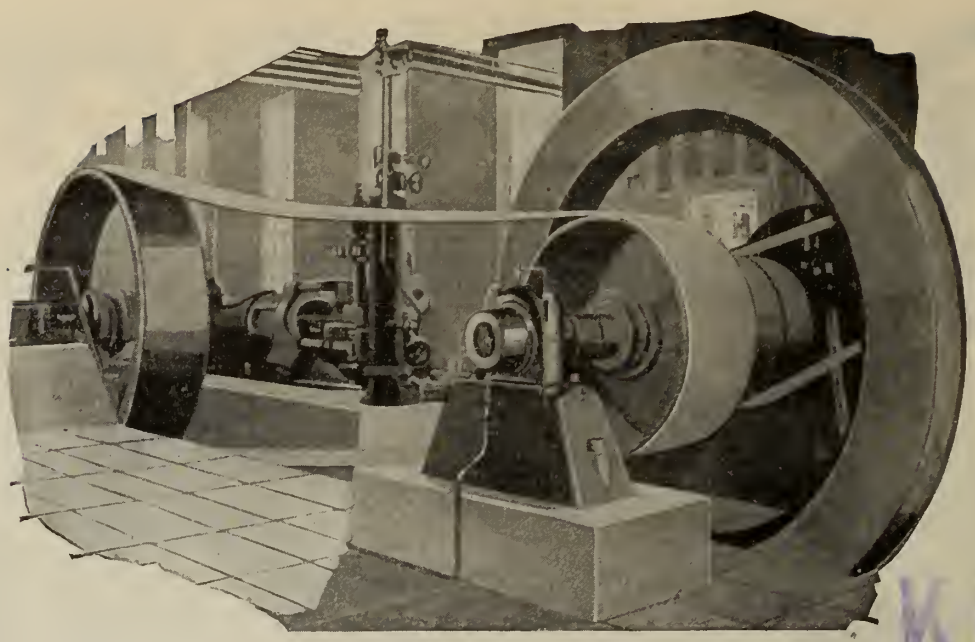
Send for "Guarding the Grade Crossings."

THE OHIO BRASS COMPANY, Mansfield, Ohio

End View Single Trolley



Side View Single Trolley (also made for Double Trolley)



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Transmission: "Dominion," "Keewatin," "Para."
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Air: "Kushion Kover," "4810 Airtite," "Star."
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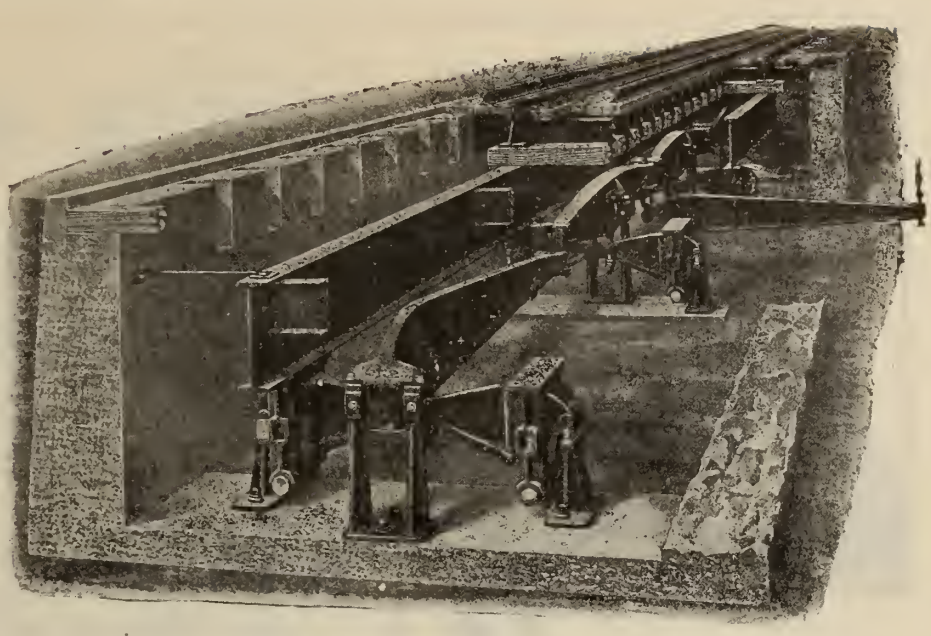

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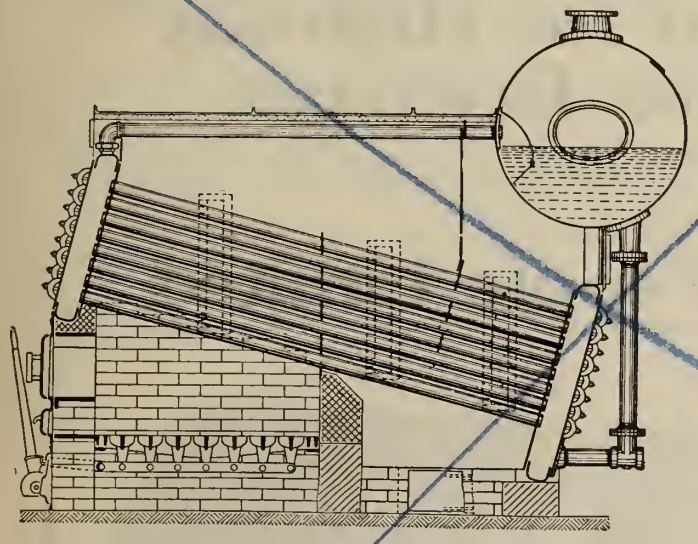

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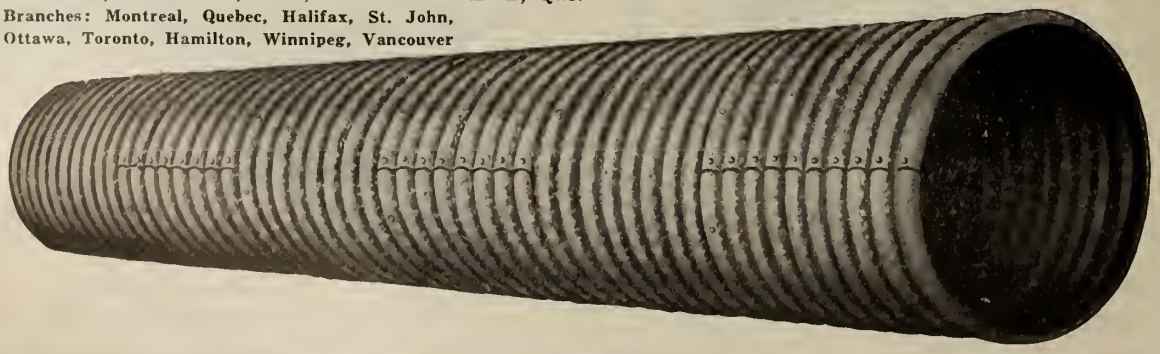

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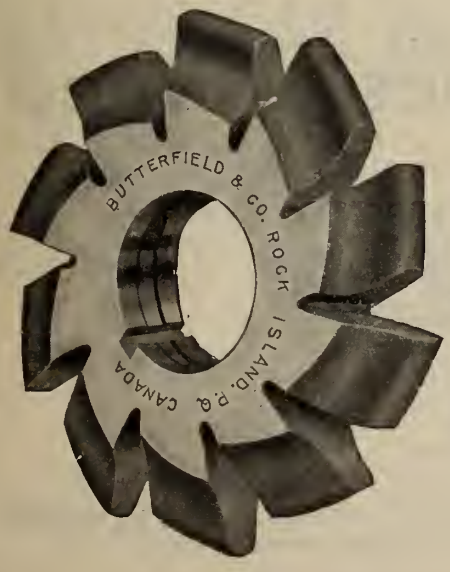

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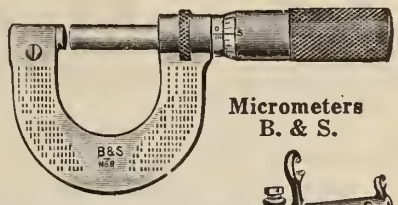

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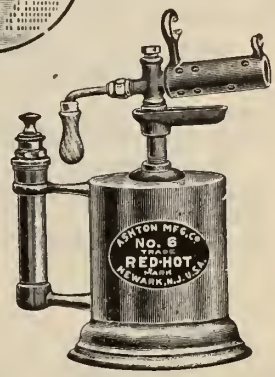

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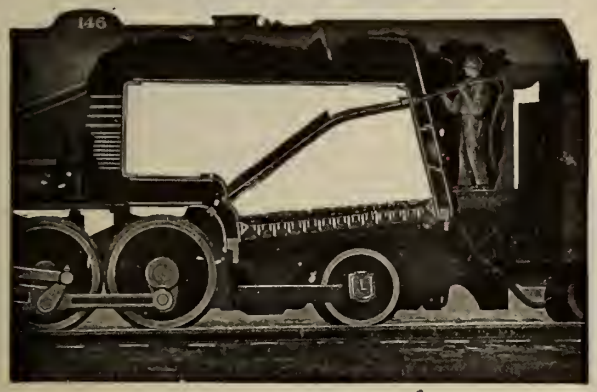

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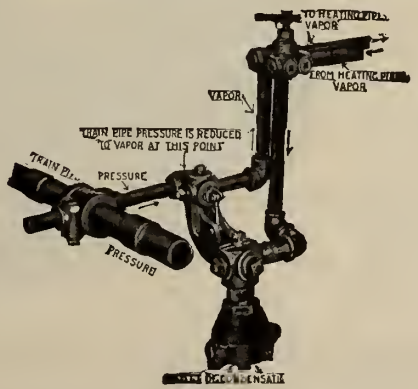

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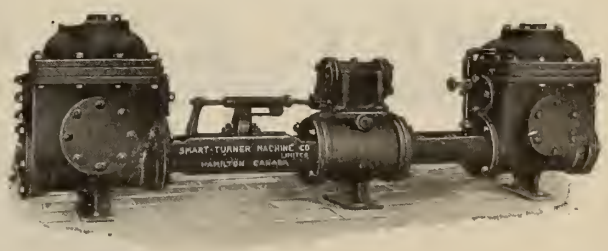

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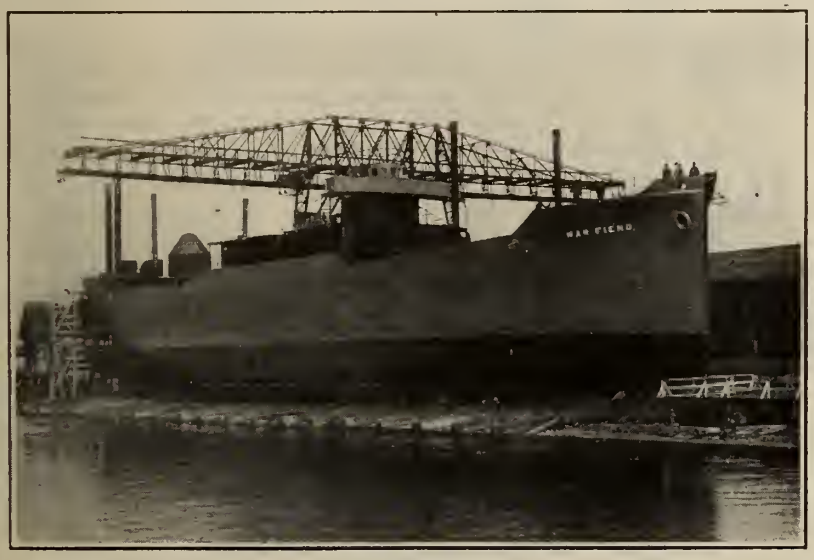

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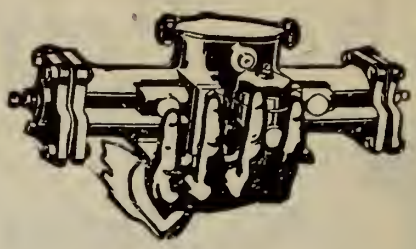

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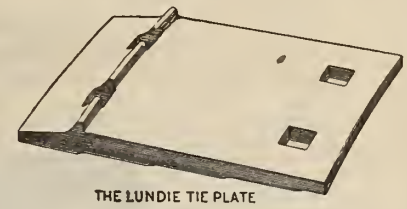
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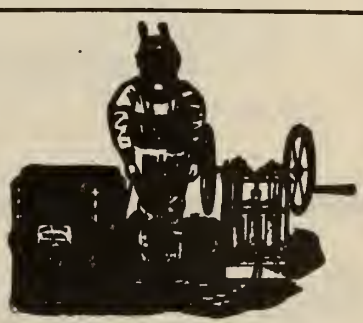

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American Steel Foundries
The Wm. Kennedy & Sons, Ltd.
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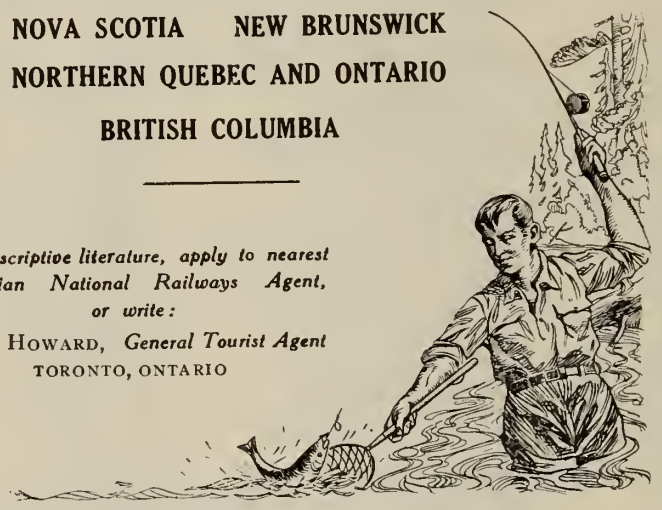

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WIRELESS TELEGRAPH EQUIPMENT
Canadian Marconi Co.

WRENCHES
Dominion Brakeshoe Co.

Alphabetical List of Advertisers

A

Algoma Steel Corporation 117
American Manganese Bronze Co. 118
American Steel Foundries....2 and 132
*Associated Business Papers Inc. 23
*Association of Manufacturers of Chilled Car Wheels 18

B

Babcock & Wilcox 115
Barrett Co. 11
Bartram, V. T. 104
Berry Bros. 113
Bertram, John, & Sons Co..... 1
Bowser, S. F., Co. 36
Bradstreet Company 126
Brown Hoisting Machinery Co... 3
Buffalo Brake Beam Co. 32
Butterfield & Co. 113

C

Canada Foundries & Forgings Ltd. 128
Canada Grip Nut Co. ..... —
Canada Iron Foundries, Ltd. 114
Canada Machinery Corporation... 29
Canada Steamship Lines, Ltd..... 31
Canadian Bridge Co. 103
Canadian Bronze Co. 104
Canadian Clothel Refrigerating Co. Ltd. 111
Canadian Consolidated Rubber Co. 106
Canadian Fairbanks-Morse Co..... 107
Canadian Gold Car Heating and Lighting Co. 103
Canadian Government Merchant Marine, Ltd. 19
Canadian Johns-Manville Co. 116
Canadian National Carbon Co. 116
Canadian National Newspapers & Periodicals Association 24
Canadian National Railways 128
Canadian Pacific Railway 126
Canadian Porcelain Co. 33
Canadian Railway and Marine World 102
Canadian Ramapo Iron Works Ltd. 114
Canadian Steel-Tire & Wheel Co. 34
Canadian Vickers, Ltd. 22
Canadian Westinghouse Co. 112
Carr, C. E. A., Co. 120
Carter White Lead Co. of Canada 103
*Chase, L. C., & Co. 41
Coghlin, B. J., Co. 120
Collingwood Shipbuilding Co. 35
Commercial Acetylene Supply Co. 27
Consolidated Steel Corp. 10
Corbet Foundry & Machine Co... 99
Crane Limited 15
Curtiss-Willis Co. 99

D

Date, John 123
Davidson, The Thomas, Mfg. Co. 103
Davis Boring Tool Co. 16
Davis-Bournonville Co. 131
Dearborn Chemical Co. of Canada 9
Diamond Saw & Stamping Works 124
Diamond State Fibre Co. of Canada 26
Dominion Brakeshoe Co. 113
Dominion Bridge Co. 109
Dominion Coal Co. 128
Dominion Foundries & Steel, Ltd. 36
Dominion Iron & Steel Co. 119
Dominion Oxygen Co. 108
Dominion Steel Products Co..... 123
Dominion Towing & Wrecking Co. 104
Dominion Wire Rope Co. 25
Duner Co. 128

E

Engineering & Machine Works of Canada 124

F

Fairmont Gas Engine & Railway Motor Car Co. 122
Flannery Bolt Co. 30
Franklin Railway Supply Co. of Canada 41

G

Galena Signal Oil Co. 14
Galt Malleable Iron Co. 104
Gartshore, J. J. 123
General Railway Signal Co. of Canada 104
Grand Trunk Railway 110
Griffin & Brinkerhoff 103

H

Halifax Shipyards Ltd. 30
Hamilton Bridge Works Ltd. 114
Hart-Otis Car Co. 25
Holden Co. 40
Hopkins, F. H., & Co. 25
Hoyt Metal Co. 124
Hunt, Robert W., & Co. 104
Hunt-Spiller Mfg. Corporation ... 34

I

Imperial Bank of Canada 103
*Imp. Guar. & Accident Ins. Co. 103
Independent Pneumatic Tool Co. —
Inglis, John, Co. 40
International Correspondence Schools . . .. —
International Machinery & Supply Co. 118

J

Joliette Castings & Forgings Ltd. 119

K

Kalamazoo Railway Supply Co... 20
Kennedy, The William, & Sons, Ltd. 2
KeYoke Railway Equipment Co. 8
Kidston, A. K., & Co. 31
Krauser, Webb G. 13

L

Lewis, Rice, & Son 115
Lincoln Electric Co. ..... —
Lundie Engineering Corporation. 123
*Luther Grinder Mfg. Co. ..... —

M

McAvity, T., & Sons 29
Marconi Wireless Telegraph Co. 118
Metal & Thermit Corporation ..... —
Midland Shipbuilding Co. 121
Miller, F. W., Heating Co. 104
Miller, Roger, & Son 104
Miner, W. H. 28
Montreal Locomotive Works, Ltd. 32

N

National Lock Washer Co. 6
National Pneumatic Co. 122
Nichols, G. P., & Bro. 126
Nicholson File Co. 26
Northern Crane Works Ltd. 126
Northern Electric Co. .....4 and 5
Norton, A. O., Ltd. 38
Nova Scotia Steel & Coal Co.... 28

O

Ohio Brass Co. 105
Orton & Steinbrenner Co. 116
Ottawa Car Mfg. Co. 33

P

Page-Hersey Tubes, Ltd. 37
Page & Jones 128
Peacock Bros. 7
Pedlar People, Ltd. 110
Piper, The Hiram L., Co. 126
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 39
Pyle-National Co. 117

Q

Q & C Co. 101

R

Rail Joint Co. of Canada..... 117
Railway & Power Engineering Corp. 111
Ramsay, A., & Son, Co. 123
Reid Newfoundland Co. 35
Robb Engineering Works 109
Robinson, Dwight P., Co. 21

S

Safety Car Htg. & Ltg. Co. 39
Sinclair, Angus 104
Slater, N., Co. 121
Smart-Turner Machine Co. 119
Standard Car Truck Co. 120
Standard Underground Cable Co. of Canada 128
Star Brass Works 112
Steel Co. of Canada 17
Strauss Bascule Bridge Co. 99
Superheater Co. 12
Symington Co., The T. H. 27

T

Taylor & Arnold Engineering Co. 37
Templeton Kenly Co. ..... —
Tuco Products Corporation 121
Turnbull, Harvard, & Co. 38

U

Union Draft Gear Co. 13
Universal Draft Gear Attachment Co. 13

V

Vapor Car Heating Co. of Canada .....100 and 115

Y

Yarrows, Ltd. . ..... —

*Alternate months.

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Steam Railway and General, Page 345. Electric Railways, Page 377. Marine and Shipbuilding, Page 383.

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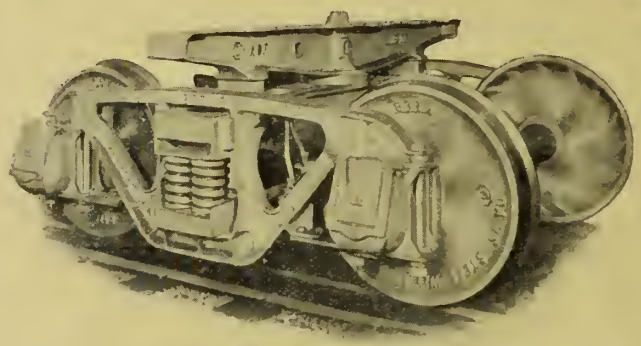

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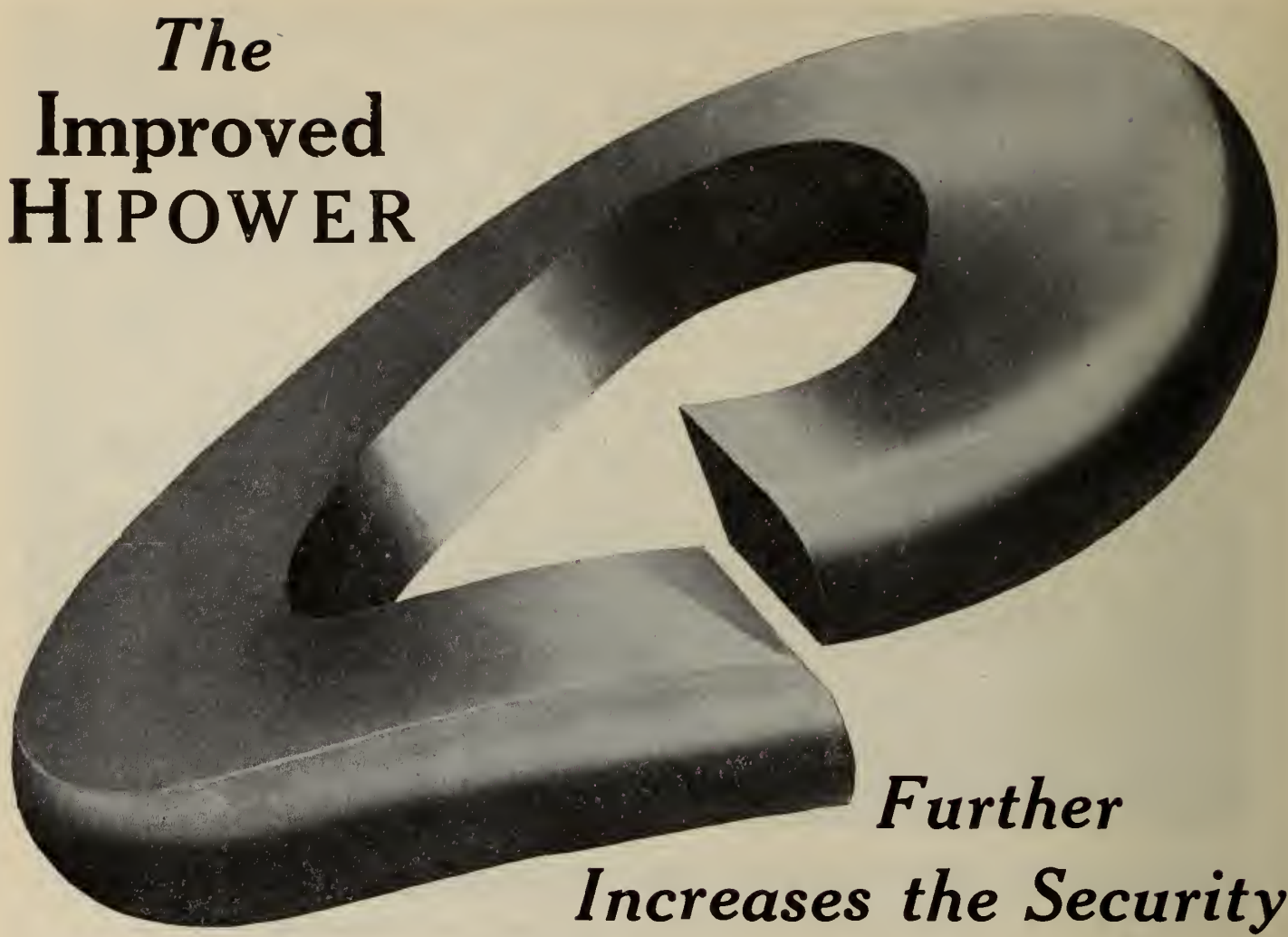

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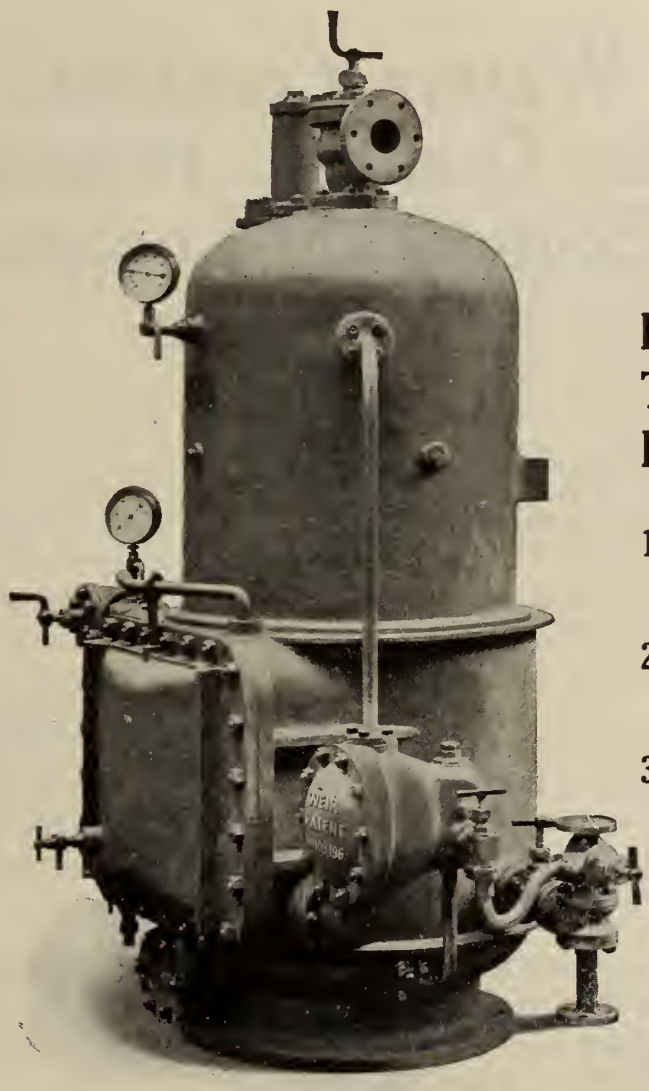
Newark, N. J.

New York Chicago Detroit

EVAPORATORS

The New Weir Evaporator



WEIR PATENT CONTINUOUS BRINING & AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

MADE IN CANADA

Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

MADE IN CANADA

G. & J. WEIR (Canada) LIMITED

Sales Engineers

PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver

Bad Waters Constitute One of the Greatest Hindrances to Economical Locomotive Operation

Failure to provide proper treatment for the boiler water supplies soon result in great damage to equipment, and all the while there is waste of fuel, greater boiler washing expense, and other increased costs, as well as delays in service, loss of time and reduction in tonnage hauled per engine.

Our claim for DEARBORN WATER TREATMENT is that its use inaugurates savings amounting to many times its cost. This claim has been substantiated on important railways in all parts of the world (100 in America alone).

Dearborn Treatment is scientifically prepared to meet the conditions shown by analysis of the water supplies, and overcomes foaming, scale formation, corrosion and pitting.

Gallon samples of the waters required for analysis.

Dearborn Chemical Company
of Canada, Limited

2454 Dundas Street W., - TORONTO

Consolidated Steel Corporation

25 Broadway, New York, U. S. A.

TORONTO: 905-906 Royal Bank Building MONTREAL: 263 St. James Street

SOLE EXPORTER OF THE COMMERCIAL PRODUCTS OF

BETHLEHEM STEEL COMPANY
BRIER HILL STEEL COMPANY
CAMBRIA STEEL COMPANY
LACKAWANNA STEEL COMPANY
LUKENS STEEL COMPANY
MIDVALE STEEL AND ORDNANCE COMPANY
REPUBLIC IRON AND STEEL COMPANY
SHARON STEEL HOOP COMPANY
TRUMBULL STEEL COMPANY
WHITAKER-GLESSNER COMPANY
YOUNGSTOWN SHEET AND TUBE COMPANY

CONSTECO
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BRANCH OFFICES AND REPRESENTATIVES IN

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Lima, Peru
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Mexico City, Mexico
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New Orleans, Louisiana
Rio de Janeiro, Brazil
San Francisco, California
Santiago, Chile
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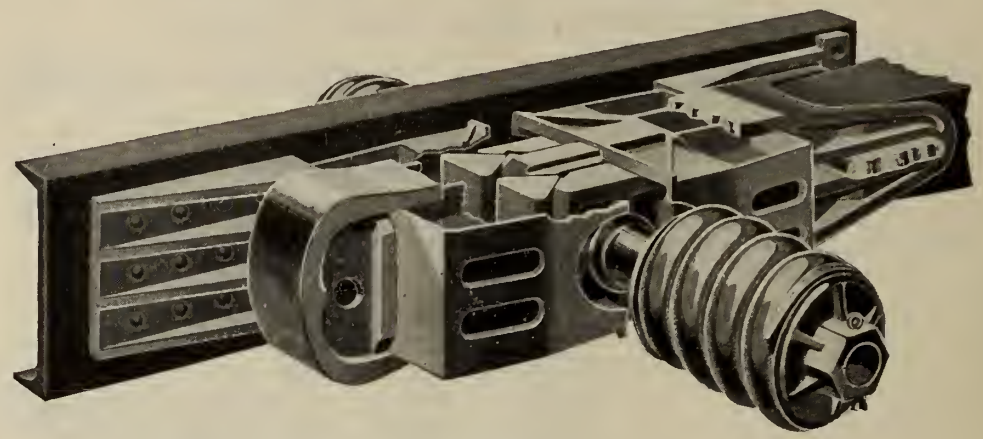
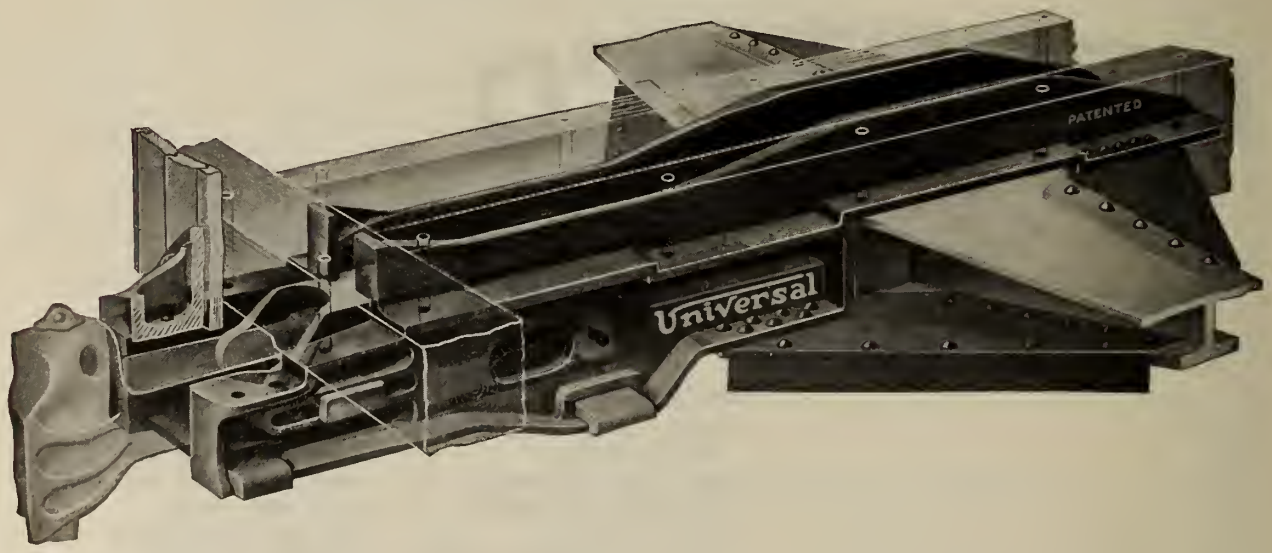
CABLE ADDRESS: CONSTECO, NEW YORK

Cable Codes: Consolidated Steel Corporation, Western Union, A B C Fifth Edition Improved, Scott's 10th Edition, Bentley's Complete Phrase, Lieber's

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING
CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER
Transportation Building, MONTREAL

A Test That Proves Quality—

ALONG the waterfront, in addition to wind, sun, rain and snow, roofs are subjected to penetrating fogs and continuous dampness. Here the economy of Everlastic "Rubber" Roofing is constantly demonstrated. For, no matter how severe the conditions of service, this popular plain-surfaced roofing gives unqualified satisfaction.

Everlastic "Rubber" Roofing is the biggest value in roll-roofing on the Canadian market for steep-roofed buildings. It is made of high-grade waterproofing materials, is low in cost, easy to lay, staunch and durable.

More than a million rolls of Everlastic "Rubber" Roofing were sold last year throughout the world.

Comes in three weights, light (1-ply), medium (2-ply), and heavy (3-ply). Rolls contain 108 square feet. Nails and cement with each roll.

Whether you have a steep-roof or flat-roof problem, our engineers are at your service.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG
VANCOUVER ST. JOHN, N. B. HALIFAX, N. S.

Other well-known Barrett Products are—

Everjet Industrial Paints—

Whatever your paint problem—whether Dipping Paint, Boiler Paint, Machinery Paint, Smokestack Paint, Bridge Paint, Penstock Paint, or a protective carbon paint for general use, there is a special grade of Everjet which will exactly meet your requirements. These paints have the same base as Barrett Specification Pitch, famous for its waterproofing qualities.

Everlastic Liquid Roofing Cement—

Unequalled for resurfacing worn-out prepared and "rubber" roofs. Has the consistency of thick molasses; is easy to apply and dries quickly into a hard, elastic, wonderfully durable coat. Proof against moisture, acids, alkalies and fumes.

Plastic Elastigum Patching Cement—

Unequalled for stopping leaks in roofs, repairing flashings, relining gutters, stuffing cornices and for innumerable other purposes. Plastic Elastigum is tough, durable, acid-proof and waterproof. It sticks tenaciously to either wet or dry surfaces; can be used in all kinds of weather; is easy to apply and low in price. Comes all ready for use.

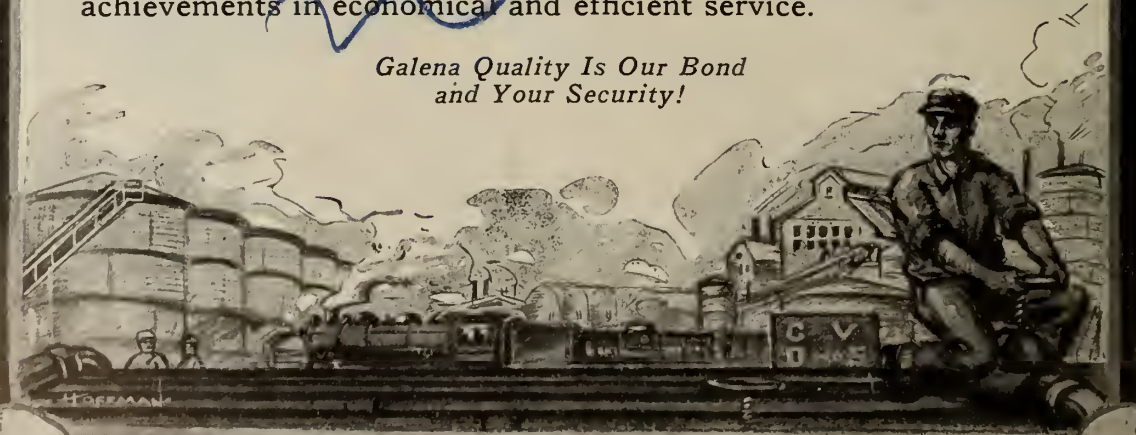
Above all—dependability!

The unvarying uniformity of Galena Oils—their absolute assurance of efficient service, makes them the only safe and reliable lubricants for railway use.

Ordinary lubricating oils may be safely used for light machinery, but railway service demands a quality in keeping with the work—ability to stand up under the severe strains of weight, speed and climatic changes.

Galena Oils, compounded from only highest grade stocks and made specially for railway work, have given convincing proof of their superiority by fifty-two years of exceptional performance on the world's railways, a record marked by remarkable achievements in economical and efficient service.

Galena Quality Is Our Bond
and Your Security!

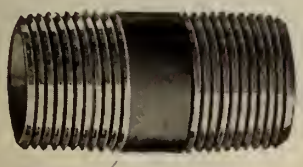


Galena-Signal Oil Company of Canada
Limited
TORONTO - MONTREAL

WROUGHT PIPE

COUPLINGS and NIPPLES

Each length of our



M.R.M. PIPE

is tested to withstand a pressure of 600 pounds per square inch

— BLACK or GALVANIZED —

THE STEEL COMPANY OF CANADA LIMITED

HAMILTON MONTREAL

KILL
LAST AD.

66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

Canadian Government Merchant Marine, Limited

REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S., in Winter.

To the United Kingdom, Liverpool, London, Glasgow, Cardiff, Swansea, etc.
To Barbadoes, Trinidad and Demerara.
To Havana, Cuba, and Jamaica.
To South America, Rio de Janeiro, Santos, Montevideo and Buenos Aires.
To India, Dutch East Indies and Straits Settlements via Mediterranean.
To Australia and New Zealand via Panama Canal.
To St. John's, Newfoundland.

From Vancouver, B.C.

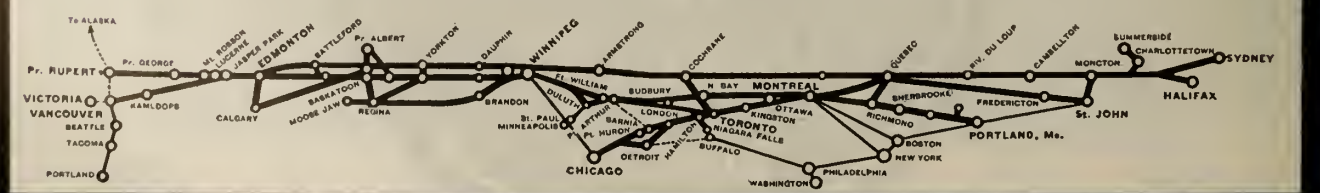
To Sydney and Melbourne, Australia.
To Auckland, Wellington, Dunedin, and Lyttleton, New Zealand.
To China and Japan.
To India and Straits Settlements.

Pacific Coastal Service.
Sailings every ten days.
From Vancouver and Vancouver Island ports.
To Seattle, San Francisco and Wilmington.

REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
To Nassau, Bahamas, Kingston, Jamaica, and Belize, British Honduras.
Superior First Class Accommodation. Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.
F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.
R. B. TEAKLE, General Manager, W. A. CUNNINGHAM. General Freight Agt.,
230 St. James Street, Montreal, P.Q.



Canadian National Railways

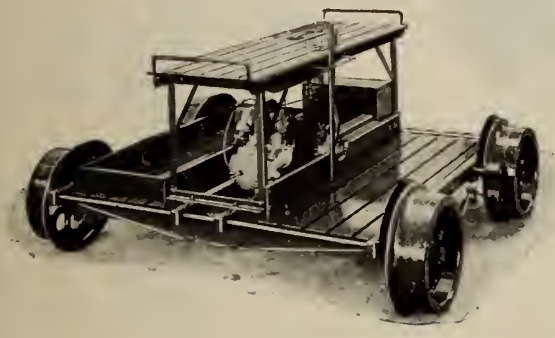
KALAMAZOO MOTOR CARS

Sturdy and Dependable

The Kalamazoo line of motor cars is complete and provides designs for every railroad service.

We make the car for a twenty man crew, as well as the one man inspection car.

Some models are arranged for the transportation of tools and materials and are capable of drawing a trailer carrying five tons additional load.

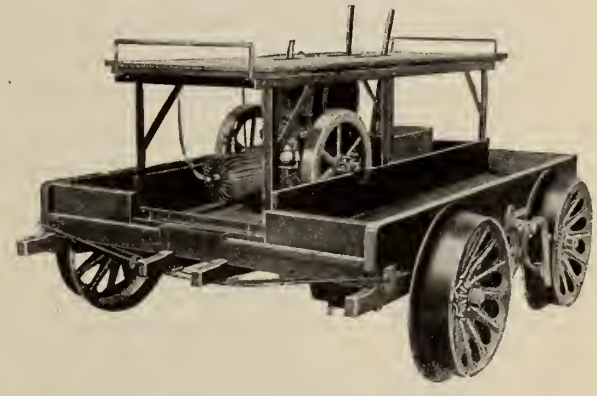


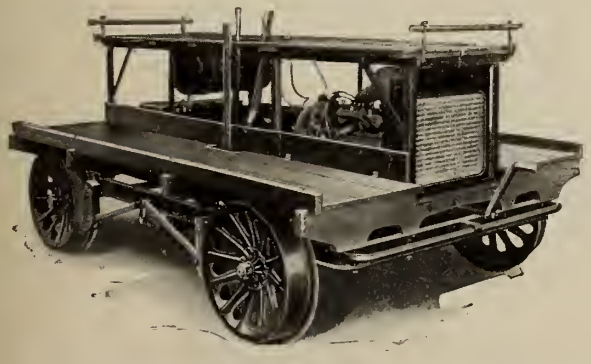
Kalamazoo No. 16 Motor Car

This car is especially designed for use of roadmasters, inspectors, signal maintainers, etc. It is equipped with magneto ignition, free engine clutch and step starter. While there is plenty of room for three or four persons, it is strictly a one man car when it comes to handling and removing it from the tracks.

Kalamazoo No. 17 Motor Car

This car is designed for the use of light section gangs of not over eight men and tools. It has ample power to handle loads and is simple in construction and operation, runs equally well in both directions, and is light enough to be removed from the rails by two men.





Kalamazoo No. 25 Motor Car

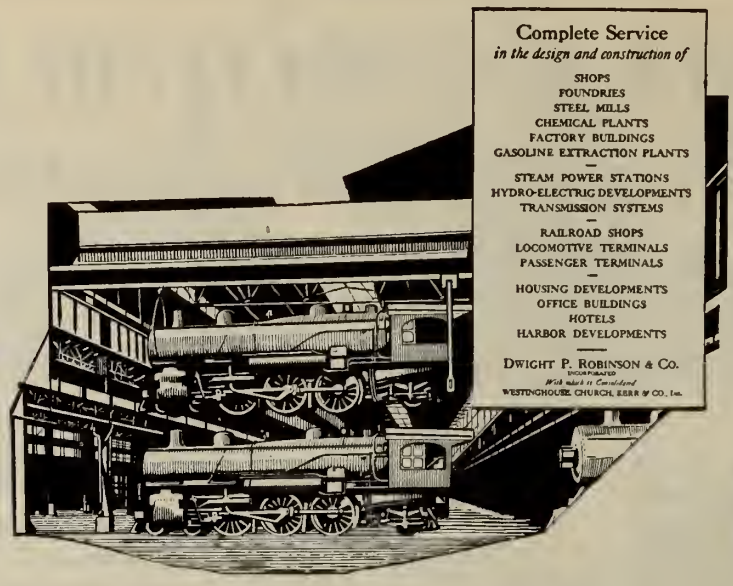
This is the ideal car for section gangs, trouble gangs, bridge gangs and hump crews. It is equipped with powerful motor capable of continuous operation while at work where the ordinary section motor car is not suited. Can also be used for drawing a trailer.

All Kalamazoo motor cars are equipped with through running axles and Hyatt Roller Bearings.

Kalamazoo Railway Supply Company

Kalamazoo, Michigan., U.S.A.

Canadian Representatives: **Kelly Powell Co. Ltd., Winnipeg.**
Wonham, Bates & Goode Trading Corp., Montreal.



Service to Railroads

Because we are familiar with railroad operating problems and because we serve as a part of a client's own organization—working in close co-operation with the engineering and mechanical departments—we offer a valuable engineering and construction service to railroads.

The experience of our organization—which includes the railroad engineers of Westinghouse, Church, Kerr & Co., Inc.—is indicated by the following partial list of our railroad clients:

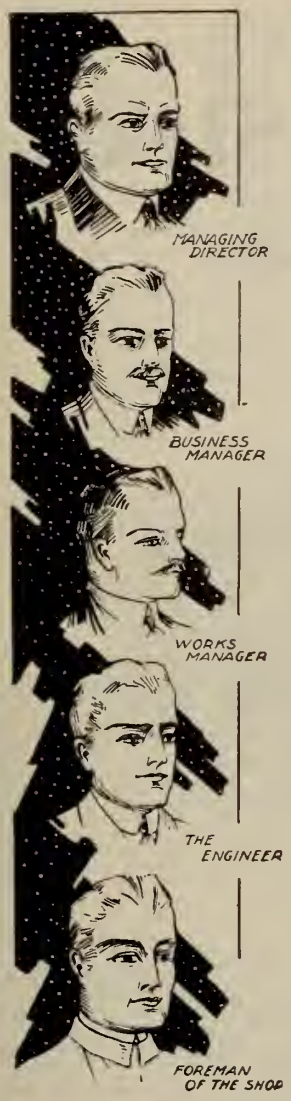
Baltimore & Ohio R. R.
Boston Terminal Co.
Canadian Northern Ry.
Canadian Pacific Ry.
Central R. R. of New Jersey
Chicago, Burlington & Quincy R. R.
Chicago & Alton R. R.
Chicago & Northwestern Ry.
Grand Trunk Ry.
Great Northern Ry.
Lehigh Valley R. R.
Missouri Pacific R. R.
New York, New Haven & Hartford R. R.
New York, Ontario & Western Ry.
Pennsylvania System
Pittsburgh & Lake Erie R. R.
Rutland R. R.
Southern Pacific Co.

If you have new shops, terminals, power plants or electrification under consideration, or if you are planning to modernize your existing facilities, we should like to explain how we can be of service.

DWIGHT P. ROBINSON & COMPANY
INCORPORATED
ENGINEERS AND CONSTRUCTORS
With Which is Consolidated
WESTINGHOUSE, CHURCH, KERR & CO., Inc.
DOMINION EXPRESS BUILDING
MONTREAL

D·P·R
ENGINEERS AND CONSTRUCTORS
A CONSOLIDATION OF DWIGHT P. ROBINSON AND COMPANY, INC. AND W·C·K

NEW YORK CHICAGO YOUNGSTOWN DALLAS LOS ANGELES



Here are the men who place and influence big business. They are the men who read your message when conveyed through the columns of this paper.

The Pivot Men

of Canadian Industrial Activity

THESE men are keen on efficiency, on getting things well done, on saving labor, on saving time, on putting the best into their work and getting the most out of it. These are the pivot men of Canadian industrial progress. They are the men who keep abreast of the times by habitually reading reliable Canadian technical newspapers.

They are the men who buy or influence the buying of the products you market.

If you have a product to sell you can reach these men easily and inexpensively by presenting your message to them repeatedly and intelligently through the columns of their favorite technical newspaper, a publication that commands their respect and attention.

Such a paper must necessarily possess an editorial appeal of the highest order. It must be an authority in its chosen field. It must be free from glamour and pose and bluff.

Technical papers entitled to rank in this class are included in the membership of Canadian National Newspapers and Periodicals Association. Membership in this Association assures the highest standard of editorial ideals—in fact the highest standard in all departments. A careful and detailed analysis of **Canadian Railway and Marine World** may be obtained on application to the publishers.

Following is a list of worth-while, reputable technical newspapers which are members of this Association and which constitute its Technical Newspaper Section:

Canadian Engineer
Canadian Foundryman
Canadian Machinery
Canadian Manufacturer
Canadian Railway and Marine World
Construction
Contract Record & Engineering Review
Dominion Dental Journal
Electrical Dealer & Contractor
Electrical News
Marine Engineering
Municipal World
Power House
Sanitary Engineer

Canadian National Newspapers and Periodicals Association

70 Lombard Street, Toronto

Safety and Strength *with*

Q & C Rolled Steel Step Joints

MADE IN CANADA

Combined with their feature of strength—which under actual test has been proven many times stronger than cast metal — Q & C Rolled Steel Compromise or Step Joints embody the factors of safety and economy. By our process of manufacture a rolled steel joint with the Bonzano and Thomson features (the strength giving depending flange and metal distribution at the head) is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the step joints that are most efficient. A card will bring you any information. Write us today.

The General Supply Co. of Canada, Ltd.

MONTREAL
TORONTO

356 Sparks Street
OTTAWA

WINNIPEG
VANCOUVER

O-B Signal Bonds

Bring Better Signal Operation— at Reduced Cost

KILL
LAST AD

Automatic signals are successful because signal mechanism is highly perfected and signal men work tirelessly to overcome difficulties.

Always the track circuit has been a serious handicap—due largely to present standard bonding.

The answer is the O-B Signal Bond.

Installations on several roads have already showed marked improvement in operation and decided savings in signal maintenance.

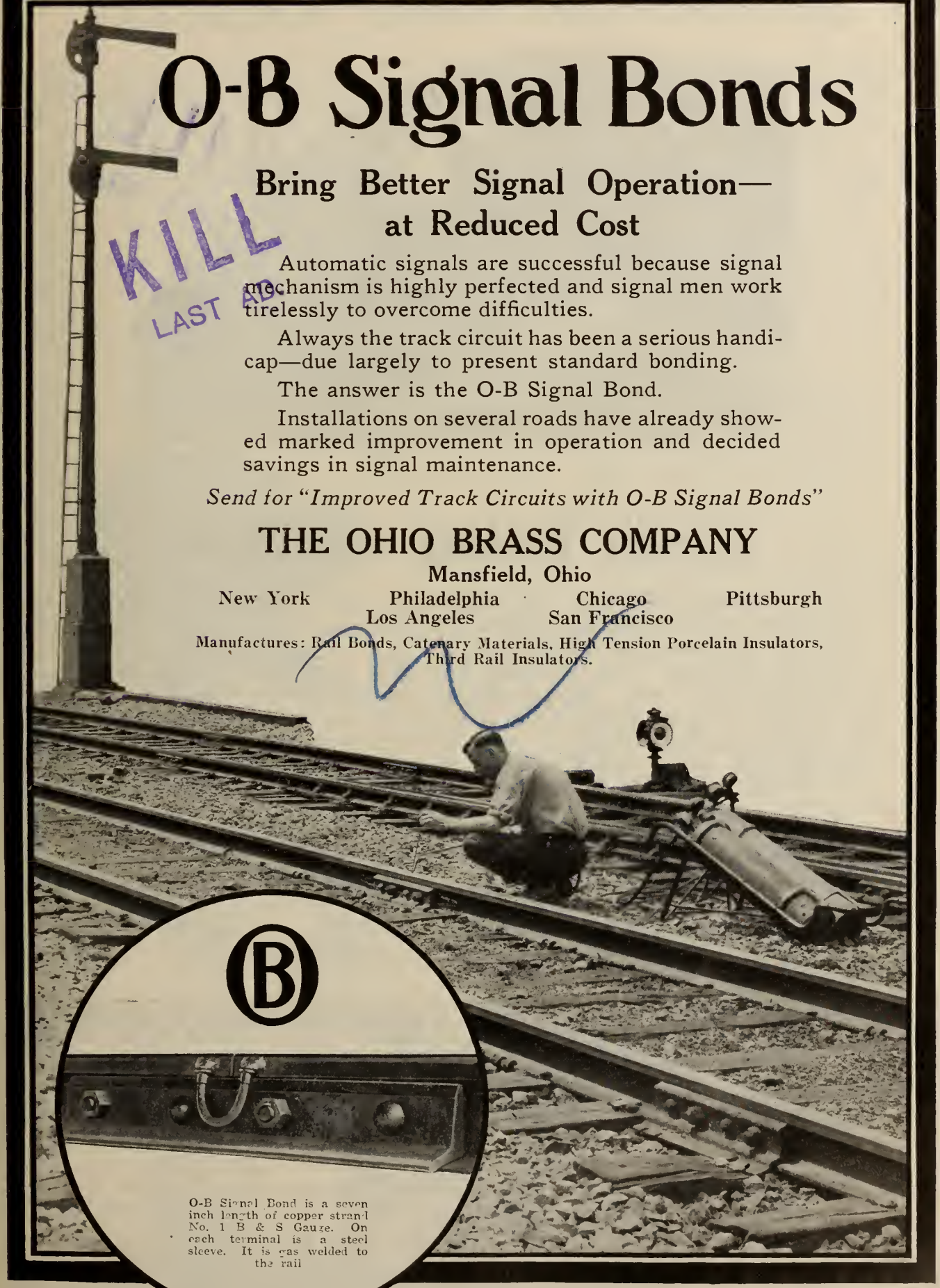
Send for "Improved Track Circuits with O-B Signal Bonds"

THE OHIO BRASS COMPANY

Mansfield, Ohio

New York Philadelphia Chicago Pittsburgh
Los Angeles San Francisco

Manufactures: Rail Bonds, Catenary Materials, High Tension Porcelain Insulators, Third Rail Insulators.



O-B Signal Bond is a seven inch length of copper strand No. 1 B & S Gauge. On each terminal is a steel sleeve. It is gas welded to the rail

KILL
LAST AD!

Inbuilt Belting Strength

Transmission troubles due to stretch and slipping are eliminated by *Dominion Friction Surface Belting*. "Plus Service" construction and exceptional pulley gripping power make it unrivalled for reliability and economy in all drives. Every Dominion Friction Surface Belt installed means so much more power conserved.

Without any obligation to you, our nearest Service Branch will send an experienced belting man to study your transmission requirements and submit recommendations for your approval.

Dominion Rubber System
Service Branches:

Halifax	Ottawa	Kitchener	Brandon	Saskatoon
St. John	Toronto	North Bay	Regina	Lethbridge
Quebec	Hamilton	Fort William	Edmonton	Vancouver
Montreal	London	Winnipeg	Calgary	Victoria

DOMINION RUBBER SYSTEM PRODUCTS

Belting

Transmission: "Dominion," "Keewatin," "Para."

Conveyor: "Rockproof," "Canadian," "Hibeat"

Elevator: "Dominion," "Rockproof."

Agricultural: "Dominion," "Star."

Grain Elevator: "Metcalf Standard," "Grain King."

Hose

Air: "Kushion Kover," "4810 Airtite," "Star."

Steam: "Indestructible," "Rockproof," "Para."

Water: "Indestructible," "Para," "Kushion Kover," "Star."

Suction: "Para," "Star," "Trade."

Garden: "Canadian," "Dominion."

Packing

Sheet: "Join-Tite," "Star," "Importers."

Rod: "Cabestos," "Valve-Bestos," "Canadian."

Valves: "Montreal," "Commercial" "Canadian."

Miscellaneous

Mats, Matting and Flooring.

Moulded Goods.

Plumbers' Specialties.

Hard Rubber Goods, Tubing.

Rubber Covered Rolls, Deckle Straps.

Friction Tape, Splicing Compound.

DOMINION RUBBER SYSTEM AND ASSOCIATED COMPANIES

Fairbanks-Morse Ball-Bearing Motors Give Uninterrupted Service

KILL
LAST AD.

The absolute dependability of Fairbanks-Morse Motors accounts for their extensive use in Power Houses throughout the world.

These ball-bearing motors have set a new high efficiency standard in saving power. The bearings, packed in grease, reduce friction and assure continuous operation.

The one-piece solid rotor winding with cast-on end rings, insures greatest electrical efficiency by preventing arcing due to loose rivets or screws, and eliminates costly repair bills.

You should not buy or specify electric motors until you have thoroughly investigated Fairbanks-Morse Ball-Bearing Motors. Write our nearest branch for any information you need.

If it isn't here —write us

- Fairbanks-Morse Dynamos
- Allen Steam Engines
- Fairbanks-Morse Oil Engines
- Electrical Supplies
- Transmission
- Boiler Room Equipment
- Pump House Equipment
- Valves
- Pipe Fittings
- Durabla Packing
- Palmetto Packing
- Fairbanks Scales

The Canadian Fairbanks-Morse Co., Limited

Canada's Departmental House for Mechanical Goods.

Halifax	Ottawa	St. Catharines	Winnipeg	Calgary
St. John	Toronto	Windsor	Regina	Edmonton
Quebec	Hamilton	Fort William	Saskatoon	Vancouver
Montreal				Victoria

Fairbanks-Morse

Valvular Tank Trouble

WHEN oxygen tank valves leak—in transit or in operation—dollars are dissipated in the air instead of being pocketed by efficient welding or cutting work at the blowpipe tip.

Dominion Oxygen cylinders—like the product—are perfected in every detail. The Wedge Valve on a Dominion Oxygen tank cannot leak. It is the evolution of years of painstaking study, both in design and structural material.

Forged from bar stock, it resists the wear and tear of internal friction and if foreign matter, by any chance, score the face the valve re-seats itself while the tank is fully charged and in operation — a unique time and money-saving feature. And a twist of the fingers is all that is necessary. No tools are required.

This insurance against interruptions and failures has commended itself to all users of Dominion Oxygen. It also means that Dominion Oxygen reaches the consumer free from impurities and with cylinders filled to capacity—there can be no leakage en route or in application.

And with six centrally located distributing stations in full operation, the Dominion Oxygen Company, Limited, is prepared to supply consumers with any quantity of uniformly pure oxygen anywhere. Our policy of filling all orders on the day of receipt means the quickest and most satisfying oxygen service in the Dominion.

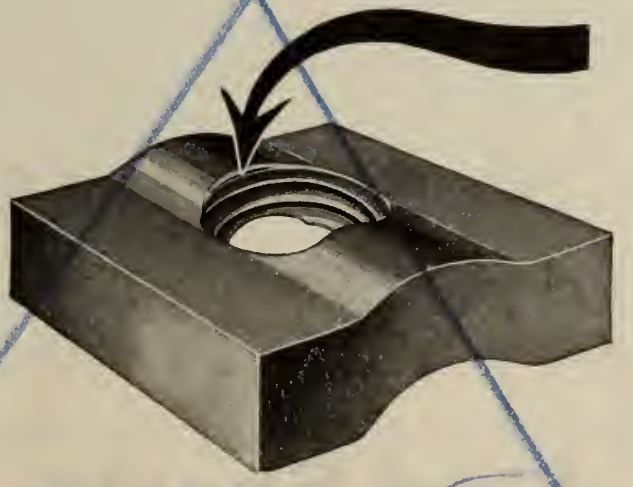
Dominion Oxygen Company, Limited

Hillcrest Park, Toronto

Hamilton Montreal Welland Windsor Merritton D19

IN railroad practise to-day every effort is directed to make travel safe—to eliminate the human error.

The Grip Nut is the one lock nut that locks automatically on the bolt. This is due to the deflected threads.



Canada Grip Nut Company Limited

608 McGill Building

ST. JOHNS, QUE. MONTREAL WINNIPEG

Cast Steel

Standard "D" Coupler

Truck Bolsters
Truck Side-Frames
Car Couplers
Locomotive Frames
Journal Boxes
Car Specialties
Forged Axles,
Railway and Street Car
Small Forgings,
Piston Rod and Crank Pin.

Steel Plates

Universal to 40-in. widths
Sheared to 60-in. widths

Steel Sheets

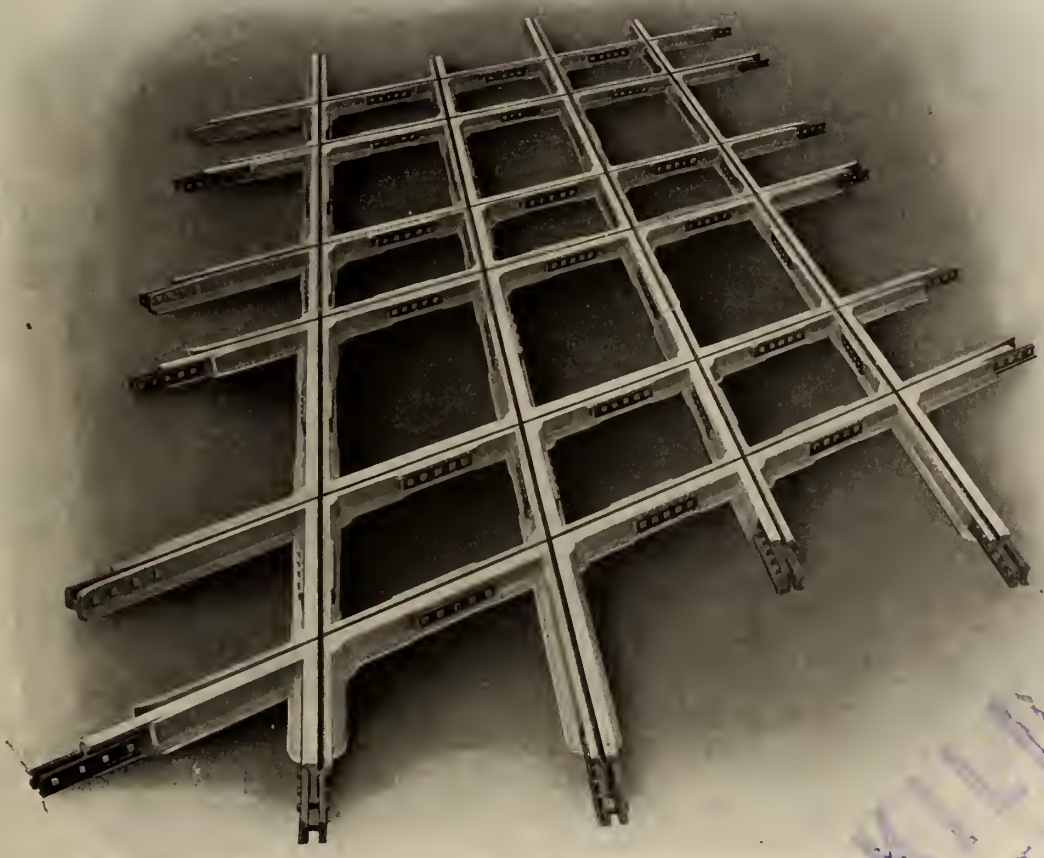
Lightest gauge, Number 16
Deep Drawing quality

Dominion Foundries & Steel, Ltd.

HAMILTON - CANADA

TRACKWORK

FOR STEAM AND ELECTRIC · RAILWAYS



Solid Manganese-Steel Intersection of 3 Steam and 2 Electric Railway Tracks.

COMPLETE INTERSECTIONS

of any size or standard section

FROGS, SWITCHES, MATES, CROSSES, DIAMOND CROSSINGS, ETC

Manufacturers of Balkwill Articulated Managanese-Steel Crossings

CANADIAN STEEL FOUNDRIES LIMITED

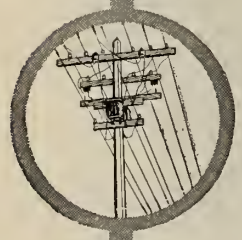
General Offices:

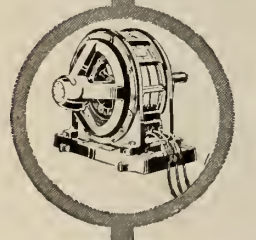
TRANSPORTATION BUILDING - MONTREAL

KILL LAST AD.

C·G·E·

WIRES AND CABLES.





The uses of C. G. E. Wires and Cables are legion. Wherever electricity can be used there will be found a need for one or more types. No matter how large or how small the job may be C.G.E. can "Wire" it.

C.G.E. Canadian Black Core Rubber Covered Wires are a product of a Canadian factory. All that years of experience in wire manufacturing can do to enable us to offer our customers PERFECT wire has been embodied in C.G.E. Wires and Cables. It is a guarantee of quality to be able to say that "it is wired with C.G.E. products."

We carry complete stocks of Wires and Cables at our Nineteen Sales Branches from Coast to Coast. Moreover, we have at your disposal experienced Engineers who are ready and willing to co-operate with Architects, Electrical Dealers and Contractors, Electrical Engineers and Central Station Officials for the purpose of rendering service to our customers.

Canadian General Electric Co., Limited

Head Office - TORONTO

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson, and Victoria.

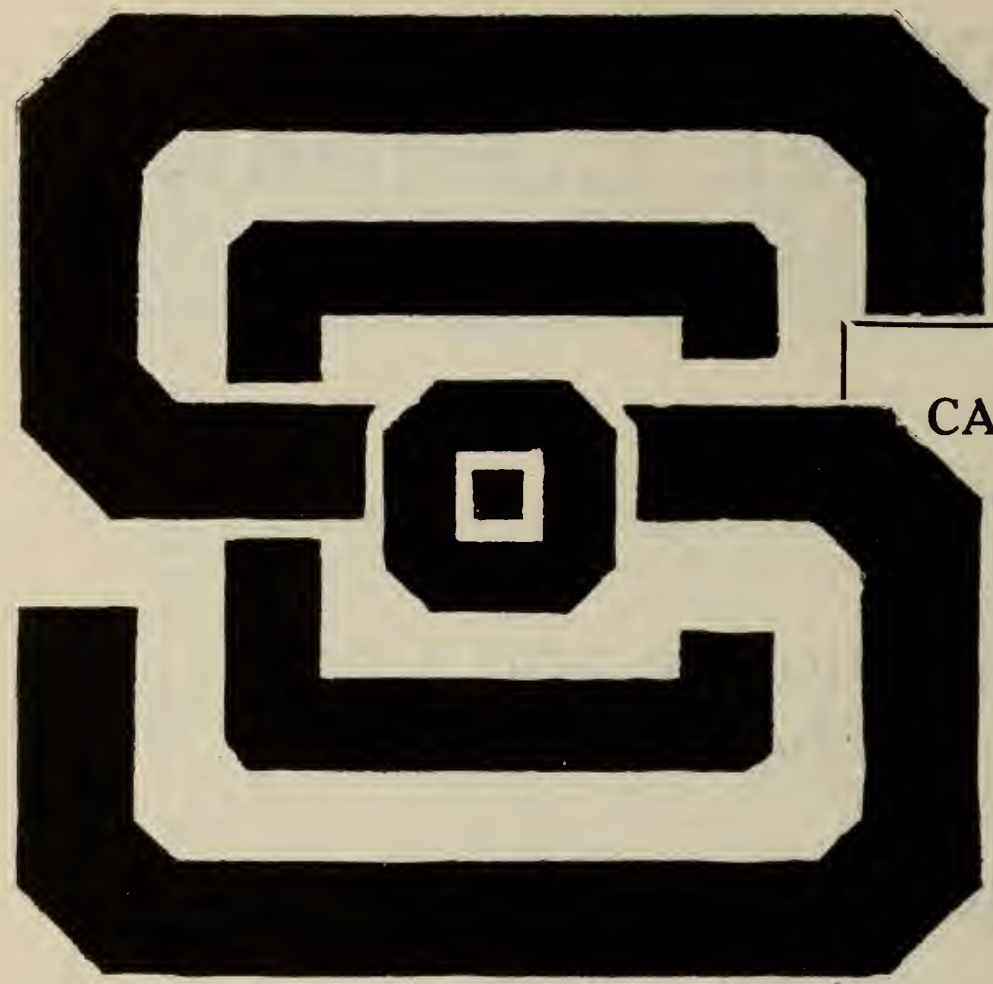
CANADIAN STEEL-TIRE AND WHEEL COMPANY, LIMITED

Locomotive and Car Wheel Tires

Steel Tired Wheels of all kinds

Works:
Montreal East

Office:
Transportation Bldg., Montreal



CAR LIGHTING

Pintsch Light

Electric Light
"Under-Frame"
System

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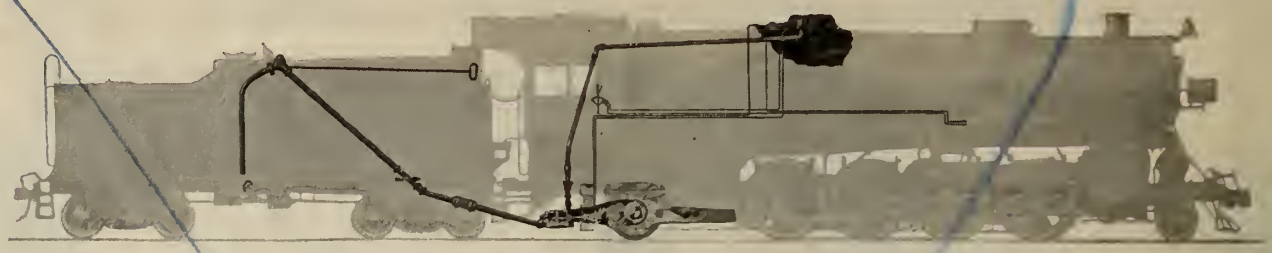

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The Booster automatically cuts out of gear and comes to rest when the engineer hooks up the reverse lever.

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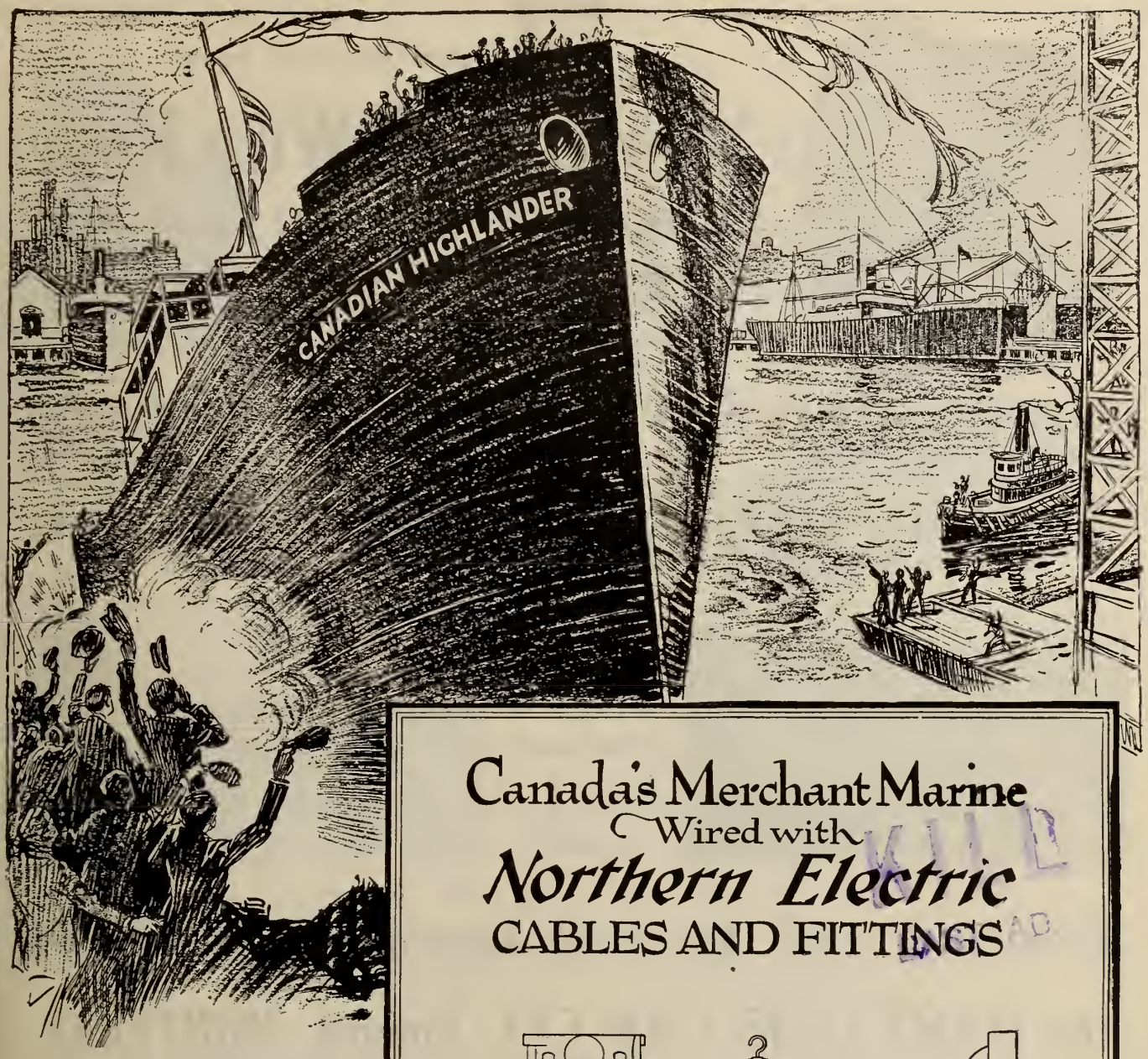

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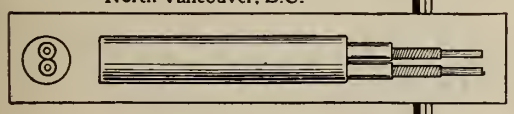
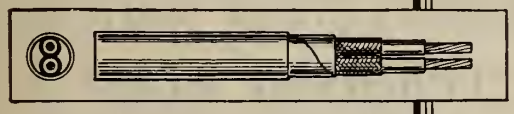


Cab Tire Cable



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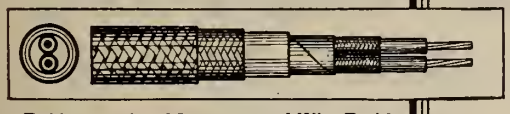

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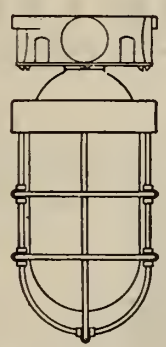
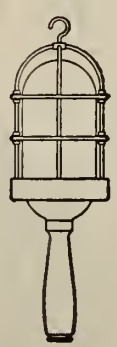
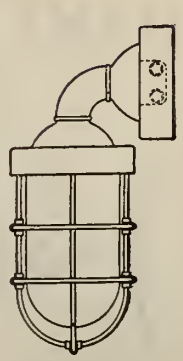


W. T. Inside Deck Fitting



W. T. Hand Portable



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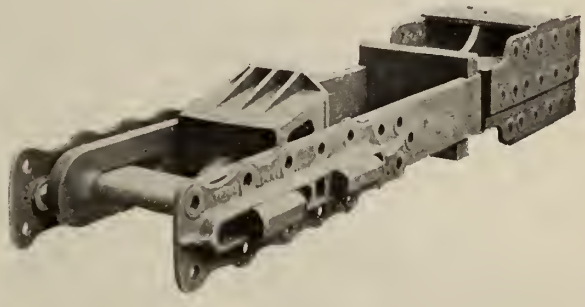

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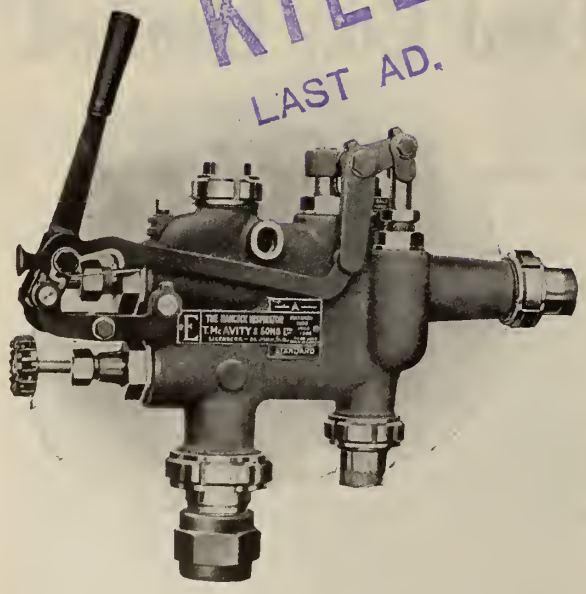

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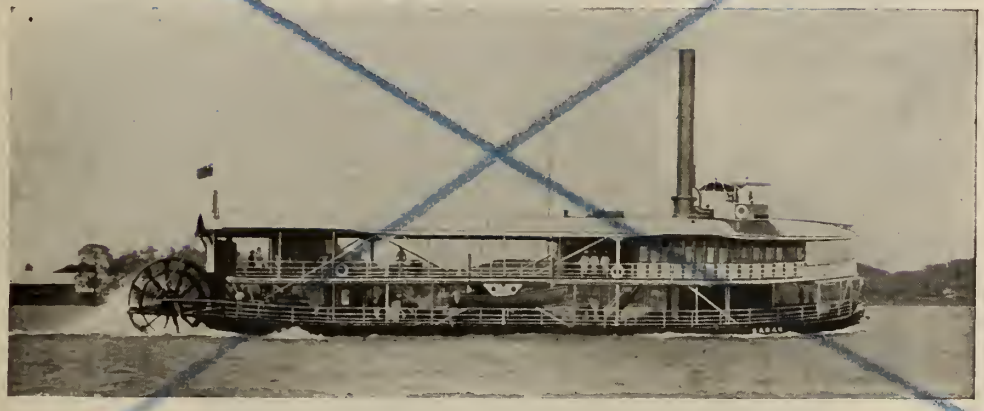

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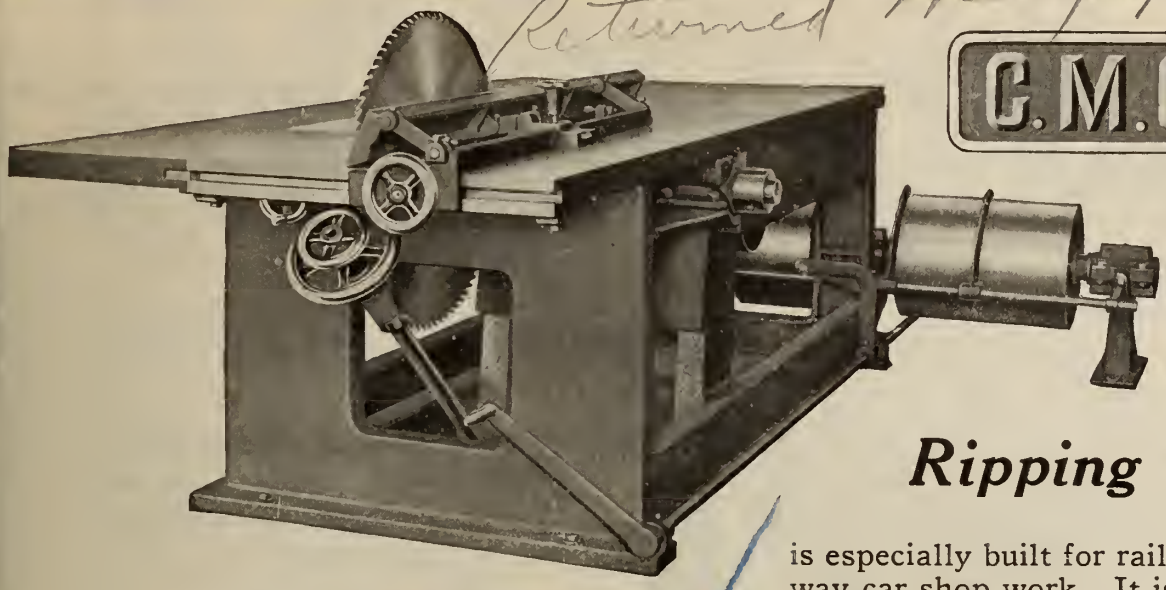

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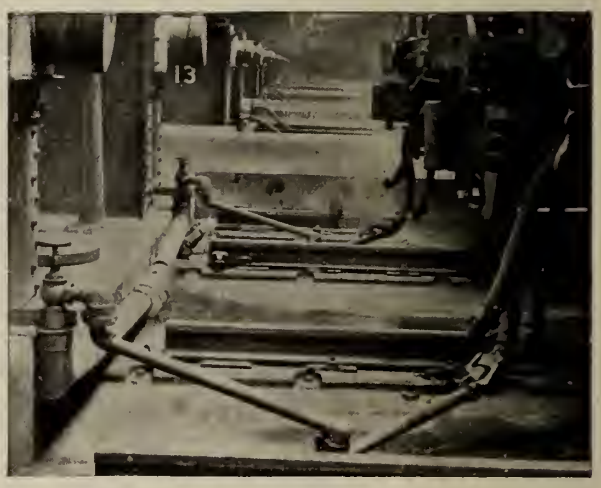

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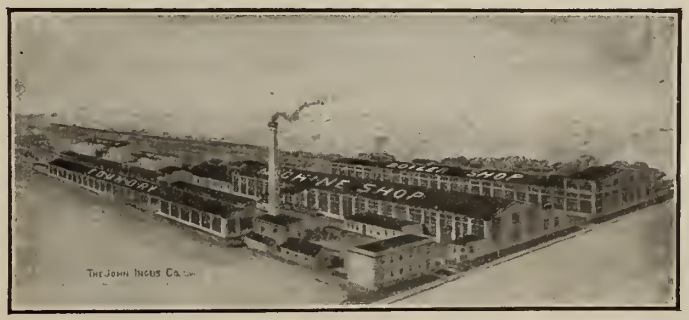

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Canadian Railway and Marine World

July, 1921

The United States Railroad Labor Board Orders Reductions in Wages.

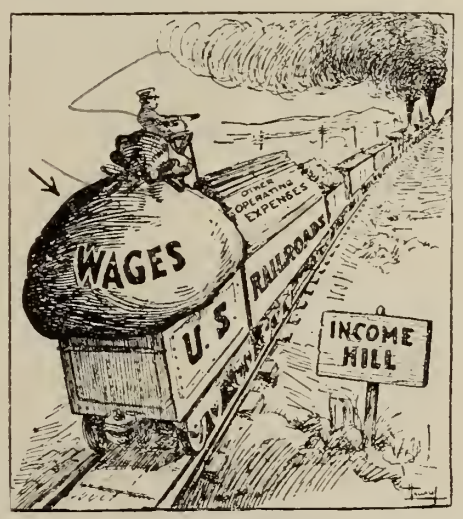
A decision given by the United States Railroad Labor Board in Chicago, June 1, orders reductions in wages of railway employes on June 1, ranging from 18% for unskilled maintenance of way employes to 7% for road passenger locomotive men, and averaging about 12%. It is estimated that these reductions, if applied to all employes of class 1 roads, will amount to approximately $400,000,000 a year. The decision is as follows:

The U.S. Railroad Labor Board, acting under authority of the Transportation Act, 1920, and in furtherance of the purpose of said act, hereby renders a decision upon a series of controversies between the carriers and the representatives of certain employes of the carriers involving the question of what shall constitute just and reasonable wages. The various controversies were considered in conference between representatives designated and authorized by the parties, and not having been decided in such conference were referred to the board for hearing and decision. The carriers, parties hereto, each of which has a dispute with one or more of the organizations hereinafter named, are:

[Editor's Note.—This was followed by a complete list of railways which were parties to the application, and which included the following which are more or less connected with Canadian transportation:—Bangor & Aroostook, Boston & Maine, Central Vermont, Detroit Terminal, Duluth, South Shore & Atlantic, Grand Trunk Western Lines, Great Northern and controlled lines, Lehigh Valley, Maine Central, Michigan Central, Mineral Range, Minneapolis, St. Paul & Sault Ste. Marie, New York Central, Northern Pacific, Pere Marquette, Portland, Me., Terminal Co.]

The organizations parties hereto, each of which has a dispute with one or more of the above named carriers, are:—American Association of Railroad Ticket Agents, American Federation of Railroad Workers, American Train Dispatchers' Association, Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, Brotherhood of Railroad Signalmen of America, Brotherhood of Railroad Station Employes, Brotherhood of Railroad Trainmen, Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, Brotherhood Railway Carmen of America, International Alliance of Amalgamated Sheet Metal Workers, International Association of Machinists, International Association of Railroad Supervisors of Mechanics, International Brotherhood of Blacksmiths, Drop Forgers and Helpers, International Brotherhood of Boilermakers, Iron Shipbuilders and Helpers of America, International Brotherhood of Electrical Workers, International Brotherhood of Firemen and Oilers, International Longshoremen's Association, International Moulders' Union of North America, International Union of Steam and Operating Engineers, Knights of Labor, National Organization Masters, Mates and Pilots of America, Order of Railroad Station Agents, Order of Railroad Telegraphers, Order of Railway Conductors, Railroad Yardmasters of America, Railway Employes' Department, A. F. of L., Switchmen's Union of North America, United Association of Railway Employes of North America, United Brotherhood of Carpenters and Joiners of America, United Brotherhood of Maintenance of Way Employes and Railway Shop Laborers.

Immediately after the organization of this board and on April 16, 1920, it received and took over for hearing a dispute that had been pending before what was known as the Bi-partisan Board, between a large number of carriers which had been under government control, including most, if not all, of those



A Heavy Load for Up Grade—From Providence, R.I., Journal.
This cartoon is equally applicable to the situation in Canada.

now before the board in these cases, and their employes, which dispute, among other things, involved the question of wages. After a full hearing and as careful consideration as the time and conditions would allow, the board in that case (dockets 1, 2 and 3) rendered its decision no. 2, awarding certain increases and fixing what it deemed just and reasonable wages at that time for all the classes of employes of all the carriers then before the board. The board did not then undertake to, and under the law could not, make that decision a permanent award or standard. That decision or award was accepted in good faith and acted on both by the carriers and their employes parties to that decision, and certain other carriers not formerly parties to that case voluntarily applied and put in force the standard of wages fixed by this board in its decision no. 2. That decision was rendered at a period of inflation, rising prices and high costs of living. Since then, changes, and in some respects very decided changes, have taken place in business, industrial and financial conditions in the U.S., and in a varying measure have affected all industries and the entire public. We now find ourselves in a period of readjustment to which all interests sooner or later must conform.

Following the raise in wages granted by this board in decision no. 2, and to some extent based on that, the Interstate Commerce Commission granted an increase of rates to the carriers, which was put in force, but after this there came the inevitable pause in the rising tide of prices and business, followed by the like inevitable recession, and in some lines a disastrous fall in prices, and the resulting cutting down of production. This has affected all lines of industrial life all over the U.S. and produced conditions which have to be met and in whose burdens all have to share. Confronted by these conditions, the carriers before us, after conferences with the representatives of the different classes of their employes as to a reduction of wages, at which conference there was a failure to reach an agreement, have filed their several complaints and brought their disputes before this board for a decision as provided by law. The disputes were separately brought; the first being filed by the New York Central Rd. Co. on March 19, 1921, followed by numerous other carriers. Some of the carriers presented disputes applicable only to a few of the classes of their employes; others applicable to nearly all classes of employes.

The board, appreciating and knowing the general financial and industrial conditions of the country, considered the appeals of some of the carriers for immediate action, and believing that the applications already filed would soon be followed by numerous others, took cognizance of the fact that most of the evidence offered or to be offered in one case would be material and common to all, and that it would be impracticable to reach an early decision in the time at the disposal of the board if the cases were heard and considered separately, the board at that time being engaged in hearing other pressing matters, on April 6, 1921, passed a resolution reciting in substance these facts, and that it was desirable that the board hear at one time and decide in one decision so far as may be possible the question as to what may constitute just and reasonable wages for all the classes of employes of the carriers parties to decision no. 2, as to whose wages there might be a dispute, and ordered and directed that April 18 be set as a date for hearing, at which time the board would hear representatives of the parties to disputes where applications had been filed, and of other disputes filed at that time between carriers and employes of carriers parties to decision no. 2, if ready for presentation, and the board consolidated all the cases for the purpose of hearing and decision so far as practicable.

On the date set the carriers herein named had filed the applications for hearing of disputes with the classes of their employes herein named and set

out. The time was limited for the oral hearings to five days for the carriers and five days for the representatives of the employes, but the board afterwards gave the employes further time to prepare their cases for hearing, and slightly extended the time. Both parties were also allowed to file certain documents in evidence bearing upon the matters in dispute. The hearings were completed on May 16, and the board has since had the cases before it under consideration. Pending the hearing which commenced on April 18, and since, a considerable number of the carriers before the board in that hearing have filed with the board numerous other cases of disputes with other classes of their employes, and other carriers which had no cases pending before the board on April 18 have filed cases of disputes, and such cases are still being received.

The board has been impressed with the belief that a reduction of rates of pay on any road applying to some class or classes and not to others, and thus producing inequalities of treatment and a reduction of wages from the standards fixed by and in decision no. 2 on some roads, without a corresponding reduction on others operating in the same section and under substantially the same conditions, would possibly be productive of unrest, dissatisfaction and other unfortunate results. It therefore deemed it desirable to render its decision in as many cases and applying to all or as many classes as might come before it at one and the same time and make it effective as of and on the same date. It also deemed it desirable to fix and announce that date in advance, so that all parties could in a measure adjust their affairs with that information before them. With all these things in view, after having considered evidence heard in the cases before it, the board on May 17 passed and made public a resolution to the effect that it would announce its decision in these cases on June 1, to become effective July 1; and it further decided and announced that it set June 6 as the date for hearing all other like disputes filed, docketed and ready for hearing at that time, it being the purpose of the board to make its decision of those disputes then heard effective as of July 1. In pursuance of this policy and these orders, it now announces its decision in these consolidated cases already heard.

In the hearing and consideration of these cases there has been available to the board all the evidence taken and now on file adduced in the hearings of the cases heretofore brought before the board, information gathered by the board and its forces under the directions of the statute, including reports of the Interstate Commerce Commission and various other governmental agencies, state and national, in addition to the very voluminous mass of evidence submitted at these hearings by the respective parties, as well as matters of general and universal public knowledge. As in decision no. 2, granting increases in wages, the board found it necessary to assume a known and recognized base, and adopted as such base the rates of wages in effect March 1, the date of the termination of Federal control; so in this decision the board assumes as its base the rates fixed and in effect under and by its decision no. 2. Except as modified by changed conditions, the preliminary statement set out in and as part of its decision no. 2 might well be here repeated, but that it not deemed necessary. Practically the same methods of procedure there outlined were followed in these cases. The board has been governed by the same principles and the directions of the law as there outlined, and has endeavored to give due consideration to every element of the problem before it.

The decision of the board is the result of the action of the board, composed of nine members acting as a body, under the usual parliamentary methods of procedure and its own rules. Each and every separate question was considered and voted upon—each and every rate for each class was voted upon and adopted by a majority vote of the board, and in every instance one or more of the public group, as the law requires, voted in the affirmative on any classification or rate adopted. In a problem so complex, and involving the inter-relationship of the wages of so many different classes of employes, it is obvious that there could not be unanimous agreement among all the members of the board on all decreases fixed by this decision; but the several decreases hereinafter set forth represent, in each instance, the best judgment of the majority of the board. This statement is made in order that it may not be inferred that the decision, in all its details, states the precise decrease which any one of the members hereof might have stated if he had the sole power and responsibility for fixing such decrease.

The board, proceeding under the methods outlined, while not attempting to set out all the findings in detail, for the information of the public and those directly interested, may here briefly outline some of its findings which have been considered in reaching the results herein announced. It finds that since the rendition of its decision no. 2 there has been a decrease in the cost of living. What that decrease has been it is impossible to state with mathematical accuracy, or even what the general average for the U.S. has been up to and on any given date. The machinery for procuring and stating with accuracy the data to fix this is by no means perfect. The decreases vary greatly according to the locality, and affect different people in different degrees. In some localities the general decrease has been greater than in others. In the cities the general decreases in some lines have been offset to some extent by high rents. In some of the items or products that enter into the costs of living the fall in prices has been great; in others, much less. The board also finds that the scale of wages for similar kinds of work in other industries has in general been decreased. The same conditions are also found as to this element. It is practically impossible to find any exact average line of decrease for the entire country. The decreases vary in different industries and in different localities, and in some instances with different industries, individuals or corporations. In some places and classes the decrease has been heavy; in others, not so great. There has been a decrease, and the tendency is at present downward. But the most unfortunate condition is that in many localities large numbers are out of employment on account of the prevailing depression, and hence without wages. On these elements and the others prescribed by statute to be considered, the board has looked to the general conditions existing and brought to its attention, as well as the evidence offered as to particular localities and carriers.

In a decision of this character it is not practical to fix rates applying with exact ratio to each individual employe and each separate locality, for the reason that necessity compels the board to accept certain standardizations of pay for railroad employes. But these standards are now somewhat different in different regions, and so the decreases will have relatively the same general effect. The board believes that, based on these elements shown, i.e., the decreased costs of living and the general decrease in the scale of wages in other industries, that the decreases herein fixed are justified and required. But the board is required by the Transportation Act to consider not one, but all of the seven elements especially mentioned in the act, and other relevant circumstances, and this it has endeavored to do in reaching the results herein announced. It has endeavored to consider as it should all the elements that enter into this complex problem. There are certain facts and conditions known to all and which can neither be disputed nor ignored. Whatever may be said as to the origin or contributing causes, there has been, and is, a marked, and to some extent distressing and disastrous, depression in business and industry affecting the entire country and some lines of production most seriously. As a result, heavy financial losses have been suffered and many hundreds of thousands thrown out of employment, and deprived of all wages, and this loss of purchasing power by them has in turn accelerated the general depression, by reducing the demand for the products they would otherwise have purchased. While it has been argued that the fall in prices has not reached to any large extent the consumer, it has without question most disastrously reached and affected the producers, especially some lines of manufacture and the agricultural classes. It should be recognized by all that the problem before us is chiefly an economic one, and we are all confronted by adverse and troublesome conditions which everyone must help to solve. It should not be looked upon as a struggle between capital and labor, or the managements and the employes.

Decision.

The Labor Board decides:

1. That the rates of wages heretofore established by the authority of the U.S. Railroad Labor Board shall be decreased as hereinafter specified, and that such decreases shall be effective as of July 1.

2. That the scope of this decision is limited to the carriers named under article 1 herein, to such carriers as may be included hereafter by addenda, and to the specific classes of employes named or referred to under each particular carrier.

3. That the reduction in wages hereby authorized shall be made in accordance with the following articles which prescribe the regulations, designate the employes affected, and establish the schedules of decreases.

Article I—Carriers and Employes Affected.—Each of the following carriers shall make deductions from the rates of wages heretofore established by the authority of the U.S. Railway Labor Board, for the specific classes of its employes named or referred to in this article, in amounts hereinafter specified for such classes in the schedules of de-

creases; apply the rates of wages established in sec. 3 (b) of article II, and secs. 1, 2, 3 and 4 of article X; and make effective the rates of wages fixed by differentials provided in sec. 4 of article IV.

The article and section numbers used in connection with a carrier refer to the corresponding article and section numbers in the schedules of decreases, and in determining the classes of employes affected on each carrier the following rules shall govern:

(a) When section numbers are used in connection with a carrier, without naming the classes, all classes of employes named in the corresponding section numbers of the schedules of decreases are affected.

(b) When section numbers are used in connection with a carrier and specific classes of employes are named, only the same classes of employes named in the corresponding section numbers of the schedules of decreases are affected.

(c) Where section numbers are omitted in connection with a carrier, the classes of employes named in the corresponding section number of the schedules of decreases are not affected.

[Editor's note. — Here follows a list of railways, giving the articles, and sections of the articles, of the decision, applying to individual railways.]

Article II.—Clerical and Station Forces.—For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedule of decreases per hour:

(NOTE—For clerks without previous experience, hereafter entering the service of a carrier, rates of wages specified in sec. 3 (b), this article, are hereby established.)

Sec. 1. Storekeepers, assistant storekeepers, chief clerks, foremen, subforemen, and other clerical supervisory forces.....6c.

Sec. 2. (a) Clerks with an experience of 2 or more years in railroad clerical work, or clerical work of a similar nature in other industries, or where their cumulative experience in such clerical work is not less than 2 years.....6c.

(b) Clerks with an experience of 1 year and less than 2 years in railroad clerical work, or clerical work of a similar nature in other industries, or where their cumulative experience in such clerical work is not less than 1 year.....13c.

Sec. 3. (a) Clerks whose experience as above defined is less than 1 year.....6½c.

(b) Clerks without previous experience hereafter entering the service will be paid a monthly salary at the rate of $67.50 a month for the first 6 months, and $77.50 a month for the second 6 months.

Sec. 4. Train and engine crew callers, assistant station masters, train announcers, gatemen, and baggage and parcel room employes (other than clerks) .....10c.

Sec. 5. Janitors, elevator and telephone switchboard operators, office, station and warehouse watchmen, and employes engaged in assorting way bills and tickets, operating appliances or machines for perforating, addressing envelopes, numbering claims and other papers, gathering and distributing mail, adjusting dictaphone cylinders, and other similar work.....10c.

Sec. 6. Office boys, messengers, chore boys and other employes under 18 years of age, filling similar positions, and station attendants.....5c.

Sec. 7. Station, platform, warehouse, transfer dock, pier, store-room, stock-room, and team-track freight handlers or truckers, and others similarly employed .....6c.

Sec. 8. The following differentials shall be maintained between truckers and the class named below:

(a) Sealers, scalers, and fruit and perishable inspectors, 1c. per hour above truckers' rates as established under sec. 7.

(b) Stowers or stevedores, callers or loaders, locators and coopers, 2c. per hour above truckers' rates as established under sec. 7.

The above shall not operate to decrease any existing higher differentials.

Sec. 9. All common laborers in and around stations, storehouses and warehouses, not otherwise provided for.....8½c.

Article III.—Maintenance of Way and Structural and Unskilled Forces Specified.—For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per hour:

Sec. 1. Bridge, building, painter, construction, mason and concrete, water supply, and plumber foremen (except water supply and plumber foremen coming under the provisions of sec. 1 of article IV, this decision).....10c.

Sec. 2. Assistant bridge, building, painter, construction, mason and concrete, water supply, and plumber foremen, and for coal wharf, coal chute, and fence gang foremen, pile driver, ditching and hoisting engineers and bridge inspectors (except assistant water supply and plumber foremen coming under the provisions of sec. 1 of article IV, this decision).....10c.

Sec. 3. Section, track and maintenance foremen, and assistant section, track and maintenance foremen .....10c.

Sec. 4. Mechanics in maintenance of way and bridge and building departments (except those that come under the provisions of the national agreement with the Federated Shop Trades)....10c.

Sec. 5. Mechanics' helpers in maintenance of way and bridge and building departments (except those that come under the provisions of the national agreement with the Federated Shop Trades) .....7½c.

Sec. 6. Track laborers, and all common laborers in maintenance of way department and in and around shops and roundhouses, not otherwise provided for herein.....8½c.

Sec. 7. Drawbridge tenders and assistants, pile-driver, ditching and hoisting firemen, pumper engineers and pumpers, crossing watchmen or flagmen, and lamp lighters and tenders.....8½c.

Sec. 8. Laborers employed in and around shops and roundhouses, such as engine watchmen and wipers, fire builders, asbpit men, flue borers, coal passers (except those coming under the provisions of sec. 3 of article VIII, this decision), coal chute men, etc.....10c.

Article IV.—Shop Employes.—For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per hour:

(NOTE—For car cleaners, rates of wages fixed by a differential shown in sec. 4. this article, are hereby established.)

Sec. 1. Supervisory forces .....8c.

Sec. 2. Machinists, boilermakers, blacksmiths, sheet metal workers, electrical workers, carmen, moulders, cupola tenders and coremakers, including those with less than four years experience, all crafts .....8c.

Sec. 3. Regular and helper apprentices and helpers, all classes.....8c.

Sec. 4. Car cleaners shall be paid a rate of 2c. per hour above the rate established in sec. 6 of article III, this decision, for regular track laborers at points where car cleaners are employed.

Article V.—Telegraphers, Telephoners and Agents.—For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per hour:

Sec. 1. Telegraphers, telephone operators (except switchboard operators), agents (except agents at small non-telegraph stations, as referred to in supplement 13 to general order 27, article IV, sec. c), agent telegraphers, agent telephoners, towermen, lever men, tower and train directors, block operators, and staffmen.....6c.

Sec. 2. Agents at small non-telegraph stations as referred to in supplement 13 to general order 27, article IV, sec. (c).....5c.

Article VI.—Engine Service Employes. For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per mile, per hour, or per day, as the case may be:

Sec. 1.—Passenger Service.

Class.	Per mile. Cents.	Per day. Dollars.
Engineers and motormen	.48	$0.48
Firemen (coal or oil)	.48	.48
Helpers (electric)	.48	.48

Sec. 2.—Freight Service.

Class.	Per mile. Cents.	Per day. Dollars.
Engineers (steam, electric, or other power)	.64	$0.64
Firemen (coal or oil)	.64	.64
Helpers (electric)	.64	.64

Sec. 3.—Yard Service.

Class.	Per hour, cents.
Engineers	8
Firemen (coal or oil)	8
Helpers (electric)	8

Sec. 4.—Hostler Service.

Class.	Per day, dollars.
Outside hostlers	$0.64
Inside hostlers	.64
Helpers	.64

Article VII.—Train Service Employes. For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per mile, per day, or per month, as the case may be:

Sec. 1.—Passenger Service.

Class.	Per mile Cents.	Per day Dollars.	Per m'nth Dollars.
Conductors	.4	$0.60	$18.00
Assistant conductors or ticket collectors	.4	.60	18.00
Baggagemen handling both express and dynamo	.4	.60	18.00
Baggagemen operating dynamo	.4	.60	18.00
Baggagemen handling express	.4	.60	18.00
Baggagemen	.4	.60	18.00
Flagmen and brakemen	.4	.60	18.00

Sec. 2.—Suburban Service (exclusive).

Class.	Per mile Cents.	Per day Dollars.	Per m'nth Dollars.
Conductors	.4	$0.60	$18.00
Ticket collectors	.4	.60	18.00
Guards performing duties of brakemen or flagmen	.4	.60	18.00

Sec. 3.—Freight Service.

Class.	Per mile	Per day
Conductors (through)	.64	$0.64
Flagmen and brakemen (through)	.64	.64
Conductors (local or way freight)	.64	.64
Flagmen and brakemen (local or way freight)	.64	.64

Sec. 4.—Yard Service.

Class.	Per day. Dollars.
Foremen	$0.64
Helpers	.64
Switchtenders	.64

Article VIII. — Stationary Engine (Steam) and Boiler Room Employes.—For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per hour:

Sec. 1. Stationary engineers (steam).....8c.

Sec. 2. Stationary firemen and engine room oilers .....8c.

Sec. 3. Boiler room water tenders and coal passers .....6c.

Article IX.—Signal Department Employes.—For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per hour:

Sec. 1. Signal foremen, assistant signal foremen, and signal inspectors.....8c.

Sec. 2. Leading maintainers, gang foremen, and leading signalmen .....8c.

Sec. 3. Signalmen, assistant signalmen, signal maintainers, and assistant signal maintainers....8c.

Sec. 4. Helpers .....6c.

Article X.—Floating Equipment Employes.—For the specific classes of employes listed herein, and named or referred to in connection with a carrier affected by this decision, the following schedules of decreased rates of pay are established:

Sec. 1.—Ferries.

Class.	Per month.
Captains	$200
Engineers	190
Firemen and oilers (licensed)	140
Firemen and oilers (unlicensed)	140
Deckhands	125
Porters	100

Sec. 2.—Tugs and Steam Lighters.

Class.	Per month.
Captains	$200
Mates and first deckhands (licensed)	130
First deckhands (unlicensed)	130
Second deckhands	125
Floatmen and float watchmen	125
Engineers	190
Firemen and oilers (licensed)	140
Firemen and oilers (unlicensed)	140
Bridgemen	125

Sec. 3.—Lighters and Barges.

Class.	Per month.
Captains, steam hoist—single drum	$135

Engineers, steam hoist—single drum	145
Captains, steam hoist—double drum	140
Engineers, steam hoist—double drum	150
Captains, derricks—under 30-ton hoist	140
Engineers, derricks—under 30-ton hoist	150
Captains, derricks—30-ton hoist and over	150
Engineers, derricks—30-ton hoist and over	160
Mates, derricks	100
Captains, hand winch lighters and covered barges	130

Sec. 4.—Lighters and Barges.

Class.	Per month.
Captains, hand hoist barges—covered lighters	$120
Captains, steam hoist—single drum	125
Captains, steam hoist—double drum	130
Engineers, steam hoist—single drum	135
Engineers, steam hoist—double drum	140

Article XI.—Other Supervisory Forces. For the specific classes of employes listed herein and named or referred to in connection with a carrier affected by this decision, use the following schedules of decreases per hour:

Sec. 1. Train dispatchers .....8c.
Sec. 2. Yard masters and assistant yard masters .....8c.

Article XII.—Miscellaneous Employes. For the miscellaneous classes of supervisors and employes not specifically listed under any article, named in connection with a carrier affected by this decision, use the following rule for making decreases:

Sec. 1. For miscellaneous classes of supervisors and employes in the hereinbefore named departments properly before the Labor Board and named in connection with a carrier affected by this decision, deduct an amount equal to the decreases made for the respective classes to which the miscellaneous classes herein referred to are analogous.

Sec. 2. The intent of this article is to extend this decision to certain miscellaneous classes of supervisors and employes submitted by the carriers, not specifically listed under any section in the classified schedules of decreases, and authorize decreases for such employes in the same amounts as provided in the schedules of decreases for analogous service.

Article XIII.—General Application.—The general regulations governing the application of this decision are as follows:

Sec. 1. The provisions of this decision will not apply in cases where amounts less than $30 a month are paid to individuals for special service which takes only a part of their time from outside employment or business.

Sec. 2. Decreases specified in this decision are to be deducted on the following basis:

(a) For employes paid by the hour, deduct the hourly decrease from the hourly rate.
(b) For employes paid by the day, deduct 8 times the hourly decrease from the daily rate.
(c) For employes paid by the month, deduct 204 times the hourly decrease from the monthly rate.

Sec. 3. The decreases in wages and the rates hereby established shall be incorporated in and become a part of existing agreements or schedules, or future negotiated agreements or schedules, and shall remain in effect until or unless changed in the manner provided by the Transportation Act, 1920.

Sec. 4. It is not intended in this decision to include or make decreases in wages for any officials of the carriers affected, except that class designated in the Transportation Act, 1920, as "subordinate officials," and who are included in the act as within the jurisdiction of this board. The act provides that the term "subordinate officials" includes officials of carriers of such class or rank as the Interstate Commerce Commission shall designate by regulation duly formulated and issued. Hence, whenever in this decision words are used, such as "foremen," "supervisors," etc., which may apply to officials, such words are intended to apply to only such classes of subordinate officials as are now or may hereafter be defined and classified by the Interstate Commerce Commission as "subordinate officials" within the meaning of the Transportation Act, 1920.

Article XIV.—Interpretation of this Decision.—Should a dispute arise between the management and the employes of any of the carriers as to the meaning or intent of this decision, which cannot be decided in conference between the parties directly interested, such dispute shall be referred to the U.S. Railroad Labor Board in the manner provided by the Transportation Act, 1920.

Sec. 1. All such disputes shall be presented in a concrete and joint signed statement setting forth: (a) The article of this decision involved; (b) The facts in the case; (c) The position of the employes; (d) The position of the management thereon. Where supporting documentary evidence is used, it shall be attached to the application for decision in the form of exhibits.

Sec. 2. Such presentations shall be transmitted to the Secretary of the U.S. Railroad Labor Board, who shall place same before the Labor Board for final disposition.

House of Commons Committee on Canadian National Railways and Shipping.

Canadian Railway and Marine World for June, contained a summary of the committee's proceedings up to May 12. The next sitting was on May 17, when G. W. Hensley, of Pickford & Black, Ltd., Halifax, N.S., was examined. He stated that the firm, organized in 1876, originated the first regular Canada-West Indies steamship service, but that in 1913 the Royal Mail Steam Packet Co. had taken over the chief part of its service. At present the company which succeeded the original firm operates only a Jamaican service. He considered that the Dominion Government should not unduly interfere with private enterprise; that it had no right to operate ships at all, and that governmental operation of ships was most unfair to men with their own capital invested in the shipping business. The Government should keep out of a field which is adequately covered by private enterprise. When the fact of the C.P.R. operating steamships was mentioned, he pointed out that the C.P.R. is a privately owned concern and has a right to operate ships. The fact of the C.P.R. ships being privately owned and the Canadian Government Merchant Marine boats being Government owned makes all the difference. T. M. M. Tweedie, M.P. for Calgary West, Alta., pointed out that it is desirable that the Canadian National Rys. and the C.G.M.M. ships co-operate, but Mr. Hensley stated that the railways could obtain just as efficient co-operation with privately owned ships. Mr. Tweedie asked questions to show that the C.G.M.M. ships are developing foreign trade and proving great assets to Canada, but Mr. Hensley maintained that this trade could be developed just as well by privately owned steamship lines, and that the Government has no business to compete with private corporations. J. A. Stewart, M.P. for Lanark, Ont., asked why Pickford & Black surrendered the West Indian trade to the Royal Mail Co., but the witness declined to answer. H. H. Stevens, M.P. for Vancouver Center, B.C., claimed that the whole examination of Mr. Hensley was entirely foreign to the order of reference, and out of order. The chairman agreed with this objection to an extent, but stated that much of the evidence before the committee from start to finish had been along the lines of this evidence, and maintained that the procedure followed should be adhered to. Replying to further questions by Mr. Stewart, Mr. Hensley explained the present state of the shipping business, and depreciation in the value of ships, and advised writing down the Government ships to their present market value. He thought the Government should try to sell, or charter, as many as possible, and lay the remainder up for the present. Further questioning was concerned with the advantage which would accrue to Canada if all importations were made direct, instead of importing a large proportion of her goods via New York. Mr. Hensley pointed out the impossibility of importing fruit directly to Canada in winter months. Wm. Duff, M.P. for Lunenburg, N.S., asked if the growth of trade between Canada and the West Indies had not been very slow, and Mr. Hensley said that such was the case until the Canada-West Indies trade agreement had been put into force, when the trade had begun to develop more rapidly.

R. A. Corbett, of G. C. Campbell & Co., Halifax, was the next witness, and was first questioned by Hon. A. K. Maclean, M.P. for Halifax, N.S., stating that his firm is agent for, and part owner of, the Red Cross Steamship Line, now operating one ship between Halifax, New York, and St. John's, Nfld. He considered that the Canadian National Rys. lose a lot of traffic which goes by C.G.M.M. ships from Montreal to Newfoundland, but which would otherwise go by rail as far east as Halifax and thence by ship. J. A. Stewart, M.P. for Lanark, pointed out that Canada Steamship Lines Ltd. also has a service from Montreal to Newfoundland, and asked Mr. Corbett whether, in view of this, it would make any difference to the Canadian National Rys. if the C.G.M.M. boats were taken off the Montreal-Newfoundland route. Mr. Corbett replied that, in his opinion the Canada Steamship Lines would not have put this service on if the C.G.M.M. had not started one. He maintained that the Government should not operate ships in competition with a private concern which has invested its capital, and is prepared to look after the routes it has developed, and he suggested that the Government try to charter its boats to various companies. Through much questioning, Mr. Stewart drew from the witness the fact that the greater part of the Red Cross Line's capital is held outside of Canada, and then asked him if he did not think the Canadian Government ships were justified in entering into competition with the Red Cross Line. Mr. Corbett, however, stoutly maintained that they were not.

F. K. Warren, ship broker, Halifax, N.S., was the next witness, and said, in answer to Mr. Maclean, that the Government policy of putting ships on the West Indies trade routes was wrong. He considered it very wrong that he should be forced to go into competition with himself, and characterized the whole procedure as being absolutely rotten. In his opinion, there are 50% too many ships on the Canada-Newfoundland route and he advocated the Dominion Government adopting the U.S. Shipping Board's plan of handling its ships. He maintained the position that the Government was absolutely wrong in competing against private capital, and called attention to the fact that, if the Government builds

no more ships (his understanding being that no more are to be built), when the present ships are worn out, the trade routes developed will be without service, on account of the private owners having been forced out of business before that time.

R. B. Teakle, Manager, Canadian Government Merchant Marine, was recalled, and, in reply to questions by Wm. Duff, gave information concerning the insurance of the C.G.M.M. fleet.

The committee met again on May 18, when D. B. Hanna, President, Canadian National Rys., was the first witness. He was questioned first by Wm. Duff, who asked about the experience of the various directors associated with Mr. Hanna, and also about the methods adopted in insuring the C.G.M.M. ships. Mr. Hanna stated that the insurance is placed on competitive bids, that middlemen are dispensed with in insurance transactions, and that the directors are seriously contemplating carrying their own insurance. Several questions were asked Mr. Hanna concerning the choice of export ports, as between Halifax and Montreal, and the terms of the Canada-West Indies trade agreement were reviewed. The fact that the Royal Mail Steam Packet Co. is heavily subsidized by the Government was brought out, whereas the C.G.M.M. receives no subsidy, and, according to Mr. Hanna, does not intend to apply for any if the ends can be made to meet without it. Mr. Hanna added that the Canadian National Rys. will be made valuable to the Canadian people in the same proportion as they make use of the railways and the ships comprising the system.

A. J. Mitchell, Vice President, Finance and Accounts, Canadian National Rys., was examined concerning the C.G.M.M.'s financial operations, Mr. Duff taking exception to the financial statement presented in the House of Commons, and questioning Mr. Mitchell at length in an effort to prove that the proper deductions for depreciation and interest were not made. Many technicalities of accounting and of the shipping business, involving records of voyages begun in one year and finished in the succeeding year, were brought up. Mr. Mitchell stated that no taxes were paid on the ships in 1919 and 1920, and also that $500,000 was paid the Government as interest on account of the ships. However, as the entries in the public accounts credited the C.G.M.M. with a payment on interest account of only $415,-358.36, Mr. Duff asked what became of the remainder of the $500,000, so a Finance Department official was sent for, to explain the matter. While he was being secured Mr. Mitchell explained the basis on which depreciation of the ships was reckoned.

J. T. McFarlane, accountant in the Finance Department, stated that the sum of $415,358.36 represented the interest due for 1919, and was properly credited to the fleet, and the remainder of $84,-641.64 was put into suspense account to apply on the interest which would be due for 1920, it thus being necessary to split the amount of $500,000 for bookkeeping purposes.

On Mr. Mitchell being recalled, he was asked by F. S. Cahill, M.P. for Pontiac, Que., why, in the statement of operating returns, depreciation was deducted before interest charges. Mr. Cahill persisted in regarding the C.G.M.M. capitalization as bonded indebtedness, and claimed that fixed charges would have to be met before anything could be set aside for depreciation, but Mr. Mitchell contended that a depreciation reserve must be created, and contributed to, before a return on capital stock could be declared, and defended the fairness of the financial statement.

On May 25, E. N. Bender, General Purchasing Agent, C.P.R., explained the C.P.R. purchasing organization, pointing out that its Purchasing Department and Stores Department are separate, while on the Canadian National Rys. the two departments are combined. Stationery, coal, and ties are purchased by officials acting independently of him, and, like him, reporting to the Vice President in charge of operation. He stated that the C.P.R. does not ask for public tenders in its purchases, but calls for prices from firms which are in a position to fill the orders, the preference being given to Canadian firms where prices are equal. Requisitions from storekeepers do not go to his department, but go through the General Storekeeper to the Vice President in charge of operation, he dealing directly with the latter. He did not care to answer questions concerning the purchase of ties, that being outside of his department. Rails are bought in Canada, by negotiation with the two rail manufacturing companies. No buying from subsidiary companies of the C.P.R. is done. Ask as to why the C.P.R. does not advertise for tenders, he stated that such a practice would tend to raise prices. No report goes from his department to the shareholders' annual meetings, and no prices or other details are furnished to anyone, except the proper officer, either before or after, the completion of purchases. In reply to questions by Hon. T. A. Crerar, M.P. for Marquette, Man., Mr. Bender outlined the operations of the Commissary Department. He explained that, in purchasing, prices are asked from all firms considered to be in a position to satisfactorily fill the order to be given. He emphasized that shareholders' meetings were never advised in connection with purchases, and expressed the opinion that the only result of making details public would be increased costs for all materials.

T. Britt, General Fuel Agent, C.P.R., stated that in buying coal, tenders are never advertised for. All coal is, however, bought on a competitive basis, by negotiation, with such things as price, quality, delivery, haul, responsibility, and previous satisfactory dealings taken into consideration. He emphasized the harm that would come from publicity in connection with coal purchases. A railway company might be given a preferential price, on account of its financial standing, or for some other reason, and it would not be fair to tell the price. The mere fact of publicity being given to prices would operate against the company the next time it set out to buy coal. Mr. Britt added that he reported to the Vice President in charge of operation, and had never been before a meeting of shareholders or directors to give details concerning his department. He then answered questions concerning coal prices and deliveries, these referring to his previous appearance before the House of Commons fuel committee.

Mr. Bender was recalled, and stated that he had never been called before a meeting of shareholders, or directors, to give details in connection with his department, and that he would consider such procedure highly improper.

On May 26, A. J. Mitchell was examined further in connection with financial matters, particularly insurance. D. B. Hanna was also further examined, being questioned concerning the attendance of directors at meetings during 1920. H. C. Hocken, M.P. for West Toronto, asked what proportion of the mail between eastern and western Canada is handled by the Canadian National Rys., and was informed that it is all handled by the C.P.R. Overseas mail arriving on C.P.R. boats is handled to destination on C.P.R. trains, and mail arriving on other companies' boats is intended to be handed over to the C.N.R. Mr. Hanna stated that for every dollar obtained from the Post Office Department by the Canadian National Rys., at least $3 and probably $4 is obtained by the C.P.R. He also stated that the Canadian National Rys. are equipped to handle a lot more of the Government telegraph business than they are getting.

Hon. J. D. Reid, Minister of Railways, stated that it had been submitted to him that it would not be fair to take mail from C.P.R. ships at Canadian ports and handle it to its destination on Canadian National trains. Mr. Hanna explained that the mail traffic was formerly unprofitable, but that at the new rates it pays well.

J. D. Chaplin, M.P. for Lincoln, Ont., asked Mr. Hanna whether there was any truth in statements to the effect that the Canadian National Rys. were being "milked" by influenced purchases, etc., to which Mr. Hanna replied: "There never was a more outrageous untruth uttered." He added that it would not be possible for such a condition to exist without his knowledge. He believed that a reduction of rates would not have the effect of moving more traffic. Speaking of directors, he said that in a new administration it would be better for everybody who had anything to do with the Canadian National Rys. to eliminate themselves from everything else. He is confident that the Canadian National Rys. is obtaining equipment at as reasonable a price as any other railway. The question of rails was brought up, and Mr. Hanna explained the necessity for new rails and the prices paid.

A. McGregor, M.P. for Pictou, N.S., stated that a division superintendent on the Canadian National Rys. has no authority. He has to refer to a general superintendent, who in turn refers the matter to headquarters. Mr. McGregor cited the loss of a suit case, worth $50, as an example, his ideas concerning railway organization apparently leading him to believe that a division superintendent is supposed to adjust loss and damage claims, and at a moment's notice. He flatly stated: "I have no hesitation in saying the system is overmanned by red tape and duplication." Mr. Hanna immediately took issue with him, and stated that that kind of criticism always came from east of Montreal. In concluding, Mr. Hanna presented an optimistic statement dealing with tha whole Canadian National system, pointing out the conditions which will combine to make the property financially successful, and stating that he believed it would be in a position to earn its operating expenses within two years, or a little more, if wages could be adjusted properly.

"And the mountain labored and brought forth a mouse."

At the committee's sitting on May 25 the following were appointed a sub-committee to draft a report and submit it

to the committee for approval:—Hon. J. D. Reid, Hon. S. C. Mewburn, Hon. A. K. Maclean, Hon. T. A. Crerar; G. W. Allan, South Winnipeg; J. A. Stewart, Lanark; and T. M. M. Tweedie, West Calgary. Their report was submitted to the committee on May 27 and was adopted, without amendment, as follows:—

"Your committee has held 22 meetings, and has examined under oath the chief executive and operating officers in control of the Canadian National Railways and Shipping, as well as one of the members of the board who is not an officer, two of the officers of the Canadian Pacific Railway in charge of purchasing and three representatives of private shipping interests. The executive and operating officials have given to your committee a very considerable volume of valuable and useful information with reference to the form of organization, the financial conditions, the equipment, the operation, the present business and the future possibilities of both the railway and shipping properties of the Government.

"The five questions submitted to your committee are:—(1) What information as to the Canadian National Rys. and Shipping, as conducted by the board of directors and management should, in the public interest, be brought down in Parliament on question, motion for production of papers, or otherwise. (2) When, by what method, and under what conditions, if any, should such information be given, regard being had for the necessity of securing to Parliament, and the public, all facts requisite for the determination of policy, including finance, and to the board of directors the best possible conditions for efficiency of management. (3) What system of auditing should be adopted, and what extent of detail should be given in the annual report. (4) What, if any, improvement could be made in the general scheme of management. (5) Whether and for what purpose the said committee should be continued, and that for the above purposes and for such other purposes as the committee deem in the public interests there be referred to said committee the annual report of the board of directors and that the said committee have power to examine witnesses under oath, to send for papers, persons, and records, and to report from time to time.

"The first four of these questions involve principles of far reaching importance and which will be accentuated by the acquisition of the Grand Trunk Ry. system. Having regard to the extent and nature of the matters involved in the reference, and the numerous problems incidental to the ownership and operations of a railway and shipping system such as the Government possesses, any decision by your committee which would be of any value would of necessity require investigation into the methods pursued by other corporations carrying on similar activities. Owing to the fact that the committee started upon its labors late in the session, and that the number of other special committees working, interfered somewhat with its sittings, there has not been adequate time to do this, and, if the committee were to report its conclusions, now, its judgment would for the most part have to rest upon the ex parte evidence of the operating officers of our own system. In the circumstances your committee is of the opinion that it should deal with the questions submitted to it in the reverse order and answer the last first. Question number five reads as follows: (See above.) Your committee recommends that this committee be re-appointed at an early period of the next session of Parliament, with a view to enabling it to carrying to completion the enquiry now begun, so that a report might be made early next session, particularly upon the specific submission made to the committee. Pending further investigation and evidence and much more careful consideration of the mass of information brought out before the committee, the committee does not feel disposed at this time to make definite reply to questions 1 to 4 inclusive. Your committee begs to submit herewith for the information of the House a copy of its proceedings and the evidence taken by it and also certain papers and records submitted to the committee but not contained in its proceedings."

J. M. R. Fairbairn Honored by Toronto University.

John Morrice Roger Fairbairn, Chief Engineer, C.P.R., Montreal, was given

J. M. R. Fairbairn,
Chief Engineer, Canadian Pacific Railway.

the degree of doctor of science (honoris causa), at a special convocation of Toronto University, on June 9. In presenting Mr. Fairbairn to the Chancellor, Sir William Meredith, the President of the University, Sir Robert Falconer, said:—"Mr. Fairbairn graduated from the School of Practical Science in 1893. For 20 years he has been connected with the Canadian Pacific Ry., of which he has been Chief Engineer since 1918. In the course of his career he has been concerned with the construction of the Lethbridge viaduct, one of the largest in the world; the replacement and rebuilding of the Lachine bridge; and the application of the principles of reinforced concrete to the many structures of this premier railway of America. The position he holds among his fellow engineers is shown by his being President of the Engineering Institute of Canada. His standing is due to his own indefatigable efforts and his sterling character. It is a matter of much satisfaction to us in the University, that both the President and Chief Engineer of what is perhaps the greatest railway system of the world are our own graduates."

Mr. Fairbairn was born at Peterborough, Ont., June 30, 1873, and graduated from the School of Practical Science, Toronto, in 1893, and until Aug. 1901, was engaged in survey and construction work, since when he has been, to Nov. 1902, Assistant Engineer, Maintenance Department, Eastern Lines, C.P.R.; Nov. 1902 to Aug. 1904, Resident Engineer, District 4, C.P.R., Ottawa; Aug. 1904 to Aug. 1905, Assistant Engineer, Chief Engineer's office, C.P.R., Montreal; Aug. 1905 to Mar. 1906, acting Division Engineer, Eastern Division, C.P.R., Montreal; Mar. 1906 to Nov. 1907, Division Engineer, Ontario Division, C.P.R., Toronto; Nov. 1907 to Oct. 1908, Division Engineer, Eastern Division, C.P.R., Montreal; Oct. 1908 to Oct. 1910, Principal Assistant Engineer, Eastern Lines, C.P.R., Montreal; Oct. 1910 to Feb. 1911, Engineer of Maintenance of Way, Eastern Lines, C.P.R., Montreal; Feb. to Sept. 1911, acting Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal; Sept. 1911 to July 1, 1918, Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal; and since July 1, 1918, Chief Engineer, C.P.R., Montreal.

Jamaica's Requirements of Railway Supplies.

Major H. A. Chisholm, M.C., Trade Commissioner, Havana, Cuba, has reported to the Trade and Commerce Department that Canadian manufacturers of and dealers in railway and construction materials have a good opportunity in Jamaica. If Canadian manufacturers in these times would keep in close touch with the Jamaica Government Rys. and the Jamaica Department of Public Works, many more purchases would be made from Canadian sources. There is a distinct tendency to favor British manufacturers, and in view of the dislocation of many industries in the United Kingdom during the last two or three years, Canadian firms have received numbers of orders from the two departments of the Jamaica Government mentioned above. Provided more was known in the island as to what Canada manufactures, increased business could be done. Efforts, however, must be made on the part of Canadian manufacturers to meet local requirements.

Catalogues and correspondence in regard to requirements of Jamaican Government Rys. must be sent to Allan Farquharson, Superintendent of Stores, Jamaican Government Rys., Kingston, Jamaica, B.W.I. This department requires from time to time: tool handles of all descriptions; railway track tools; shovels, road picks, tamping picks; belts, nuts, rivets, wood screws, wire nails; window glass for passenger cars, ⅛ x 20¼ in. and 20½ x 24¾ in; galvanized telegraphic line wire no. 8 B.W.G.; railway torpedoes; electric welding wire; railway lanterns; colored waste; rubber sheeting; paints, varnishes, oils, grease and genuine linseed oil; files and drills; office stationery and forms. Goods must be of Canadian manufacture; quotations must be in Canada funds c.i.f. Kingston, 30 days or cash against documents.

Railway Operating Revenues, Expenses and Statistics for January.

The Dominion Bureau of Statistics' Transportation Branch has commenced issuing monthly reports of operating revenes, expenses and statistics, of the larger Canadian Railways. The full report for January includes all railways having an annual operating revenue of $500,000 and over, except the Michigan Central, St. Lawrence and Adirondack, Vancouver, Victoria and Eastern, and Wabash. The Michigan Central was unable to furnish some of the data for 1920 and the reports of the other roads were not received in time to be included. The roads reporting, and which are included in the primary table below, operated over 90 per cent. of the total mileage in Canada, and the five large systems for which separate statements are given operated about 85 per cent of the total mileage.

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues	$	$	$	$	$	$	$	$	$	$	$	$
Freight	24,568,097	20,818,640	2,609,345	2,349,273	4,579,096	3,132,299	9,968,953	9,539,322	4,598,966	3,631,097	1,169,116	747,657
Passenger	6,208,262	5,968,472	620,760	571,759	849,395	716,722	3,007,669	3,162,802	1,164,283	1,061,519	209,196	154,410
Mail	274,029	267,763	39,250	47,305	38,587	32,294	129,330	122,904	44,844	43,916	12,655	11,835
Express	1,213,754	1,011,177	113,315	107,218	114,761	81,516	753,625	568,965	175,970	185,497	27,324	40,699
All other	1,565,288	1,538,774	144,632	118,877	269,378	189,143	835,074	881,625	203,444	197,517	22,932	54,187
Total operating revenue	33,822,431	29,604,828	3,527,304	3,194,435	5,851,220	4,151,887	14,694,652	14,275,620	6,187,539	5,119,548	1,441,225	1,008,790
Operating expenses												
Maintenance of way and structures	5,548,400	4,979,619	720,597	560,221	1,522,993	1,303,585	1,845,908	1,749,070	757,213	596,722	341,035	458,333
Maintenance of equipment	8,694,436	8,169,238	915,798	766,073	1,477,774	1,218,298	3,522,560	3,657,140	2,046,336	1,620,290	389,858	574,114
Traffic	814,444	662,018	32,123	62,647	136,135	105,641	454,489	344,440	133,321	103,795	30,335	23,605
Transportation	20,112,817	17,109,881	2,578,912	2,196,287	4,115,303	3,009,682	7,633,546	7,204,046	3,689,267	3,168,887	1,023,320	648,999
Miscellaneous operation	460,431	530,318	62,695	69,426	114,641	78,484	223,720	334,108	33,308	19,903	8,221	12,052
General	913,098	837,285	37,601	37,601	187,105	141,107	348,107	297,229	228,384	234,352	21,561	29,010
All other	Cr. 4,731	Cr. 16,237	.....	.....	Cr. 15,166	Cr. 32,628	.....	.....	899	92	349	.....
Total operating expenses	36,538,897	32,272,124	4,347,728	3,702,613	7,538,786	5,824,170	14,029,021	13,586,035	6,886,931	5,743,853	1,813,983	1,746,117
Net operating profit	.....	.....	.....	.....	.....	.....	665,631	689,584	.....	.....	.....	.....
Net operating deficit	2,709,465	2,667,295	820,423	508,178	1,687,566	1,672,283	.....	.....	699,391	624,310	372,757	737,357
Ratio of operating expenses to revenue	108.0%	109.0%	123.3%	115.9%	128.8%	140.3%	95.5%	95.2%	111.3%	112.2%	125.8%	173.1%
Mileage of operating statistics												
Average miles operated	37,344.75	36,769.09	4,564.05	4,092.98	9,742.7	9,653.6	13,772.1	13,772.1	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue)	7,975	8,464	746	1,070	1,133	1,085	2,461	2,924	1,958	1,855	345	254
Tons moved one mile (revenue)	2,039,992	2,198,078	249,460	290,519	346,333	337,817	854,514	1,017,313	363,159	365,691	131,251	77,469
Tons moved (all freight)	9,604	9,455	879	1,202	1,483	1,220	3,224	3,367	2,245	2,074	401	302
Tons moved one mile (all freight)	2,334,674	2,384,062	283,357	304,105	442,039	370,764	973,488	1,118,114	390,551	385,225	147,083	90,146
Passengers carried	3,429	3,441	547	577	402	397	1,216	1,254	927	908	57	62
Passengers carried one mile	192,054	224,329	22,395	24,719	23,874	23,305	91,418	123,930	38,679	36,121	4,782	7,023
Freight train miles	4,749	4,751	570	557	1,038	909	1,778	2,056	817	782	296	215
Passenger train miles	3,539	3,507	423	369	620	583	1,540	1,682	633	600	144	106
Mixed train miles	544	591	968	99	152	155	142	174	58	65	36	35
Loaded freight car miles	87,157	92,691	11,779	11,552	17,061	14,214	34,485	43,888	14,189	15,351	5,552	3,818
Empty freight car miles	44,170	33,014	4,952	3,066	11,257	8,038	12,158	12,943	9,528	5,040	3,505	2,248
Passenger car miles	23,544	23,200	3,018	2,572	3,862	3,488	10,886	12,064	3,739	3,440	1,133	827
Total amount of pay roll	$21,960,257	$19,378,811	$3,089,933	$2,677,097	$4,630,989	$3,602,034	$821,699	$7,704,766	$4,169,682	$3,657,672	$1,040,196	$800,589
Average per mile operated												
Operating revenue	$905.86	$805.16	$772.85	$780.46	$600.55	$430.06	$1,066.99	$1,036.57	$1,732.71	$1,433.64	$513.44	$359.38
Operating expenses	$978.41	$877.70	$952.61	$904.62	$773.76	$603.29	$1,018.66	$986.49	$1,928.57	$1,608.47	$646.23	$622.07
Net operating revenue	$72.55	$72.54	$179.75	$124.16	$173.21	$173.22	$48.33	$50.08	$195.85	$174.82	$132.79	$262.69
Tons moved one mile (revenue)	54,626	59,781	54,659	70,979	35,546	34,992	62,047	73,868	101,696.8	102,405.9	46,758.6	27,598.8
Tons moved one mile (all freight)	62,516	64,839	62,085	74,299	45,369	38,819	70.686	81,187	109,367.5	107,876.1	52,398.8	32,114.8
Average per freight and mixed train miles												
Freight receipts	$4.64	$3.90	$3.91	$3.57	$3.85	$2.94	$5.19	$4.28	$5.25	$4.28	$3.51	$2.98
Tons of revenue freight	385.3	411.4	374.0	441.6	290.8	317.1	448.8	456.7	414.7	431.1	394.6	308.4
Tons of all freight	441.0	446.2	424.8	462.3	371.2	351.2	506.7	501.9	446.0	454.2	442.2	358.9
Loaded freight cars	16.5	17.3	17.7	17.6	14.3	13.3	17.9	19.7	16.2	18.1	16.6	15.2
Empty freight cars	8.3	6.2	7.4	4.7	9.5	7.6	6.3	5.8	10.9	5.9	10.5	9.0
Average per passenger and mixed train miles												
Passenger receipts	$1.52	$1.46	$1.19	$1.22	$1.09	$0.97	$1.79	$1.70	$1.68	$1.59	$1.16	$1.08
Passengers carried	47.0	54.7	43.1	52.6	30.8	31.5	54.3	66.7	55.9	54.2	26.5	49.3
Passenger cars	5.8	5.7	5.8	5.5	5.0	4.7	6.5	6.5	5.4	5.2	6.3	5.8
Average per freight, passenger and mixed train miles												
Operating revenue	$3.82	$3.34	$3.24	$3.11	$3.23	$2.52	$4.25	$3.65	$4.10	$3.50	$3.02	$2.82
Operating expenses	$4.14	$3.65	$3.99	$3.60	$4.16	$3.53	$4.05	$3.47	$4.56	$3.96	$3.80	$4.88
Aver. length of haul, rev. freight, miles	256.8	259.7	334.5	371.3	305.6	311.3	347.1	347.8	185.4	197.1	380.3	304.6
Average passenger journey, miles	36.0	85.2	40.9	42.8	59.4	58.6	75.2	98.8	41.7	39.8	82.8	112.0
Average tons per loaded freight car	26.8	25.7	24.1	26.3	25.9	26.4	28.23	25.48	27.5	25.1	26.6	23.6
Ratio of loaded to total freight car miles	66.4%	73.7%	70.4%	79.0%	60.2%	63.9%	73.9%	77.2%	59.8%	75.3%	61.2%	62.9%
Ratio of pay roll to revenue	64.9%	65.5%	87.6%	83.8%	79.2%	86.8%	53.2%	54.0%	67.4%	71.4%	72.2%	79.4%
Ratio of pay roll to operating expenses	64.1%	60.0%	71.1%	72.3%	61.4%	61.8%	55.8%	56.7%	60.5%	63.7%	57.3%	45.8%
Aver. freight receipts per rev. ton mile	1.204c.	.947c.	1.204c.	.808c.	1.322c.	.927c.	1.165c.	.938c.	1.266c.	.922c.	.0891c.	.965c.
Aver. passenger receipt per pass. per mile	3.233c.	2.661c.	2.77c.	2.31c.	3.55c.	3.07c.	3.29c.	2.55c.	3.01c.	2.94c.	.4.37c.	2.20c.

Last 3 figures omitted

Following are the Bureau's comments on the statistics:—

"The January figures show a decrease in revenue freight carried one mile of about 7%, and in passengers carried one mile of about 14%. The decrease in passenger traffic was principally on the transcontinental lines; not only were fewer people travelling, but the average journey was shorter by about 9 miles. The increase in freight and passenger rates granted in Sept. 1920 more than offset this decrease, and gave an increase in operating revenues of $4,224,603, or about 14%.

"The pay roll increased $2,581,445 or 13% due principally to the award granted to United States roads by the Railway Labor Board in July 1920. Although the Canadian roads showed an increase of $4,226,772 or 13% in operating expenes and a total deficit of $2,709,-465, the ratio of operating expenses to operating revenues was slightly better than in 1920, viz: 108% against 109%. Although freight carried decreased, the car mileage increased, especially empty car mileage. The passenger car mileage also showed an increase.

"Of the five large systems, the Canadian Pacific was the only one to earn its operating expenses for January. Its operating expenses were 95.5% of its revenues, against 95.2%. The other four systems had operating ratios ranging from 111 to 128.8%, though the Canadian Northern, Grand Trunk and Grand Trunk Pacific showed improvement over 1920.

"The Canadian Pacific freight car loading was heavier, viz., 28.23 tons a car, and the loaded freight car mileage was about 74% of the total. On the Canadian Government lines the latter ratio was 70%, and on the other three systems it was about 60%."

In the accompanying table the column headed "Canadian Government Rys." includes the Intercolonial, Prince Edward Island, National Transcontinental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column "Canadian Northern Ry." includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column "Canadian Pacific Ry." includes also the Montreal & Atlantic Ry. and the Esquimalt & Nanaimo Ry.

The column "Grand Trunk Ry." includes its Canadian lines only.

E. Hammond, station agent, G.T.R., Angus, Ont., in remitting renewal subscription to Canadian Railway and Marine World, writes:—"It is the best $2 worth I get during the year. I always find something interesting in the paper."

French railways have been suffering large deficits since 1913, the deficit growing larger each year. In 1913 it was $15,188,900, and in 1919 it was $260,878,-000 (francs to dollars at par). As freight rates have been increased 140%, no relief in additional increases in rates can be looked for, but the Minister of Public Works hopes to bring about some relief by reducing costs of operation.

On account of the miners' strike in England, train mileage has been reduced almost 50%, the greatest reduction being in the long distance runs. In addition the average number of cars per train has been decreased, and a great effort to save coal is being made.

Birthdays of Transportation Men in July.

Many happy returns of the day to:

A. A. Allen, Vice President, The Holden Co., Ltd., Montreal, formerly Master Mechanic, Timiskaming & Northern Ontario Ry., born at Grafton, Ont., July 7, 1870.

J. H. Black, ex-Superintendent, Timiskaming & Northern Ontario Ry., now at Toronto, born near Smiths Falls, Ont., July 8, 1874.

D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., born at St. Thomas de Montmagny, Que., July 25, 1877.

D'Alton C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, born at Carleton Place, Ont., July 9, 1879.

G. C. Conn, ex-Freight Traffic Manager, Pere Marquette Ry., Detroit, Mich., now Director of Traffic, Buick Motor Co., Flint, Mich., born at Woburn, Mass., July 1, 1867.

A. R. Curran, Paymaster, Eastern Lines, Canadian Northern Ry., Toronto, born there, July 3, 1877.

H. Darling, Locomotive Foreman, Grand Trunk Pacific Ry., Smithers, B.C., born in Northumberland, Eng., July 27, 1873.

A. H. Eager, Mechanical Superintendent, Western Lines, Canadian National Rys., Winnipeg, born at Waterloo, Que., July 15, 1868.

F. E. Hartshorn, Assistant Superintendent, Montreal Division, Quebec District, Canadian National Rys., Montreal, born at West Stewartstown, N.H., July 21, 1877.

S. J. Hungerford, Vice President, Operation and Maintenance, Canadian National Rys., Toronto, born at Bedford, Que., July 16, 1872.

C. W. Johnston, Assistant General Passenger Agent, G.T.R., Montreal, born at Actonvale, Que., July 27, 1879.

M. Kelly, Resident Engineer, Farnham Division, Quebec District, C.P.R., Farnham, born at Thamesville, Ont., July 6, 1878.

T. King, Superintendent, Detroit Division, Western Lines, G.T.R., Durand, Mich., born at Dunbarton, Ont., July 18, 1869.

A. E. Lock, Superintendent Car Service, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Albany, N.Y., July 14, 1879.

G. A. McNicholl, Assistant General Freight and Passenger Agent, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at Montreal, July 31, 1876.

H. D. Mackenzie, Master Mechanic, Canadian National Rys., Edmundston, N.B., born at Churchville, N.S., July 22, 1864.

M. H. MacLeod, Vice President, Construction, Canadian National Rys., Toronto, born in Skye, Inverness-shire, Scotland, July 13, 1857.

J. M. Macrae, Assistant General Freight Agent, Canadian National Rys. and Grand Trunk Pacific Ry., Winnipeg, born at Stornoway, Scotland, July 31, 1884.

W. G. Manders, Assistant Freight Traffic Manager, Canadian National Rys., Grand Trunk Pacific Ry. and Grand Trunk Pacific Coast Steamship Co., Winnipeg, born at Owen Sound, Ont., July 24, 1876.

Neil Marple, General Foreman, Michigan Central Rd., St. Thomas, Ont., born in McKillop Tp., Ont., July 1, 1860.

J. E. Morazain, General Superintendent, Quebec District, Canadian National Rys., Quebec, born at Wheatland, Que., July 31, 1875.

P. C. Perry, Assistant Resident Engineer, Grand Trunk Pacific Ry., Regina, Sask., born at Fort William, Ont., July 27, 1889.

R. E. Perry, Assistant General Freight Agent, Canadian National Rys., Montreal, born at Drayton, Ont., July 5, 1876.

Gerard Ruel, General Counsel, Canadian National Rys., Toronto, born at St. John, N.B., July 5, 1866.

George Stephen, Freight Traffic Manager, Canadian National Rys., Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., Toronto, born at Montreal, July 5, 1876.

Sir Thos. Tait, President, Fredericton & Grand Lake Ry. & Coal Co., Montreal, born at Melbourne, Que., July 24, 1864.

M M. Todd, Vice President and Treasurer, Grand River Ry. and Lake Erie & Northern Ry., Galt, Ont., born there, July 22, 1891.

H. B. Walkem, ex-Assistant Engineer, C.P.R., Vancouver, now at Port Haney, B.C., born at Montreal, July 31, 1858.

G. A. Walton, General Passenger Agent, Western Lines, C.P.R., Winnipeg, born at Montreal, July 17, 1881.

N. B. Walton, Assistant General Superintendent, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at Palmerston, Ont., July 27, 1884.

R. H. Webster, Commercial Agent, G.T.R., Moncton, N.B., born at Pictou, N.S., July 2, 1885.

In July, August and Sept. 1920, 24 passengers, 126 employes and 26 other persons were killed in train accidents in the U.S., and 1,246 passengers, 840 employes and 67 other persons were inpured.

India is said to be in great need of additional railway equipment.

Revenue Freight Carried Throughout Canada.

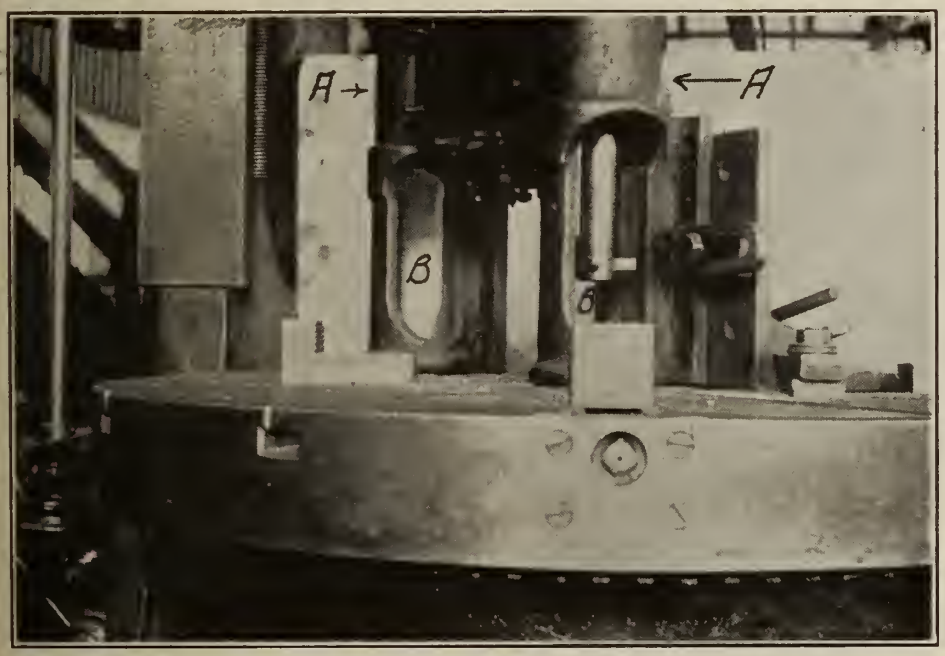
The Dominion Bureau of Statistics has issued a statement of revenue freight carried by railways of Canada during Nov. 1920, the summary statement for provinces being as follows in tons of 2,000 lbs.:

	Originating at billing stations.	Received from foreign connection	Total revenue freight carried.	Terminating at receiving stations.	Delivered to foreign connections rail and water.
P. E. Island	19,445	.....	19,445	12,214	.....
Nova Scotia	526,449	2,182	528,631	464,831	24,115
New Brunswick	186,976	8,160	195,136	161,293	39,324
Quebec. . .	929,275	687,486	1,616,761	1,072,826	707,611
Ontario . .	1,961,388	2,195,592	4,156,980	3,671,778	1,190,587
Manitoba. . .	551,428	22,711	574,139	553,231	31,516
Saskatchewan. .	835,433	44,801	880,234	323,762	54,539
Alberta. . .	1,087,056	4,077	1,091,133	384,013	3,894
Br. Columbia	342,005	29,368	371,373	275,778	41,641
Total. . . .	6,439,455	2,994,377	9,433,832	6,907,512	2,093,227

Railway Mechanical Methods and Devices.

A Boring Mill Job.

The accompanying illustration shows the cylinder casting of a turntable tractor, set up in the boring mill. The casting contains twin cylinders, A.A., and corresponding crosshead guides, B.B. In the operation being carried on, as shown, one cylinder and its guides are being bored at the same time. Double end tools



Cylinder Casting in Boring Mill.

are attached at the top and bottom ends of boring bar, one for the cylinder and one for the guides, the tool used in machining the guides being shown in the illustration.

This arrangement, providing for simultaneous machining of both cylinder and guides, ensures that the center line of the cylinder and guides will be in one straight line when the operation is finished, and that the cylinder walls and guide surfaces will be parallel and true in relation to each other. The set-up was devised by V. R. Cowtan, machinist in Toronto shops, G.T.R., and we are indebted to him, and F. C. Bowra, Machine Shop Foreman, for information concerning it.

Straightening Frame for Steel Freight Equipment.

The accompanying illustrations show a structural steel framework which is in use at the car department, West Toronto shops, C.P.R., and which is employed in straightening bent end and side sills, sprung sides and ends, bent corner posts, grab irons and ladders, bulged corners, etc., of steel freight cars. The frame is necessarily of substantial construction and well braced, and is erected on a solid concrete foundation. The top bracing is provided by six transverse I beams, together with the auxiliary tie rods, as shown in fig. 1, and longitudinal channels at the top add to the rigidity. The section of the vertical members is as shown in fig. 2, which also shows the screw jacks and blocks, the blocks moving vertically in the vertical members of the frame, on loosening the nuts, as seen above and below the screw jacks. In addition, there are large rings, secured to iron holding bars sunk into the concrete foundation, for use in straightening vertical bends. The procedure is to chain the work to the rings in the foundation, and straighten the bent part by the use of jacks set on the concrete.

The frame, used in conjunction with a heating torch operating on fuel oil, and which is used to heat the work in various cases, so as to facilitate the bending, does a very satisfactory job on steel cars, and saves a great deal of labor in the way of cutting rivets and rivetting up, removing and re-assembling parts, etc., and amply demonstrates its economy and usefulness in car repairs. We are indebted for this information to J. Bannon, General Car Foreman, West Toronto shops, C.P.R.

Straightening frame for steel freight equipment.

Fig. 1. General view of jacking frame. Fig. 2. Vertical members, screw jacks and height adjusting blocks.

Waste Reclaiming Plant.

At one time, when waste used in the manufacture of dope for journal boxes had become unfit for further use, the box was repacked and the old waste burned. Now, however, this waste is put through a process by which it is cleaned of the babbitt, sand and other impurities which get into it, and made fit once more for journal box lubrication. The following description, dealing with the Canadian National Rys. waste reclaiming plant at the Leaside Shops, Toronto, describes the manner in which the waste is reclaimed.

When the old waste is brought into the reclaiming plant, it is placed on grating, picked over, and separated into two portions, according to quality, the better grade being used subsequently for passenger car journal lubrication, and the other for freight cars. The short ends, waste filled with babbitt, etc., go through the grating into a receptacle provided to receive them. The old waste is then placed in a tank, shown in the accompanying illustration. This is so constructed that the interior tank is surrounded by a jacket on the bottom and sides. The tank is of wood, the lining and jacket material being sheet iron.

Two pipes open into this jacket, or outer tank, one of which conveys cold water, forced in by a pump, and the other conveys live steam. The water level is

A Waste Reclaiming Plant.

shown by the water glass seen in the illustration. A pipe, conveying compressed air, opens into the interior tank, connecting to a series of pipes at the bottom of the tank, each of which has openings along its upper surface. On top of this layer of pipes is a ¼ in. mesh screen, to keep the waste from coming into direct contact with the air pipes.

The interior tank contains oil, to which a certain amount must be added every time the reclaiming operation is performed. When the picked over old waste is put in, the cover is put down and secured, and the air pressure applied. This agitates the mass of oil and waste, while the live steam entering the water in the outer jacket keeps it hot. This agitation goes on for from two to five hours, when the air and steam are shut off, the waste taken from the tank, and placed in the cylindrical compressor above the tank, where it is subjected to a pressure of 80 lb. a sq. in., the oil draining back into the tank.

Following this operation, the waste is again put on a grating and picked over, to loosen it; it is then soaked in oil for five hours, after which it goes to the next tank and drains for six hours; then it is stored in tanks, all ready for use in the journal boxes. The drainage tanks for this last operation are so arranged that the oil can be easily drawn off and any sediment removed, and the oil can be used over and over again with a very small addition each time.

In connection with the oil used in the first operation, where the waste was subjected to the agitating action of the air jets, there are tanks, divided into three compartments, in which the oil is afterwards placed. Oil from the first compartment overflows into the second, and from the second into the third. Practically all of the sediment is drawn out of the first compartment, a little out of the second, and oil in condition to be used for a repetition of the operation is drawn from the third.

Waste which is not fit for further use in journal boxes is burned in an incinerator and the babbitt reclaimed. At the C.N.R. Leaside shops, the reclaiming plant handles the packing from approximately 4,000 journal boxes a month.

Removing Bolts from Steel Tire Retaining Rings.

A very fast and reliable method is employed in taking out the bolts passing through the retaining rings in steel tired wheels at the car department, West Toronto shops, C.P.R., in charge of J. Bannon, General Car Foreman. When the bolts are put through the ring, in putting on the tire, the ends are riveted over, and, under ordinary conditions, it would be necessary to chisel away the burred over part of the bolt, split the nut, or shear the bolt, to take the nut off and get the bolt out. However, with the aid of the device shown in the accompanying illustration, the bolts are quickly removed, and both bolt and nut remain undamaged in any way.

The device is supported so that it can be adjusted to position, both horizontally and vertically, throughout a wide range. Supported to the left of the horizontal round iron cross beam, as shown in the illustration, is the air motor, which drives the cutting tool. The motor is enclosed in a frame, the upper surface of the frame being in contact with, and free to move lengthwise in relation to, the supporting bar (indicated by the arrow) which is rigid with the horizontal cross beam. By suitably arranged horizontal and circular gearing, the frame enclosing the air motor and chuck can be moved to the right or left by handle A. The air hose connection is at B.

In operation, the cross beam is swung over the wheel, moved to the left, till the holder C, on arm D, fits over the head of the bolt. The tool in the chuck is brought to bear against the riveted end of the bolt, through the operation of the handle A, air is supplied to the motor, and the cutting tool quickly removes

Device for removing bolts, with burred or rivetted ends, from steel tire retaining rings.

the burred end of the bolt, without hurting the thread or the nut. By pulling the machine a few inches back from the work by means of handle A, replacing the cutting tool in the chuck, with another tool of the nature of a box wrench, and again advancing the machine to fit this tool over the nut, the nut is quickly run off the bolt. The motor is reversible, so that a nut may be run on just as quickly.

When one considers the amount of work and length of time it would take to remove bolts in the condition indicated, without the aid of a device as this, its value is at once evident.

The Death of James Hardwell.

James Hardwell, Chief Traffic Officer, Board of Railway Commissioners for Canada, who died at the Radium Institute, Brooklyn, N.Y., June 20, had not been well since Nov. 1920, but though obliged to sleep in a sitting position, remained at work, and went to his office daily, until Feb. 15, when he was compelled to obtain leave of absence. On March 18 he went to the Montreal General Hospital for examination by specialists and on being advised that the only hope was in radium treatment, he went to the Radium Institute at Brooklyn early in April for a month, during which he underwent four treatments. He then had a month's rest at Atlantic City, returning to the Radium Institute on May 31 for three more treatments. But complications set in, and on June 15 he suffered a number of convulsions, due to uremic poisoning, and remained unconscious until he died. The body was taken to his house at Ottawa, where a service was held June 23. It was then taken to Toronto, being accompanied, on the Board of Railway Commissioners' official car, by the following representatives of the Board:—S. J. McLean, LL.D., Assistant Chief Commissioner; A. D. Cartwright, Secretary; R. Richardson, Assistant Secretary; G. A. Mountain, Chief Engineer; A. G. Blair, Solicitor; and G. A. Brown, chief clerk, Traffic Department. Another service was held at a burial company's chapel in Toronto on June 24, Rev. Canon Cody officiating, in the presence of a considerable number of transportation officials, in addition to the Board's representatives and other friends. There were a great many floral offerings from transportation associations and individuals. The pall bearers were: S. J. McLean, LL.D., Assistant Chief Railway Commissioner; A. G. Blair, Solicitor, Board of Railway Commissioners; C. A. Hayes, Vice President, Traffic, Canadian National Rys.; G. T. Bell, Passenger Traffic Manager, G.T.R.; W. H. Burr, Traffic Manager, Dominion Express Co.; and Acton Burrows, Proprietor, Canadian Railway and Marine World.

Mr. Hardwell was born at Plymouth, Eng., July 8, 1851, and entered transportation service in Canada in 1874, since when he had been, to 1880, clerk in local freight office, G.T.R., Toronto; 1880 to 1884, clerk in Division Freight Agent's office, G.T.R., Toronto; May 1884 to Dec. 31, 1897, chief clerk, District Freight Agent's office, C.P.R., Toronto; Jan. 1, 1898 to June 18, 1904, Division Freight Agent, and afterwards Assistant General Freight Agent, Intercolonial Ry., Montreal. On the formation of the Board of Railway Commissioners he was appointed Traffic Officer, his appointment being dated June 22, 1904, and his duties being then defined as, to advise the commissioners on all traffic matters as between railways, and as between railways and the public, to examine, file and record all freight and passenger tariffs, and to advise the Board as to the approval or disapproval of the same. Later he was appointed Chief Traffic Officer. He leaves a widow and one son, Oswald R., of East Orange, N.J., a brother in Toronto, and three unmarried sisters in England.

By Mr. Hardwell's death, Canada has lost a great public servant, an able official, an indefatigable worker, and a most lovable personality. Probably few outside of the Board of Railway Commissioners and its officials, some of the rail-

James Hardwell,
Chief Traffic Officer, Board of Railway Commissioners.

way companies' traffic officials, and the writer of this article, have any idea of the vast amount of work he performed in examining tariffs, in analyzing evidence submitted at tariff hearings, and in many other ways. Endowed with a high sense of public duty, and a thoroughly judicial mind, he performed his duties with the utmost fidelity and impartiality, and was held in high respect, by both the transportation officials and the public with whom he had to deal.

Hon. F. B. Carvell, K.C., Chairman of the Board of Railway Commissioners, in a letter of sympathy to Mrs. Hardwell, said:—"I do not have to tell you how much this Board will miss him, and how much he will be missed by the whole railway fraternity in Canada. It is some consolation to have left a name such as Mr. Hardwell has left among those with whom he has worked all his lifetime."

S. J. Maclean, LL.D., Assistaant Chief Commissioner, wrote:—"The severance of the official tie which bound Mr. Hardwell and myself is not, after nearly thirteen years of constant association, to be passed over in easy words. In almost daily contact, in every discussion, in every phase of his work, his ability, insight, logical process and exactness of expression were constantly in evidence. He possessed in an eminent degree the temperament of an arbitrator. This was of constant value in the varied informal activities of the work of the Traffic Department. This temperament was recognized and appreciated by all who knew him. Leaving aside my own appreciation of its value, I may say it has been commented upon to me by the traffic representatives of the industries, and boards of trade, and the railways. He was ever the informed gentleman, thoughtful and charitable in his judgments of others, characterized throughout by the antique honesty of thought and attitude, which we are prone to associate with an older day. The inscrutable ways of Providence have removed the Dean of the traffic profession of Canada. There remains for those who continue, the memory and inspiration of a high minded, honest, active and fruitful life."

Freight and Passenger Traffic Notes.

An application by residents of Dodsland, Sask., and vicinity, for an order for the C.P.R. to stop itis trains there, has been dismissed by the Board of Railway Commissioners.

The C.P.R. has been ordered by the Board of Railway Commissioners to keep its station at Straffordville, Ont., open, and, when necessary, heated and lighted, for 30 minutes prior to arrival of trains 659 and 662.

The C.P.R. has been ordered by the Board of Railway Commissioners to keep a station agent at Dalhousie Mills, Que., and to have the station open until 7 p. m. on Tuesdays, Wednesdays, Thursdays and Fridays.

The C.P.R. has been ordered, by the Board of Railway Commissioners, to restore the train service between Calgary and MacLeod, Alta., which was discontinued in Jan. 1920, and the Board's order 30,001, authorizing the withdrawal of trains 540 and 541, has been rescinded.

The Ontario Fruit Growers Association, Niagara Peninsula Fruit Growers Association, and Niagara Peninsula Growers Limited, have applied to the Board of Railway Commissioners, for an order directing express companies to restore the previous arrangement for unlimited unloading of car load fruit and vegetables from stations in Ontario to the Maritime Provinces and Western Canada.

The Eastern Canada Live Stock Union et al, applied to the Board of Railway Commissioners recently for an order and direction that freight rates on live stock prevailing and allowed under the present tariff of freight rates in force in Canada on live stock, including horses, cattle, sheep, and hogs, be reduced from the present amounts therefor by an amount equal to 50% of the present existing rates and for an order amending the existing tariffs in force in Canada in respect to the carriage of live stock as aforesaid.

Locomotive Booster Tests on Timiskaming & Northern Ontario Railway.

Locomotive booster tests on the T. & N.O. Ry. were described in a general way in Canadian Railway and Marine World for June. Since then, the results of the tests have been checked over and charts prepared, and the most important tests can now be dealt with more fully and the results shown graphically. A complete illustrated description of the booster's mechanical features was published in Canadian Railway and Marine World for Dec. 1920, pg. 661. As stated previously, boosters have been applied on one mikado and four Pacific type locomotives on the T. & N.O. Ry. The mikado to which the booster is applied was described and illustrated in Canadian Railway and Marine World for May, pg. 252. This locomotive has a tractive power of 45,500 lb, without booster, weight on drivers 197,000 lb., cylinders 25 x 30 in., and is thoroughly modern in design. Details and an illustration of the Pacific type locomotives equipped with the booster were given in Canadian Railway and Marine World for June, pg. 309. The tractive power of these Pacific is 36,600 lb. without booster; weight on drivers 155,000 lbs., cylinders 23 x 28 in. They are thoroughly modern in all details of design and construction, and are notable as embodying practically all the latest specialties and refinements applied to locomotives.

The tests were conducted with Canadian National Rys. dynamometer car 84, the use of which was extended to the T. & N.O.R. for the occasion. The first test was made on May 9, with mikado locomotive 150, which was given a train out of North Bay consisting of 21 loaded freight cars, the dynamometer car, T. & N.O.R. official cars Temagami and Whitney, and a caboose. The actual tonnage of this train was 1,401 tons, 756 contents and 645 tare, the adjusted tonnage with the T. & N.O.R. allowance being 1,501. Fig. 1, given herewith, shows the performance of the locomotive with this train between miles 9.2 and 11.1, north from North Bay. It was decided to see first what the locomotive could do with this train on the 1.25% grade at mile 11 without the booster cut in. The tonnage for this grade, with this stalled without slipping, the drawbar pull showing as 45,000 lb. The train was then backed down the hill, and on the second test the speed was 9 miles an hour when the booster was cut in 660 ft. south of mile 11. The drawbar pull increased rapidly from 33,000 lb., at which figure it was when the booster was cut in, to 50,000 lb., but 528 ft. north of mile 11, after the speed had fallen to 3 miles an hour and then picked up to 4 miles an hour, the locomotive slipped and stalled. On back down and setting off one load, leaving a train of 1,424 adjusted tons, an excess of 224 tons over normal rating, the grade was got over without difficulty.

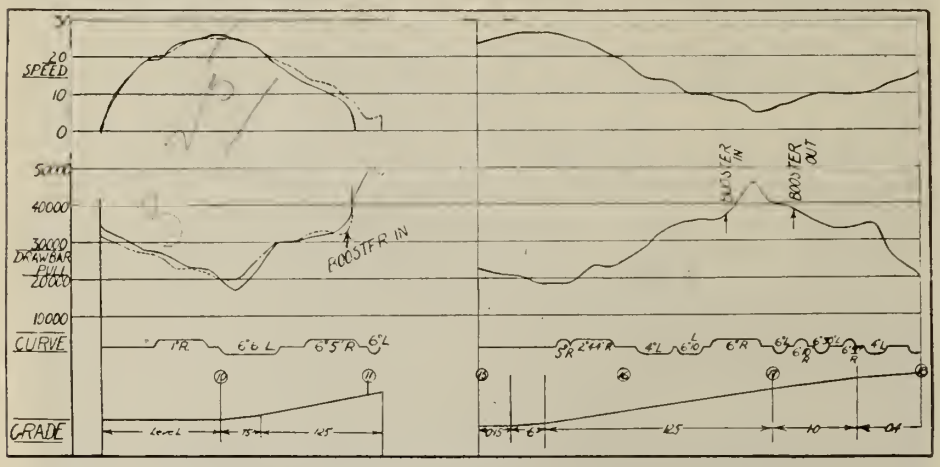


Fig. 1. Booster Test, with Mikado Locomotive 150, showing speed and drawbar pull.
Left side, from mile 9.2 to mile 11.1, on 1.25% grade. Dotted line, with booster cut in; full line, without booster cut in. Right side, between miles 15 and 18, showing effect of cutting in booster.

The train then proceeded to the grade between miles 15 and 18, the result of the booster being cut in on the 1.25% portion of the grade being shown in fig. 1 (right). The speed of the train, when the booster was cut in on the hard pull on a 6 degree curve, was about 9 miles an hour, and drawbar pull showed 38,000 lb. As the speed decreased to 5 miles an hour, the drawbar pull went up to 47,000 lb. When the train had gained the 1% portion of the grade, and speed had been picked up to 8 miles an hour, the booster was cut out. In order to get this excess tonnage over these grades, aggregating three miles in length, it was necessary to operate the booster for less than half a mile. The train was then taken through to Englehart, 138 miles north of North Bay, the booster being used on the stiff pulls, with a degree of success equal to that displayed in its performance in the test between miles 15 and 18.

On May 10, the same locomotive was started from Englehart south with a train of 32 loaded cars, 4 empties, the dynamometer car, T. & N.O. Ry. official car Temagami, and caboose. The actual tonnage was 1,800, contents 957, tare 843, and the adjusted tonnage, T. & N.O. R. rating, 1,995. Fig. 2 shows the results of the tests with this train on the grades from New Liskeard, mile 112.8, to Cobalt, mile 102.7. These grades vary from 0.13% to 1%, and the normal rating for a locomotive of this class is 1,660 adjusted tons, so that the excess loading was 335 adjusted tons. The booster was first cut in 100 ft. south of mile 106, when the speed was slightly under 10

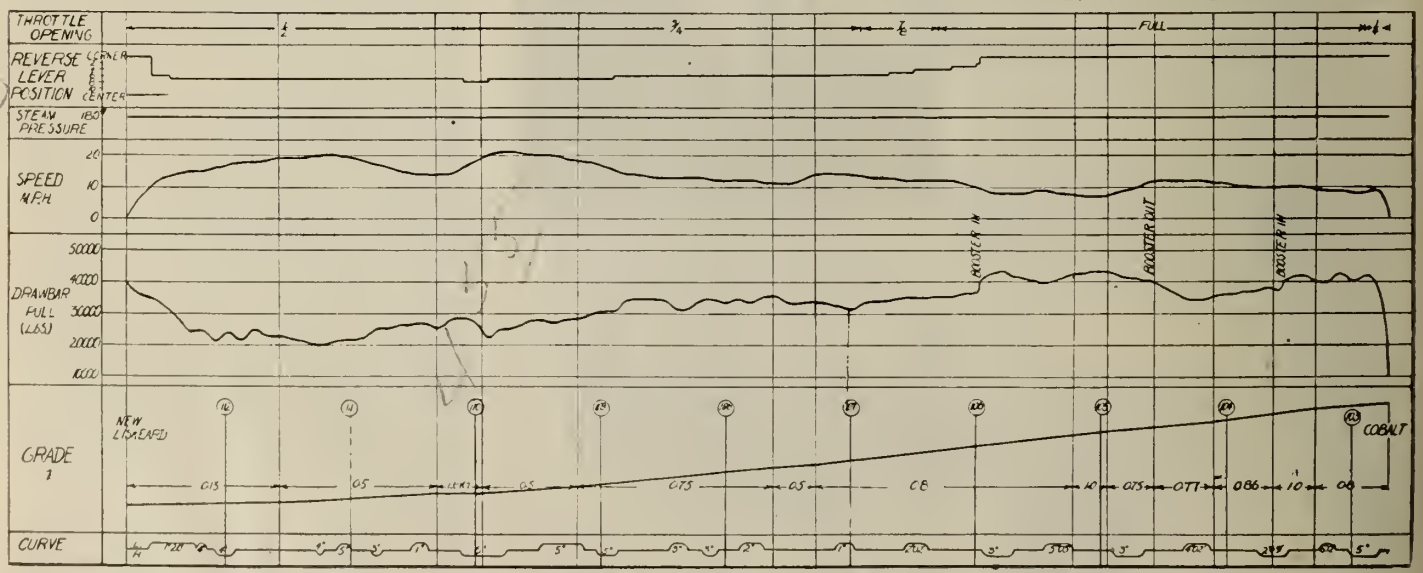


Fig. 2. Booster Test, with Mikado Locomotive 150, from New Liskeard to Cobalt.
Showing conditions of throttle opening, reverse lever position, steam pressure, speed, drawbar pull, grade and curve at all times.

power, is ordinarily 1,200 adjusted tons, so that the excess loading was 301 adjusted tons. The speed of the train when it reached the foot of the 0.75% grade was 26 miles an hour. The full lines in the left hand chart show the variations in speed and drawbar pull until the train finally stalled on the 1.25% grade, 528 ft. south of mile 11. The locomotive

miles an hour and the drawbar pull was 36,000 lb. The drawbar pull quickly increased to 43,000 lb. and speed was maintained at about an average of 8 miles an hour on the 0.8%, 1% and 0.75% portions of the grade until the booster was cut out 0.42 mile south of mile 105. When the booster was cut out, the drawbar pull dropped from 40,000 lb. to an average of 36,000; when the booster was again cut in, 0.42 mile south of mile 104, on the 1% portion of the grade, the drawbar pull increased from 37,000 to 42,000 lb., speed remaining constant for 0.6 mile at 10 miles an hour, but dropping to 9 miles an hour on the 6 degree 12 minute curve, while drawbar pull increased to 43,000 lb. at this speed. The train was thus handled into Cobalt without difficulty, by making the booster operative twice for short intervals on the hardest pulls. It will be noted that the line representing steam pressure in fig. 2 is straight. The reason for this is that mikado locomotive 150, in common with the others of its class used by the T. & N.O.R., and Pacific type locomotive 157, proved to be an exceptionally free steamer, so that no deviation of any importance from the 180 lb. boiler pressure was experienced.

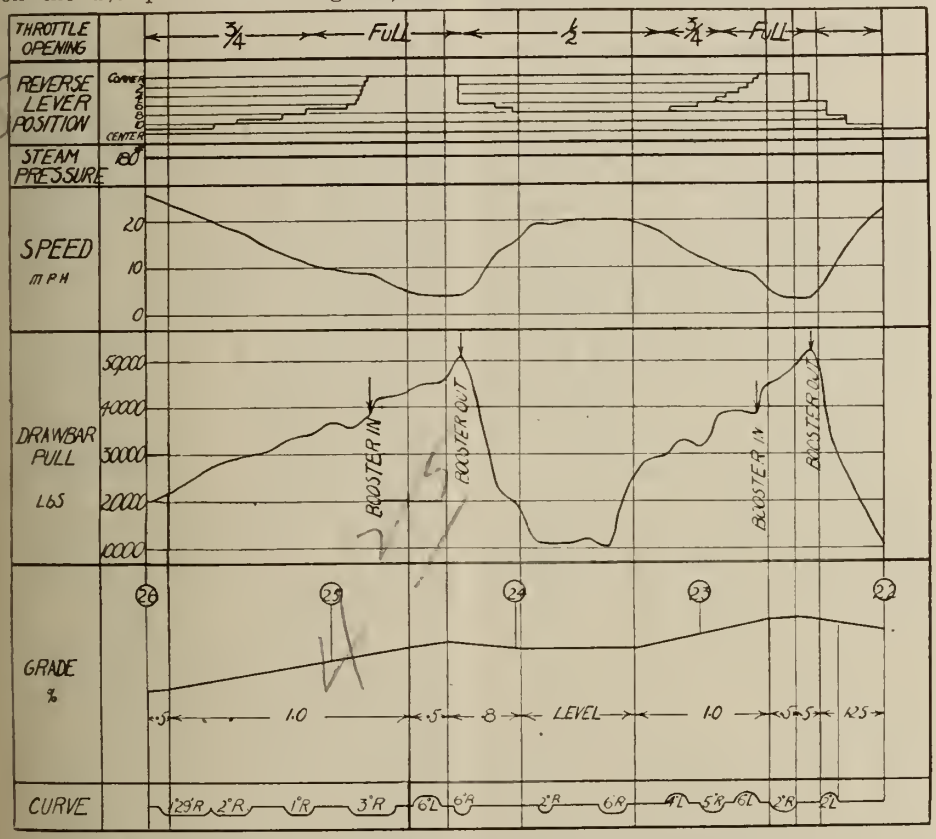


Fig. 3. Booster Test, with Mikado Locomotive 150, from mile 26 to mile 22.
Showing performance with booster cut in, on 1% grades, and conditions of throttle opening, reverse lever position, steam pressure, speed, drawbar pull, grade, and curve at all times.

Southbound, out of Cobalt, another load was switched into the train, making the actual tonnage 1,848, and adjusted tonnage 2,048 tons. Fig. 3 shows the results with this train, between miles 26 and 22. The booster was cut in 0.22 mile south of mile 25, on the 1% grade, when the speed was 9 miles an hour and drawbar pull 39,000 lb. As the speed gradually came down to 4 miles an hour, while the train approached the summit, the drawbar pull gradually increased until it reached a maximum of 51,000 lb. The booster was cut in again 0.32 mile south of mile 23, on a 1% grade, but not until the speed had decreased to 7 miles an hour, the drawbar pull being 38,000 lb. As the train topped the summit, the speed had decreased to 3 miles an hour and the drawbar pull increased to 52,000 lb. The train then proceeded to North Bay.

Fig. 4 (left) shows tractive effort and speed obtained with Pacific type locomotive 157 in a lift and acceleration test, handling a passenger train of 13 cars, same date. As noted, the tractive power of the locomotive without booster operating, is 36,600 lb. As shown by fig. 4 942.7 tons, northbound out of the T. & N.O.R. North Bay terminal. This locomotive was tried on May 11, and handled Canadian National Rys. transcontinental passenger train 1 from North Bay to Englehart, bringing back train 2 on the (left), the drawbar pull exerted with the booster cut in, on lifting the train, was 45,000 lb. In 60 seconds, the drawbar pull was 37,000 lb., and a speed of 5 miles an hour had been attained; in 2 minutes, the drawbar pull exerted was 28,000 lb., at a speed of 12 miles an hour, and in 170 seconds, or less than 3 minutes, a speed of 15½ miles an hour had been attained, the drawbar pull being 26,000 lb. The manner in which the locomotive handled the train on this lift, which took place over frogs and switches, on a 1% grade, and uncompensated 10 degree curve, and the rapid acceleration shown under these conditions, were highly gratifying, and demonstrated the ability of the booster in getting trains to road speed quickly, in leaving terminals, or after station stops.

Fig. 4 (right) shows the result of a test designed to determine the acceleration obtainable on level track. The same train, of 942.7 tons, was handled north out of Tomiko, mile 27.3 from North Bay, the drawbar pull when lifting the train registering as 38,000 lb. This remained practically constant for 10 seconds, as a speed of 3½ miles an hour was being attained; in 30 seconds it registered as 29,000 lb., the speed being 8.5 miles an hour. At the end of one minute, the drawbar pull showed as 23,000 lb., and speed had increased to 15.5 miles an hour.

The tests with mikado locomotive 150 amply demonstrated the correctness of the proposition that a largely increased tonnage can be handled over a division without difficulty, if it can be successfully got over the few hard pulls of the division, and they demonstrated the ability of the booster in aiding the locomotive to get it over the hard pulls. The T. & N.O.R. has a profile marked by several short, steep grades, which have acted to limit the tonnage handled in the past. By enabling a locomotive to take a tonnage, increased by 20%, over these grades, the value of the booster applied to the freight hauling units of such a railway is at once evident. In addition, many of the stations and water stops are on grades, so that time saved over the division by the high acceleration of passenger trains obtained by the use of the booster in leaving stations, in addition to that saved on the hills, would be large. The T. & N.O.R. officers have expressed complete satisfaction with the performance of the device and the efficiency shown by it in doing the work for which it was designed.

Canadian Railway and Marine World is indebted to S. B. Clement, Chief Engineer, Timiskaming & Northern Ontario Ry., for the charts reproduced in the accompanying illustrations, which were prepared by Frank Williams, Mechanical Designer, Canadian Government Railways, Moncton, N.B.

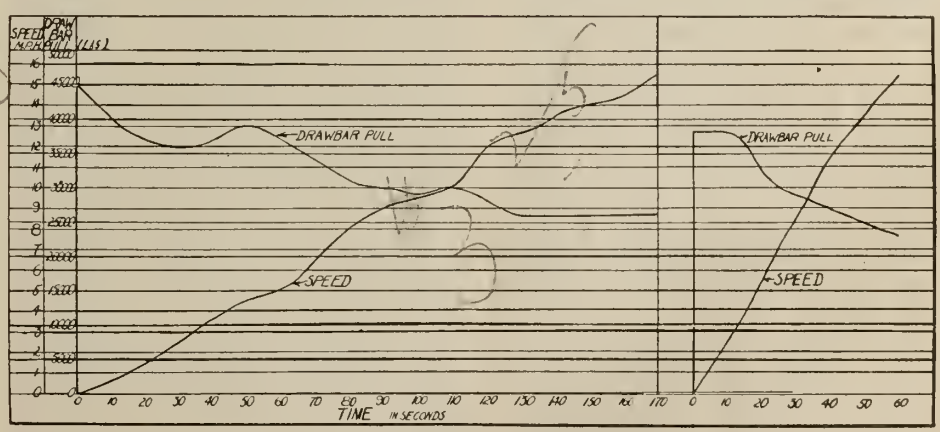


Fig. 4. Booster Test, with Pacific Locomotive 157.
Left side, lift of passenger train of 942 tons out of North Bay yard, over frogs and switches, on 1% grade, and 10 degree curve, uncompensated. Right side, acceleration, with aid of booster, in starting train out of Tomiko station on level track.

Grand Trunk Railway Arbitration Proceedings.

Under the authority of the act passed at the Dominion Parliament's last session, as published in full in Canadian Railway and Marine World for May, pg. 248, which provided that on the substitution, as directors of the G.T.R., of persons selected by the Dominion Government, in place of the directors elected by the company's shareholders, the arbitration to determine the value of certain capital stocks to be acquired by the Government should proceed, the proceedings were resumed at Montreal June 1, before Sir Walter Cassels, President Exchequer Court, as chairman, and Sir Thomas White, representing the Dominion Government, W. H. Taft, representing the G.T.R., having been detained in the United States by private affairs.

At the opening E. Lafleur, K.C., for the G.T.R., read a statement concerning transactions in, and value of, various classes of G.T.R. stock on the London stock exchange, between 1909 and 1913. H. A. Lovett, K.C., for the Government, protested against the presentation of these statistics, on the ground of irrelevancy, but as a similar protest on his part had been made, and overruled, at the time authority to obtain the figures was given, the statement was admitted.

Mr. Taft was present on June 2, when G. R. Rowbotham, of Price, Waterhouse & Co., accountants, and J. B. Maclaren, Auditor of Disbursements, G.T.R., were witnesses for the G.T.R. and were cross examined by Pierce Butler, of the Government counsel. A. W. Atwater, K.C., for the G.T.R., filed statements covering the operations of the railway from 1912 to 1916, comparing the G.T.R. with various eastern U.S. railways. These statements were strongly criticized by Pierce Butler, who charged that they did not adequately set forth the situation concerning G.T.R. finances.

On June 3, the cross examination of J. B. Maclaren was continued by Pierce Butler, who took exception to the financial statements of the G.T.R. subsidiaries, claiming that as they had been compelled to borrow from the parent company to enable them to pay their interest, the amounts borrowed should not be shown as G.T.R. assets. A large part of the sitting was taken up with a discussion of maintenance on the G.T.R.'s United States properties while under control of the U.S. Railroad Administration, Mr. Maclaren stating that the company has a claim against the Administration for $1,500,000, for deferred maintenance of way.

On June 6, J. B. Maclaren presented statistics dealing with expenditures for engineering work, and Major F. L. C. Bond, Chief Engineer, G.T.R., testified concerning rail and ballast costs, and expense of grade revision and bridge maintenance.

On June 7, J. B. Berry, engineering expert for the G.T.R., gave evidence and filed statements called for by Government counsel, and C. F. Needham, Asst. Superintendent of Motive Power, G.T.R., was cross examined by Pierce Butler in connection with car maintenance and maintenance costs. This concluded the presentation of the G.T.R. case.

The presentation of the Government's case was commenced on the same date. The first evidence was given by Lt. Col. C. N. Monsarrat, formerly Consulting Engineer, Railway and Canals Department, and now Consulting Bridge Engineer, Canadian National Rys., who stated that the majority of bridges on the G.T.R. are in poor physical condition and will require large expenditures for repairs in the near future. He described the Central Vermont bridges as being in particularly poor condition, and totally unfit for the operation of heavy power at high speed. The manner in which his evidence contradicted that of J. B. Berry, who, on behalf of the G.T.R., had characterized the property as being in first class physical condition, is notable. On June 8, Lt. Col. Monsarrat was cross-examined by F. H. Phippen, K.C., for the G.T.R., in connection with his report concerning bridges, but he maintained that if his report had erred at all, it had been on the side of leniency. The presentation of the Government's case was somewhat interrupted by J. B. Maclaren being called upon to give further details concerning the amounts owed the G.T.R.'s lines in the U.S. by the U.S. Railroad Administration on deferred maintenance account, and by the cross examination by Pierce Butler of M. S. Blaicklock, Engineer of Maintenance of Way, G.T.R., concerning maintenance costs.

On June 9, F. W. Cooper, formerly an engineer in C.P.R. service, testified concerning the G.T.R. tracks and roadway, stating that the track is by no means in first class condition, particularly on branch lines, and that a lot of work will be necessary to get it into good shape.

On June 10, the sitting was partly devoted to further cross examination of Lt. Col. Monsarrat by F. H. Phippen, K.C., concerning the former's analysis of G.T.R. bridge conditions; the remainder of the time was taken up with the evidence of E. A. Forward, for the Government. He criticized the condition of G.T.R. freight wharves, docks and sheds at Levis, Three Rivers, Depot Harbor, Sarnia, Point Edward, Windsor and other points, and expressed the opinion that large sums will have to be expended on them in the near future. His evidence also strikingly conflicted with that of J. B. Berry, the G.T.R. engineering expert.

On June 13, there was a discussion concerning pensions of G.T.R. employes who had participated in the strike of 1910. F. H. Chrysler, K.C., for the Government, claimed that the total amount of all pension claims should be set down as a liability against the G.T.R. It was pointed out that G.T.R. officials had issued notice to the effect that any man joining the strike would forfeit his pension claim. Finally, after lengthy debate it was decided not to admit this matter as evidence. E. A. Forward then gave further evidence concerning the inadequacy and poor condition of the G.T.R. Portland terminals. G. O. Somers, an ex U.S. traffic official, also appeared on the Government's behalf, and presented a long statement to show that the G.T.R. location and terminals are not of the best, that its traffic is not well balanced, and that it is open to competition at practically every point. Mr. Somers continued his testimony on June 14 and strongly criticized the G.T.R. service between Buffalo and Detroit, pointing out that the G.T.R. route between Buffalo and Chicago is longer than that of competing lines. He said that between Port Huron and Chicago, the G.T.R. taps but few traffic producing industries, while even at Chicago, the G.T.R. terminals are not as well located as those of competing lines. He considered the Chicago belt line, which had been highly praised by various G.T.R. witnesses, as of little advantage, as it had to be shared with other railways.

J. G. Sullivan, consulting engineer, Winnipeg, formerly Chief Engineer, C.P.R., was the next witness. While he considered the Grand Trunk Pacific portion of the G.T.R. property in good shape, he pointed out that when the road was built a large number of wooden trestles were put in, which will soon be due for replacement, either by permanent structures, or by fills. For these and other necessary betterments on the main and branch lines he estimated that $19,704,000 will have to be spent before 1925. He expressed the opinion that the G.T.R. was built "a hundred years too soon."

On June 15, A. S. Going, Engineer of Construction, G.T.R., was examined by W. N. Tilley, K.C., for the Government, concerning grade separation in various cities. He calculated that the G.T.R.'s share of the cost of a new Bonaventure station in Montreal, together with the elevation of the tracks through the city, would come to $15,000,000. For the grade separation work in Toronto he estimated the city's share would be $5,000,000, and the G.T.R. would be called on to pay half the balance, or $11,806,000. The G.T.R. is also under obligation to participate in some grade revision work at Detroit, at a cost of $3,250,000, and the G.T.R.'s share of the cost of the improvements at Chicago will amount to about $4,756,000. He did not think that any of this work would start within the next three years. A. W. Atwater, K.C., for the G.T.R., put G. O. Somers through a very severe cross examination in connection with the latter's criticism, at previous sittings, of the G.T.R. property, the result being that his opinions, or at least his expressions of opinion, had moderated to quite an extent when the railway counsel was through with him. He had emphasized the competition imposed on the G.T.R. by motor traffic, but on examination admitted that he had no exact knowledge concerning this; while concerning competition by water, he admitted that the same kind of competition affected the C.P.R. and in fact all railways having port terminals. J. J. Robey, formerly manager of the coal mines now owned by the G.T.R. in Ohio, was called as a Government witness, and attempted to show that these coal properties are of limited reserve capacity, with a restricted market, and in trouble from high wage and freight rates. He was examined by E. Lafleur, K.C., for the G.T.R., and admitted that he had not seen the mine or its equipment since 1916.

The sitting of June 16 was devoted mainly to the cross examination of J. P. Newell, a consulting engineer appearing for the Government, by F. H. Phippen, K.C., for the G.T.R., concerning operating figures. Track elevation plans, which had been the subject of debate the previous day, were further discussed.

On June 17, Pierce Butler, K.C., for the Government, had Mr. Newell present statistics to show the unfavorable operating and traffic conditions of the G.T.R. Following this, a letter from Sir Alfred

Smithers, Chairman of the G.T.R. board, to Sir Robert Borden, written in connection with the handing over of the Grand Trunk Pacific, was read into the records. J. B. Maclaren, Auditor of Disbursements, G.T.R., submitted records of G. T. R. earnings in 1920, and showed how, had the 1921 rates applied to the business handled in 1920, the G.T.R.'s financial conditions would be very different from what it is. The admissibility of the Drayton-Acworth report as evidence was discussed at length, and it was finally decided to admit it.

One June 20, D. E. Brown, an accountant, testified for the Government, being examined by W. N. Tilley, K.C. He produced a number of tabulated statements and exhibits as to interest on bonds and debentures which must be paid by the G.T.R. before there could be any money for dividends on G.T.R. preferred or common stock. His evidence was continued on June 21, when he presented further figures to show the bad state of G.T.R. finances, including one comparing the fixed charges per mile on the G.T.R. with those on the C.P.R., and 180,000 miles of railway in the U.S. According to his calculations, the fixed charges on the G.T.R. are greater than those on the C. P.R. or on the U.S. railways examined. J. B. Maclaren was recalled, and made further statements in connection with finances. A. S. Going was also recalled and examined by both Messrs. Phippen and Tilley in connection with track elevation in different cities.

On June 21, Geo. Mitchell, Superintendent of Bridges and Building, Ontario Lines, G.T.R., was examined by Mr. Phippen in connection with Lt. Col. Monsarrat's evidence re G.T.R. bridges. Mr. Mitchell denied the charges of poor conditions which Lt. Col. Monsarrat had made, and stated that the bridges were perfectly safe, and in condition to render many more years of service. He added that about the only thing wrong with most of the bridges Lt. Col. Monsarrat had criticized was that they were due for repainting. On June 22 Mr. Mitchell continued his evidence in rebuttal of that given by Lt. Col. Monsarrat as to the condition of G.T.R. bridges in Ontario. H. E. Schwartz, Superintendent of Bridges and Buildings, G.T.R., Quebec Lines, was also called by Mr. Phippen, and largely contradicted criticisms made by Lt. Col. Monsarrat concerning bridges on the G.T.R. in Quebec Province. J. B. Gant, Bridge Inspector, G.T.R., Western Lines, gave evidence of a similar nature.

On June 23, D. E. Brown, accounting expert for the Government, was cross examined at length by A. W. Atwater, K.C., for the G.T.R., concerning financial matters. R. Armour, Masonry Engineer, G.T.R., testified, and pointed out in detail how Lt. Col. Monsarrat had been unduly severe in his criticism of the bridges on the G.T.R. system. Major F. L. C. Bond, Chief Engineer, G.T.R., was also called to testify in rebuttal, and was examined by F. H. Phippen, K. C., for the Grand Trunk, as to the Victoria bridge at Montreal. He said that Lt. Col. Monsarrat's condemnation had been greatly overdrawn, and that the same applied to all the bridges which the Government engineer had described. C. E. Donaldson, Bridge and Building Master, Central Vermont Ry., presented similar evidence, claiming that minor repairs, applied in the course of usual maintenance work, are sufficient for the bridges under his jurisdiction.

The examination of D. E. Brown was concluded on June 24.

At the time of writing (June 24) the taking of evidence is practically completed, although it is possible that the G.T. R. may ask to be allowed to introduce some additional rebuttal evidence. June 24 was the 63rd day of the proceedings. There are said to be over 7,000 pages of evidence and over 500 exhibits. The arrangements in connection with the presentation of arguments by counsel remain to be decided.

Dismissals of Canadian National Railways Conductors and Brakemen.

The following questions were asked in the House of Commons recently by M. S. Delisle, Portneuf, Que., and answered by the Minister of Railways:—

Q. "How many conductors and brakemen, employed on the Government Rys., from Quebec to O'Brien, were discharged during 1920, and what are their names?" A. "7 conductors, 6 brakemen and 1 baggageman. Names of conductors: J. E. Albert, J. E. Benoit, J. E. Cleophas Cote, L. P. Cloutier, L. A. Dupont, L. J. Jess, F. R. Plouffe. Names of brakemen: J. Albert, J. Brochu, R. Fournier, R. Gagnon, V. R. Mulligan, F. L. St. Pierre. Name of baggageman: R. Picher."

Q. "What was the reason for their dismissal? Were they granted a legal and impartial enquiry, as required by sec. 36 of rules entitled Rate of Pay and Rules, under the signature of F. P. Brady in behalf of the C.N.R.; M. G. Wilson in behalf of the Brotherhood of Railroad Trainmen, and M. Kelleher in behalf of the Order of Railroad Conductors?" A. "Conductors J. E. Benoit, J. E. C. Cote, L. P. Cloutier and L. J. Jess were dismissed on account of irregularities in handling of cash fares. Conductor J. E. Albert was dismissed on account of conviction for theft of railway property. Conductor L. O. Dupont was dismissed on account of insubordination. Conductor F. R. Plouffe was dismissed for violation of special rule E of timetable 2, resulting in rear end collision. Brakeman J. Albert was dismissed on account of conviction for theft of goods in possession of the railway. Brakeman J. Brochu was dismissed on account of unsatisfactory services established by demerit marks. Brakemen R. Gagnon and F. L. St. Pierre and baggageman R. Picher were dismissed for violation of rule G (intoxication). All of these employes were granted full and proper investigation as required by rules of schedules with brotherhoods covering such cases. Brakeman R. Fournier was dropped from pay roll on account of not having returned for duty within a year's time, as required by railway regulations. Brakeman V. R. Mulligan was dropped from pay roll on account of leaving service and taking up employment elsewhere."

Q. "What are the names of the spotters who made the case? What was their occupation before they took up that work for the Government? Were affidavits taken? If so, before whom were said affidavits sworn to?" A. "The management takes the ground that it is not in the public interest to give names or occupations of persons who gave first information as to irregularities in handling cash fares."

Q. "Is it the intention of the Government to reinstate such employes?" A. "One case is still under consideration, but the management states it has no intention of changing the discipline administered in connection with the balance."

Gaspe Peninsula Railway Service.

C. Marcil, Bonaventure, Que., asked the following questions in the House of Commons recently, which were answered by the Minister of Railways.

"Has the attention of the Government been called to the following recommendation made by the Quebec Board of Trade to the Board of Railway Commissioners on Feb. 3:—'We would also ask your commission to lend its influence in favor of the effort now being made by the Quebec Board of Trade, to remedy the painful situation in which the large population of the Gaspe peninsula, nearly 80,000, now find themselves, owing to defective railway service, and the absence of cold storage and refrigerator car service, needed to give their fisheries, which for two centuries have been the most important in the world, an opportunity to furnish the cheap food of fresh fish to Canadian cities, and at the same time the fisherman of Gaspe coast a fair price for his catch. He now gets one-fifth of the price earned by the fishermen at Prince Rupert, who has these facilities. Our suggestion is that the Dominion Government should take over the 200 miles of railway from Matapedia to Gaspe, which runs for its entire length within sight of the fishing boats, and make it part of the Government Railway System.'" A. "Yes."

Q. "If so, is it the Government's intention to take any action?" A. "The Government is not at present in a position to take over these railways."

Q. "Has the Minister of Railways and Canals received any report from the Board of Railway Commissioners on the service given by the Quebec Oriental Ry. and the Atlantic, Quebec & Western Ry.? If so, was any action taken on such reports? If no action has been taken, is any contemplated in the public interest?" A. "The Chairman of the Board of Railway Commissioners has unofficially made certain recommendations to the Minister of Railways, which have been taken into consideration. The Government is, however, unable to hold out any immediate hope that these railways will be taken over and included in the Canadian National Rys. System."

Q. "Has the Government taken any action during the past year to improve the railway service in Bonaventure and Gaspe Counties and, if so, what? Has any proposal been received from, or made to, the proprietors of the Atlantic, Quebec & Western, and the Quebec Oriental Railways, having for its object the linking up of those lines with the Canadian National Rys. System, by purchase, lease or otherwise? If so, what were these proposals and what action has been taken?" A. "There has been no complaint as to the service provided by the Canadian National Rys. through Bonaventure County. Proposals have been made from time to time looking to the lease or purchase by the Government of the lines in question. No action has been taken."

The Dominion Government is reported to be erecting four radiotelegraph receiving stations between Peace River Crossing, Alta., and the Arctic Ocean.

Mainly About Railway People Throughout Canada.

R. B. Angus, director, C.P.R., who celebrated his 90th birthday May 28, was the recipient of a congratulatory resolution from the Montreal Board of Trade's council.

O. Aubin, Roadmaster, Algoma Eastern Ry., while travelling over the track on a motor car June 17, near Sudbury, Ont., collided with a handcar carrying a number of Italians and was badly cut up in the collision. He was removed to the hospital at Sudbury, where he was reported to be progressing as favorably as could be expected.

E. W. Beatty, K.C., President, C.P.R., and Grant Hall, Vice President, made an inspection of the company's lines in New Brunswick and Nova Scotia, early in June, going as far as Halifax. Mr. Beatty has been elected Honorary President, Navy League of Canada.

George Carruthers Briggs, who has been appointed Architect, Western Lines, Canadian National Rys., Winnipeg, was born at Cockermouth, Eng., Apr. 23, 1886, and served articles to an architect and surveyor at Workington, Eng., from Mar. 1898 to Mar. 1903. He came to Canada in May 1903, and until Oct. 1906, was engaged in architectural work in Toronto, since when he has been, to Sept. 012, in drafting office, Engineering Department, Mackenzie, Mann & Co., Toronto; Sept. 1912 to Sept. 1914, Architect, Buildings Department, same company; Sept. 1914 to Feb. 1916, Inspector of Buildings, same company; Feb. 1916 to Jan. 1920, Supervisor of Buildings, Eastern Lines, Canadian Northern Ry., Toronto; Jan. 1920 to June 1921, Architect, Eastern Lines, Canadian National Rys., Toronto.

Sir George McLaren Brown, European General Manager, C.P.R., accompanied Rt. Hon. J. W. Lowther, ex Speaker of the British House of Commons, from London to Liverpool, Eng., to see him off on his Canadian tour, which took place in June.

Charles Edward Buckley, who has been appointed Local Treasurer, Canadian National Rys., Vancouver, B.C., was born at Paris, Ont., Apr. 25, 1888, and entered transportation service June 5, 1905, since when he has been, to March 1910, clerk, Mackenzie, Mann & Co., Toronto; March 1910 to March 1911, cashier, same company, Toronto; March 1911 to Feb. 1916, accountant, Construction Department, Canadian Northern Pacific Ry., Vancouver, B.C.; Feb. 1916 to June 1919, secretary to Vice President, Canadian Northern Ry., and for the latter portion of that time, Canadian National Rys., Toronto; June 1919 to Apr. 30, 1921, accountant, Construction Department, Canadian National Rys., Vancouver, B.C.

W. W. Butler, President, Canadian Car & Foundry Co., and Mrs. Butler, who have been in Europe for several weeks, made a motor trip through the war area recently. They are expected back in Montreal early in August.

A. B. Calder, of the executive staff, C.P.R., who returned to Montreal recently, after a trip to Europe, was, prior to leaving England, entertained at dinner at the Hotel Cecil by a number of friends of the Empire Press Union, and presented with a set of golf clubs, made specially for him, by the famous golf professional, James Braid. Sir Emsley Carr presided.

Thos. Cantley, Chairman of the Nova Scotia Steel & Coal Co.'s board of directors, and one of the Canadian National Rys. directors, is in Europe.

G. S. Cooke, whose appointment as Assistant Superintendent, Dauphin Division, Prairie District, Canadian National Rys., Dauphin, Man., was announced in our last issue, was born at Montreal, Oct. 27, 1875, and entered railway service Apr. 1, 1890, since when he has been, to Oct. 1, 1896, clerk in stationery department, G.T.R., Montreal; Oct. 1, 1896 to Feb. 15, 1900, clerk in Superintendent and Trainmaster's office,

Geo. C. Briggs,
Architect, Western Lines, Canadian National Railways.

G.T.R., Montreal; Feb. 15, 1900 to Oct. 16, 1901, chief clerk to Trainmaster, G. T.R., Battle Creek, Mich.; Oct. 20, 1901 to Mar. 1, 1905, chief clerk to Superintendent, St. Louis, Iron Mountain and Southern Ry., Mer Rouge, La., Van Buren, Ark., and Aurora, Mo.; Mar. 1905 to Jan. 1906, chief clerk to Superintendent, Chicago, Cincinnati & Louisville Rd.; Jan. to Aug. 1906, chief clerk to General Superintendent, same road; Aug. 1906 to Aug. 1907, Trainmaster, same road, Peru, Ind.; Sept. 1, 1907 to Oct. 15, 1908, chief clerk, Engineering Department, Grand Trunk Pacific Ry.; Oct. 15, 1908 to June 1, 1911, Trainmaster, G.T.P.R., Melville, Sask.; June 1, 1911 to 1921, Superintendent, Winnipeg to Watrous, Sask., Grand Trunk Pacific Ry.

Stockwell Day and Mrs. Day, formerly Miss Madeline Hall, daughter of Grant Hall, Vice President, C.P.R., who went to Honolulu for their wedding trip, and spent the winter there, were expected to leave there on June 23 for Vancouver, and, after spending a short time in Victoria and Banff, to go to Kenora, Ont., for the balance of the summer, returning to Montreal early in September.

W. F. Egg, formerly City Passenger Agent, C.P.R., Montreal, who retired from the service some years ago, has changed his name and that of his family, to Egerton.

Alexander Fraser, a former travelling auditor and paymaster, G.T.R., died at Weston, Ont., June 11, aged 86. He was born in Inverness-shire, Scotland, and came to Canada as a boy. He entered G.T.R. service in 1854, as a clerk at Longueuil, Que., and was appointed freight agent, Montreal wharf, in 1859. On the opening of the Victoria Bridge, he was appointed agent at Point St. Charles, Que., and in 1864, District Agent, Point Levi and Quebec. He was appointed travelling auditor in 1873, and in 1891 was given the additional duties of paymaster, which positions he held until his retirement on superannuation in May 1908.

Miss Mary Garland Hanna, elder daughter of D. B. Hanna, President, Canadian National Rys., was married at Toronto, June 25, to Irving C. Hall, chief clerk in office of Vice President, Finance and Accounts, C.N.R., Toronto.

Mrs. C. M. Hays, widow of C. M. Hays, formerly President, G.T.R., and her daughter, Mrs. Thornton Davidson, are spending the summer at Cushings Island, Me.

Clarence E. Jefferson, who has been appointed acting General Freight Agent, C.P.R., Montreal, was born at Boston, Mass., Sept. 6, 1889, and entered railway service Sept. 10, 1906, since when he has been, to Nov. 1911, consecutively, office boy, billing clerk, tracing clerk, and tariff and percentage clerk, Canadian Pacific Despatch, Boston, Mass.; Nov. 1911 to March 1913, tariff clerk, Boston and Maine Rd., Maine Central Rd. and New York, New Haven & Hartford Rd., Boston, Mass.; March 1913 to Dec. 1915, percentage clerk, C.P.R., Montreal; Dec. 1915 to June 1921, Assistant General Freight Agent, C.P.R., Montreal.

Alan H. Jones, who has been appointed Assistant Engineer to Engineer of Standards, Canadian National Rys., Toronto, was born at Liverpool, Eng., Feb. 16, 1884, and has been, from April 1902, to Aug. 1904, draftsman, Jewett Car Co., Newark, Ohio; Aug. 1904 to Jan. 1905, draftsman, Brooklyn Rapid Transit Co., New York; Feb. 1905 to Feb. 1908, draftsman on grade separation work, New York Central Rd., New York; Mar. to June, 1908, Assistant Engineer, Third Avenue Ry., New York; June 1908 to Jan. 1911, engineering, surveying and mapping, Delaware & Hudson Co., Scranton, Pa., and Montreal; Jan. 1911 to April 1912, Assistant Engineer, Windsor St. Station, C.P.R., Montreal; April 1912 to Jan. 1915, instrument man on construction, Campbellford, Lake Ontario & Western Ry. (C.P.R.); Jan. to Nov. 1915, draftsman, Canadian Government Rys., Moncton, N.B.; Nov. 1915 to Jan. 1917, Resident Engineer, District 4, Intercolonial Division, Canadian Government Rys., New Glasgow, N.S.; Jan. 1917 to May 20, 1921, Assistant Engineer, Canadian Government Rys., Moncton, N.B.

L. K. Jones, I.S.O., formerly Assistant Deputy Minister of Railways and Canals, Ottawa, has been voted $500 by the Dominion Parliament, in lieu of leave of absence.

Robert Larmour, who died at Brantford, Ont., June 13, was born at Iroquois,

Ont., Sept. 22, 1840, and entered G.T.R. service in 1854. He was for some years an operator at various points on the system, and during the visit of the Prince of Wales (King Edward VII.) to Canada in the 60's, he accompanied the train during the tour. He was at one time a dispatcher at Montreal, and later became Superintendent, Buffalo and Goderich Division, Brantford. In 1873 he was appointed Superintendent, Western Division, Stratford, Ont.; and in 1886, Superintendent, Southern Division, London, Ont., returning to Stratford in 1897. In 1905 he established a school of telegraphy in Stratford, and conducted it for several years, until failing health necessitated his retirement from active business. He took part against the Fenian raids in 1866, being in charge at Fort Erie, and after some military work at Brantford, Ont., was retired with the rank of major. R. E. Larmour, acting Assistant Freight Traffic Manager, C.P.R., Montreal, is a son.

F. H. McGuigan, formerly Vice President, G.T.R., now of Toronto, is a member of two boards of conciliation appointed by the Minister of Labor recently, to settle disputes between the Toronto & York Radial Ry. and the Toronto Hydro Electric Commission and their employes.

R. E. Larmour, who has been appointed acting Assistant Freight Traffic Manager, C.P.R., Montreal, was born at Brantford, Ont., Sept. 26, 1868, and entered railway service Aug. 1884, at Stratford, Ont., as office boy in the office of his father, who was then Division Superintendent, G.T.R., remaining there until 1886; since when his record has been: 1886 to 1888, clerk in the office of General Manager, Great Eastern Fast Freight Line, Detroit, Mich.; 1888 to 1890, Accountant to General Superintendent, Chicago and Grand Trunk Rd., Detroit, Mich.; 1890 to 1892, Local Freight Department, G.T.R., Detroit, Mich.; 1892 to 1898, transfer clerk, through freight from Wabash Rd. to G.T.R., at Windsor, Ont. He entered C.P.R. service in 1898, and has been, to Nov. 1899, chief clerk Freight Department, Fort William, Ont.; Nov. 1899 to May 1900, acting agent, Fort William; May 1900 to Aug. 1900, chief clerk, Superintendent's Office, Fort William; Aug. 1900 to Feb. 1903, agent, Port Arthur, Ont.; Feb. 1903 to Feb. 1905, Freight Claims Agent, Pacific Division, Vancouver, B.C.; Feb. 1905 to Feb. 1906, Freight Claims Agent, Central and Western Divisions, Winnipeg; Feb. to Aug. 1906, City Freight Agent, Winnipeg; Aug. 1906 to June 1908, Freight Agent, Fort William, Ont.; June to July 1908, General Agent, Fort William, Ont.; July 1908 to June 1909, General Freight Agent, Kootenay and Boundary District, Nelson, B.C.; June 1909 to Apr. 1911, General Freight Agent, Central Division, Winnipeg; Apr. to June 1911, Division Freight Agent, Manitoba Division, Winnipeg; June 1911 to July 1914, Division Freight Agent, British Columbia Division, Vancouver, B.C.; July 1914 to Sept. 30, 1915, Assistant General Freight Agent, Vancouver, B.C.; Sept. 30, 1915, to March 15, 1919, General Agent, Freight Department, New York, N.Y.; March 15, 1919, to June 6, 1921, General Freight Agent, Montreal.

Col. the Hon. Angus MacDonell, of Stewart & MacDonell, railway and harbor contractors, Vancouver, B.C., has returned to London, Eng., after spending some time at the Gold Coast, where his firm has a large contract for harbor and railway construction.

Mrs. W. R. MacInnes, wife of the Vice President in charge of traffic, C.P.R., returned to Montreal, June 10, from Europe.

Mrs. C. E. McPherson, wife of the Assistant Passenger Traffic Manager, Western Lines, C.P.R., underwent an operation in Winnipeg General Hospital, June 6.

Stuart MacTier, son of A. D. MacTier, Vice President, Eastern Lines, C.P.R., was married at Winnipeg, June 28, to Miss Dorothy Martin.

Mrs. Marpole, widow of Richard Marpole, who was Executive Agent, C.P.R., at Vancouver, has rented her farm at Crofton, B.C., and is living with her parents, Colonel and Mrs. Holmes, at Victoria, B.C.

Col. John I. McLaren, who has been appointed a Commissioner, Timiskaming & Northern Ontario Ry., was born at Goderich, Ont., in 1865, and went to Hamilton, Ont., in 1879, where he entered the grocery trade and became manager of the Hamilton Coffee & Spice Co., now MacLarens Ltd. He was an alderman of the city in 1907 and 1908, and was elected Mayor in 1908, and re-elected in 1910. He takes an active interest in military affairs, and was one of the organizers of the 91st Regiment (Canadian Highlanders), and commanded the 19th Overseas Battalion during the earlier portion of the war. He returned from Belgium in 1916 to take charge of a training brigade in Canada. During the war he was mentioned in dispatches for distinguished services. He subsequently became Lieut.-Col. 91st Regiment, and Assistant Adjutant General in charge of Ontario Military District No. 2, Toronto, and is officer commanding the 4th Infantry Brigade, Hamilton, Ont.

Lieut.-Col. L. T. Martin, D.S.O., who has been appointed a Commissioner, Timiskaming & Northern Ontario Ry., was born at Arnprior, Ont., in 1884. He was engaged as an engineer on the T. & N. O. Ry. construction in 1903, and in 1905 was Resident Engineer at Matheson, Ont. From 1906 to 1912 he was on National Transcontinental Ry. construction in Quebec, and between 1912 and 1914 he completed a contract on the N.T.R. east of Cochrane, Ont., and operated freight and passenger service for that section during construction. In 1914 he was appointed Manager, Great Lakes Dredging & Contracting Co., and carried out contracts at Port Arthur, For William, Ojibway and on the Welland Canal. He enlisted for overseas service in 1916 and raised and commanded the 7th Battalion Canadian Railway Troops. He was mentioned in dispatches for distinguished service in Jan. 1918, when he was awarded the Distinguished Service Order.

H. H. Melanson, Passenger Traffic Manager, Canadian National Rys., presided at a dinner to the Chicago Passenger Club at Toronto recently.

Peter Nicholson, who died at St. Catharines, Ont., at the end of May, aged 87, was engaged, during the American civil war, in the construction of railways in Ohio, Pennsylvania and New York, and came to Canada in 1875, carrying out several contracts on the Welland canal.

Lord Mount Stephen, who was the first President of the C.P.R., and who has lived in England for many years, was 92 years of age on June 6.

Stephen Reed Payne, Manager, Ottawa Division, New York Central Rd., Ottawa, Ont., died there, May 31, after a short illness. He was born near Youngstown, Ohio, Dec. 21, 1865, and entered railway service Nov. 2, 1882, since when he had been, to Aug. 25, 1889, telegraph operator, Lake Shore & Michigan Southern Ry.; Aug. 25, 1889, to Jan. 15, 1898, dispatcher, same road; Jan. 15, 1898, to Apr. 1, 1900, Trainmaster, same road; May 13, 1900, to Jan., 1903, Trainmaster, and Assistant Division Superintendent, Norfolk & Western Ry., Bluefield, West Virginia; Jan., 1903, to 1907, Trainmaster, New York Central Lines, Utica, N.Y.; 1907 to 1908, Assistant Superintendent, Western Division, New York Central Lines, Syracuse, N.Y.; 1908 to Oct., 1913, Superintendent, Buffalo Division, same road, and General Superintendent, Western Division, same road, Syracuse, N.Y.; Oct., 1913, to June, 1914, Assistant to General Manager, same road, Rochester, N.Y.; and from June, 1914, Manager, Ottawa Division, New York Central Rd., Ottawa. The funeral took place at Youngstown, Ohio, June 3.

Aubrey G. Robb, for over 20 years Superintendent and Chief Engineer, Robb Engineering Works, Amherst, N.S., died from blood poisoning June 20. He was an ex-mayor of Amherst, and was for several years Secretary of the Canadian Manufacturers Association's Maritime branch.

John Schofield, who has been appointed Architect, Eastern Lines, Canadian National Rys., Toronto, was born at Monaghan, Ireland, March 15, 1883. He was a pupil of J. H. M. Wilson, architect and civil engineer, Monaghan, from 1896 to 1900, and from 1900 to 1904 served as a designer with Kennan & Sons, engineers and builders, Dublin, Ireland. He entered railway service March 30, 1904, since when he has been, to 1909, designer, C.P.R., Winnipeg; 1907 to 1909, designer, Canadian Northern Ry., Winnipeg; 1909 to 1911, assistant architect, same company, Winnipeg; 1911 to 1920, architect, Western Lines, same company, Winnipeg; 1920 to June 1921, Architect, Western Lines, Canadian National Rys., and Grand Trunk Pacific Ry., Winnipeg. He is a member of the council of the Manitoba Association of Architects, a member of the committee on shops, and a member of locomotive terminals committee, American Railway Engineering Association. On his departure from Winnipeg he was presented with a travelling bag, arm chair and floor lamp by his staff and a number of Western Lines officials, and also with an engraved gold medal by the Presbyterian Athletic and Literary Associations, of both of which he was President.

Lady Shaughnessy, and several of her family, have gone to St. Andrews, N.B., for the summer, where Lord Shaughnessy will join them a little later.

William John Sheppard, whose appointment as Car Foreman, C.P.R., Nelson, B.C., was announced in our last issue, was born at Kemnay, Scotland, Sept. 28, 1882, and entered C.P.R. service in Sept. 1906, since when he has been, to 1907, car repairer, Vancouver, B.C.; 1907 to 1911, car inspector, Kamloops, B.C.; 1911 to May 1921, Car Foreman, Revelstoke, B.C.

Miss G. C. Shrimpton, daughter of the late F. E. Shrimpton, formerly General Auditor, C.P.R., was married in Montreal, on June 24, to K. A. Wallick.

A. F. Stewart, Chief Engineer, East-

ern Lines, Canadian Government Rys., Moncton, N.B., was taken ill on the train at Campbellton, N.B., May 30, and was conveyed to the Royal Victoria Hospital, Montreal, where he was operated on for appendicitis.

Warren S. Stone, Grand Chief of the Brotherhood of Locomotive Engineers, has had his salary increased from $14,500 to $25,000 a year.

H. Dean Suckling, son of H. E. Sucklink, Treasurer, C.P.R., Montreal, was married at Port Hope, Ont., June 18, to Miss R. M. Bolton.

Lady and Miss Van Horne have given $1,000 to J. F. Dreyer, who has been the family coachman for 30 years.

The House of Commons Committee's Failure to Grapple with the Canadian National Railways Questions.

The special committee on Canadian National Rys. and Shipping appointed at the House of Commons recent session, the preceedings of which have been summarized in Canadian Railway and Marine World, was presented with an opportunity of rendering a real service to the country, which is paying for such service. It was clothed with authority to find a solution for an important problem, one which must be solved absolutely before Canada's venture in railway nationalization can be thoroughly successful. It is not the problem of management to which we have reference; although that is a large and difficult one, as a solution of it is being afforded by the men entrusted with the task. The problem to which we refer goes deeper than that, it is one of relationship as between management, on the one hand, and, on the other hand, the Canadian people, Parliament and Government. The problem of management is an economic one, purely; the one which this committee was to solve, and which it has not solved, or partially solved, notwithstanding the 499 pages of printed evidence taken in its proceedings, is rather of a political nature. Until a definite, clean-cut solution is provided for this political problem, the railway management will always be liable to embarrassment in its work, and there will always be the temptation, on the part of those in possession of political power, to inject political influence into the purely economic matter of railway administration. However, as in all spheres of human endeavor, results are gauged largely by the expectations concerning them, and disappointment is tempered through being prepared for it; those who have devoted much thought to our railway problems will not be unduly cast down in spirit by the result, or lack of result, of this committee's proceedings. Born of the bitter, partisan debate and argument of politicians; representative of a compromise between two ideas of government control of railways which are as unlike as black and white, and having on its membership few, if any, informed students of railway regulation and economics, no surprise whatever should be occasioned by the nature of its activities, the trend of its examination and enquiry, and the net result of the whole procedure.

The circumstances surrounding the appointment of the committee were fully dealt with in Canadian Railway and Marine World for May, pg. 245, wherein it was shown that the controlling thought of the Opposition was to the effect that members of parliament are entitled to information concerning any detail of Canadian National Rys. management which they may care to ask about. During the last session of parliament, questions were asked concerning the dismissal of conductors and brakemen; the insurance on an hotel; the cancellation of a local train; the supposed damaging of locomotives by frost, and so on ad infinitum. One member wanted to know "how much per bushel it costs the Government railways for the transportation of wheat from Winnipeg to Quebec." The same man demanded information about "the capacity of a locomotive on the National Transcontinental Ry. between Winnipeg and Quebec," and another member desired the names of all parties tendering for the supply of ice to the Canadian National Rys. at Mulgrave, N.S., together with the amounts of the tenders. These questions were in line with others asked at every session of Parliament since the Canadian Northern lines were taken over by the Government and in connection with which decided action should have been taken by the Government at the start. In our opinion the Minister of Railways should, in the first instance, have refused to answer such questions and should have taken the ground that the Canadian people, as the owners of the Canadian National Rys., are entitled to just as much information as the Canadian Pacific or any other privately owned railway gives to its shareholders, and no more. Instead of doing so the Minister vacillated, answered many questions that never should have been answered, parried with others, and finally referred to a committee a question which he and the other members of the Government should have had the courage to decide and to stand or fall by in the House of Commons.

The Opposition leader, Hon. W. L. Mackenzie King, stated repeatedly that Parliament is entitled to complete information concerning the expenditure of every cent of the public funds, and on that statement he based his demands for information concerning all phases of Canadian National Rys. operation. An utter lack of confidence in the way in which the Government is conducting the Canadian National enterprise was, in all the debates, displayed by the Opposition leader and his followers. In the debate of March 22, Prime Minister Meighen clearly set forth the principles upon which the Government should proceed, stating the reasons why the railways cannot be operated as a direct Government department undertaking. We have no hesitation in supporting his views, exemplified by his statement to the effect that it is out of all reason that the Canadian National Rys. management should be compelled to give an account of every move made in the day-to-day operation of the property. That any member of Parliament should be allowed to enquire into any detail of management or operation, and to demand a full explanation concerning it, is wholly undesirable. Success would be impossible if the mangement were forced to divulge information concerning purchases, disciplining of employes, local earnings, prices for materials and services, etc. Such information cannot be made public without disastrous results. The only information a member of Parliament should be entitled to, in connection with the actual operation and administration of the property, should, as before stated, be that afforded a shareholder in a privately owned railway corporation.

It may be said that if information is not freely given, it will be suspected by the public that the National railways constitute nothing more nor less than a great instrument of political patronage. The Opposition members certainly endeavored to create that suspicion, and in the debates of April 5 and 8, prior to the formation of the committee, they argued strenuously that the committee should be given power to enquire into any detail whatever of Canadian National Rys. operation. Our contention is that if this committee had satisfactorily answered the five questions submitted to it, it would, among other things, have gone a long way toward removing any suspicion and lack of confidence, and it would have gone far toward providing a solution for the great underlying problem of the Canadian National Rys., by submitting recommendations for the establishment of a permanent and well defined relationship as between railway management and the people, as represented by Parliament and the Government. The committee had the opportunity of initiating the establishment of such a relationship that the administration of the Canadian National Rys. would be so far removed from politics that political aspiration and influence could never affect it; and such that there would be no occasion for questions dealing with details of operation to be asked in Parliament. But the committee has accomplished none of these things. So far as the shaping of policy in connection with Governmental control of railways is concerned, the result of its activities is most disappointing.

This is a matter for regret. It would seem that until these questions are satisfactorily answered, and a scheme of control, which cannot allow any variation on the part of those invested with political power, is put into effect, the Canadian National venture cannot ever be wholly dissociated from politics. That a management which is bending every effort to make the venture successful should be embarrassed by the necessity of supplying information to any politician who wants it is nothing short of outrageous. The sooner that all concerned understand that political interference in economic matters inevitably breeds disaster, the better. When the Parliamentary representatives of the people of this country grasp the idea that, while it is their function to lay down broad policy, it is the function of the management to operate the railway, a long step forward will have been taken; when they thoroughly appreciate the fact that the management cannot function efficiently unless free from all political and sectional interference, a healthy state of affairs will be on the point of being brought about.

Shortly summarizing the committee's activities, it may be said that about the only real information obtained by it was that supplied by Canadian National Rys. officials, who, in addition to setting forth

details of organization and of finance, clearly informed the members of the committee as to what information concerning the railways should not be given to parliament, and thus to the public and to competitors. Beyond this, the procedure, largely irrelevant, as for instance the evidence of three shipping witnesses from Halifax, who seized the opportunity to attack the whole Canadian Government Merchant Marine enterprise, enabled certain members to endeavor to increase their standing with their local constituents, gave others the opportunity of criticizing the Canadian National management concerning matters of which the critics evidently knew nothing, and make a lot of political capital. Constructive thought, looking toward a solution of the underlying problem, was conspicuous by its absence. Beyond the possibility of committee members having been furnished with just enough knowledge of the principles of railway operation to make them interfering and dangerous, the country can console itself with the thought that no great harm has been done.

However, the committee's proceedings have had one result that is worthy of note. They have acquainted parliamentarians with the fact that all railway executives, both in Canada and the U.S., are, and have been for years, confronted with a railway situation demanding the maximum of brains, courage and application, a situation which, in the case of the Canadian National Rys., is greatly intensified by the problems of organization, and by adverse conditions in every direction. It has been demonstrated to the parliamentarians that these executives are bending every effort to make the Canadian National Rys. venture a successful one, and that they are imbued with a spirit of optimism and faith in their ability to do so. It is to be hoped that they now have an adequate appreciation of what will happen if serious attempts are made to unduly interfere with management, and inject politics into the operation of these railways.

Locomotive Boiler Explosions. — The Board of Railway Commissioners has issued the following circular:—Some time ago there was an explosion in a locomotive boiler, and, upon the arrival of the Board's Inspector, it was found that the water glass mountings, all gauge cocks, and left top check, had been taken off the boiler and forwarded to the compnay's offices. When such accidents occur in future, the Board desires it to be distinctly understood that the appurtenances in connection with the water supply of the locomotive boiler must not be removed from the boiler, and in no way interfered with, until after the Board's Inspector has completed his inspection. In this connection reference is made to the Board's general order 78, clause 50, requiring the railway company concerned to send to the Board's Chief Operating Officer, at Ottawa, a telegraphic report of such occurrences, and stating where the locomotive may be inspected.

The Canadian Ticket Agents Association's annual meeting and outing, which was to open at Ottawa on Sept. 20, has been postponed to Oct. 11 in consequence of the race meeting being fixed for the week chosen originally.

The Imperial Government Railways of Japan operated in 1919 9,503 miles of track, the net earnings being $23,632,908.

Divisional Points on Canadian National Railways.

T. Vien, Lotbiniere, Que., asked in the House of Commons recently:—How many divisional points are there on the Government railways, and what are their names? In each of the said divisional points during 1919 and 1920, what were the gross receipts, operating costs, and surplus or deficit?"

The Minister of Railways replied:—"There are 110 divisional points on the Canadian National and Grand Trunk Pacific Railways, as follows:—Yarmouth, Bridgewater, Middleton, Halifax, Truro, Stellarton, Mulgrave, Point Tupper, Sydney, Pictou, Oxford Jct., Cape Tormentine, Charlottetown, Souris, Tignish, Point du Chene, Moncton, St. John, Fredericton, Centreville, Newcastle, Loggieville, Bathurst, Campbellton, Mont Joli, Riviere du Loup, Levis, Ste. Rosalie Jct., Chicoutimi, Rivier-a-Pierre, Quebec (Limoilou), Joliette, Montreal, Bridge, Chaudiere Jct., Monk, Edmundston, Napadogan, Fitzpatrick, Parent, Doucet, O'Brien, Cochrane, Hearst, Grant, Armstrong, Sioux Lookout, Redditt, Winnipeg (Transcona), Ottawa, Brent, Trenton, Bancroft, Brockville, Westport, Picton, Toronto, Parry Sound, Capreol, Foleyet, Hornepayne, Jellicoe, Port Arthur, Fort William, Atikokan, Rainy River, Fort Frances, Winnipeg (Ft. Rouge), Dauphin, Kamsack, Humboldt, North Battleford, Vermillion, Edmonton, Edson, Jasper, Lucerne, Blue River, Kamloops Jct., Boston Bar, Port Mann, Vancouver, Victoria, Swan River, Hudson Bay Jct., Pas, Prince Albert, Brandon, Kipling, Regina, Saskatoon, Kindersley, Hanna, Calgary, Neepawa, Rivers, Melville, Waterous, Biggar, Wainwright, Northgate, Riverhurst, Radville, Big Valley, McBride, Prince George, Endako, Smithers, Pacific, Prince Rupert.

"Railway accounting does not provide for earnings being shown for each divisional point."

Railway Finance, Meetings, Etc.

Canadian Niagara Bridge Co.—The following directors were elected at the annual meeting held at Hamilton, Ont., May 31: A. H. Smith, President; A. H. Harris, Vice President; I. A. Place, Vice President, New York Central Rd.; Lord Shaughnessy, Chairman; E. W. Beatty, President; Grant Hall, Vice President, C.P.R., and J. N. Beckley, President, Toronto, Hamilton & Buffalo Ry.

Minneapolis, St. Paul & Sault Ste. Marie Ry.—The report for 1920 shows a net income after taxes and fixed charges, of $3,412,570, equal to $9.02 a share on the $37,810,200 combined preferred and common stock, compared with a surplus of $5,644,614, or $14.93 a share for 1919.

Toronto, Hamilton & Buffalo Ry.—The following directors were elected at the annual meeting at Hamilton, May 31: A. H. Smith, A. H. Harris, W. L. Scott, Lord Shaughnessy, E. W. Beatty, Grant Hall, E. D. Bronner, W. P. Torrance, W. K. Vanderbilt, D. W. Saunders and J. N. Beckley.

The U.S. Senate has confirmed the appointments of E. I. Lewis, Chairman of the Public Service Commission of Indiana, and J. B. Campbell, attorney, Spokane, Wash., as members of the Interstate Commerce Commission.

Co-ordination of Canadian National and Grand Trunk Railway Service.

The G.T.R. is operating its trains 9, 10, 29 and 30 over the C.N.R., from Colbright Jct., 19.19 miles east of Coburg, to Napanee, 45.3 miles.

The C.N.R. operates its trains 5 and 6 between Toronto and Napanee over the G.T.R. 135.1 miles. C.N.R. train 7, from Ottawa for Toronto, and train 8, from Toronto for Ottawa, run over the C.N.R. between Ottawa to Colbright Jct, and over the G.T.R. double track between Colbright Jct. and Toronto. C.N.R. trains 69 and 70, Tweed to Kingston, run over the G.T.R. from Napanee to Kingston, 25 miles. C.N.R. fast freight trains 207 and 208 run over the G.T.R. from Belleville to Napanee, 21.74 miles, thence over C.N.R. to Ottawa. The C.N.R. Continental Limited, Montreal to Vancouver, trains 1 and 2 run over the G.T.R. between Montreal and Ottawa, 116 miles.

Between Montreal and Toronto all passenger stations and freight houses are used in common. Passenger tickets are good on either railway and all freight is moved by the shortest mileage in the co-ordinated interests.

Further Aid Voted for Railways.

The Railways Department's further supplementary estimates for the year ended March 31, 1921, contained the following items:—

To increase amount of loan authorized by vote 478, Appropriation Act no. 4, 1920. Additional amount required, $1,520,000. (Vote 478 was for a loan not exceeding $25,000,000 to be made to the Grand Trunk Ry. Co. of Canada to meet deficits, etc.)

Grand Trunk Ry., to provide for payment of expenses in connection with the acquisition of the G.T. and associated railway system, additional amount required, $200,000.

Quebec bridge, to pay balances of accounts, $24,555.50.

Reid Newfoundland Ry.'s Difficulties. St. John's, Nfld., press dispatch, June 26:—Unless negotiations between the Newfoundland Government and the Reid Newfoundland Ry. officials result in an agreement, operation of the system will cease at midnight on June 30. The system, comprising all the railway lines in the colony, has a trackage of nearly one thousand miles. During the war the railway was taken over by the Government. Recently it was returned to its owners, who assert that expenses so greatly exceed income that it will be impossible to continue operation without Government aid. The Government has proposed to the railway officials the appointment of a commission to study the whole problem, and is negotiating with them in the hope of bringing about temporary operation by the company until the commission is able to make it sreport. Under the plan the commission would be headed by Sir George Bury, who arrived here on Friday last."

Mail Service Estimates.—The further supplementary estimates for the year ended March 31, 1921, submitted at the Dominion Parliament's recent session, contain the following item:—Mail service by railway, further amount required, $365,000. The further supplementary estimates for the year ending March 31, 1922, contain the following item:—Mail service by railway, further amount required, $4,380,000. Particulars of the items in the main estimates were given in Canadian Railway and Marine World for April.

The Railway Wages Question in Canada and the United States.

The U.S. Railroad Labor Board's decision, given on June 1, is published practically in full in an earlier part of this issue. This decision dealt with applications for wage reductions made by U.S. railways prior to April 18, and in so far as the majority of the railways are concerned, applied only to unskilled labor and certain classes of shopmen and clerical labor. On a few roads, however, the decision affected all classes of employes. Applications to the Labor Board for wage reductions for all classes of employes were made by practically all U.S. railways after April 18, the employes being notified previously in accordance with the Transportation Act's terms. The hearings on these applications commenced on June 6.

At the hearings, railway companies' representatives attacked the Board's decision given out on June 1, stating that the reduction in wages ordered was not as great as it should have been. J. W. Higgins, Executive Secretary of the Association of Western Railways, representing the carriers of the western portion of the U.S., stated that the railways he spoke for demanded the removal of all wage increases granted by decision 2 of July, 1920. He argued that the reasons for the increases allowed at that time had all disappeared, as shown by the decreases in the cost of living and the lowering of wages in other industries. J. O'Neill, General Manager, Chicago, St. Paul, Minneapolis & Omaha; F. H. Alfred, President, Pere Marquette, and J. L. Coleman, General Attorney, Atchison, Topeka & Santa Fe, demanded the restoration of the rates of pay in effect before the Board's award of July, 1920.

J. G. Walber, representing the eastern railways, argued against the standardization of employes' wages and the payment of time and a half for overtime in freight and yard service. He pointed out that the Transportation Act recognizes differences in living costs and commercial conditions in different parts of the country, by the establishment of different rate regions, and claimed that the largest areas in which wages should be standardized should correspond with these rate divisions. He filed exhibits to show that the cost of living, in May, 1921, was 41% lower than when wage award no. 2 was made effective, and stated that the removal of all the increases given by that award would still leave the employes at an advantage in wage levels.

The employes were represented at the hearings by B. M. Jewell, President, Railway Employes' Department, American Federation of Labor; L. E. Sheppard, representing the Order of Railway Conductors; W. G. Lee, representing the Brotherhood of Railroad Trainmen; H. P. Daugherty, representing the Brotherhood of Locomotive Engineers, and W. S. Carter, representing the Brotherhood of Locomotive Firemen and Enginemen. All stated they were principally resting their cases upon the testimony presented on behalf of the employes at the previous hearings, in addition to which Mr. Lee argued that it would be difficult for the Board to alter its views within a few days of the decision of June 1, without admitting error in that decision. Mr. Carter filed additional testimony concerning the irregularity in employment experienced by locomotive men and firemen, the efficiency consistently shown by these men in their work, and the hazards of their employment.

The hearings terminated on June 9. The Board, before going into executive session to consider the testimony presented, announced that its decision would be given before July 1, so that the reductions decided on would become effective on that date. The Board gave no indication, however, as to whether it would give a new decision involving reductions differing from those contained in its decision of June 1, published elsewhere in this issue, or whether it would take action on the later applications of the railways concerned, by simply making the decision of June 1 applicable to all classes of employes on all U.S. railways.

An interpretation of the labor clauses of the Transportation Act (see Canadian Railway and Marine World for May, pg. 257) worthy of note concerned the Pullman Co.'s attempt to reduce its employes' wages without giving them legal notice of its intention to do so. After argument before the Labor Board concerning this, by B. M. Jewell, President, Railway Employes' Department, American Federation of Labor, and G. S. Fernald, counsel for the Pullman Co., the Board decided that the company must notify its employes of its intention, and meet with the employes' representatives in an attempt to arrange a new schedule, and that the case could not be legally before the Board until this was done.

Julius Kruttschnitt, Chairman of the Board, Southern Pacific Co., in testifying recently before the senate committee investigating railway conditions in the U.S., presented official statistics of the total railway wages on U.S. railways as follows:—

	Total wages.	Increases.
1916	$1,468,576,394	
1917	1,739,482,142	$270,905,748
1918	2,613,813,351	874,331,209
1919	2,843,128,432	229,315,081
1920	3,698,216,351	855,087,919
Total increases		$2,229,639,957

The reductions contained in the Labor Board's decision of June 1 would, it is estimated, make a reduction of about $400,000,000 a year in the pay rolls.

As stated in Canadian Railway and Marine World for June, the various Canadian employes' organizations were notified by the Railway Association of Canada and the respective railways of the railways' desire to effect changes in the existing wage agreements. On June 17, Grant Hall, Vice President, C.P.R., began conferences in Montreal with representatives of that company's employes belonging to the different international labor organizations, and discussed labor matters generally with them. W.D. Robb, Vice President, G.T.R., met representatives of the G.T.R. employes for the same purpose, and similar matters were taken up with Canadian National Rys. employes by S. J. Hungerford, Vice President, Operation and Maintenance. The labor delegates were acquainted with the financial condition of the railways and shown the necessity for a wage reductions similar to that being brought about on the U.S. railways. No definite changes in working conditions, or in rates of pay, were agreed on, however, the labor representatives stating that they would not be able to come to any decision concerning their future action until after a meeting of chairmen of labor organizations on July 1, when representatives of all the international organizations will meet in Chicago to take action concerning the wage reductions ordered by the U.S. Labor Board. It is therefore evident that the situation in Canada is inseparably connected with that in the U.S., and that the future course of events in both countries will depend largely on the final decision of the U.S. Railroad Labor Board following the hearings terminated June 9, and the attitude of the labor leaders and the members of their organizations in connection with it.

Since the foregoing was written a Chicago press dispatch has been received as follows:—"Immediately following the announcement of the U.S. Railroad Labor Board's wage cut on June 1, roads from every section of the country sent in their applications for authority to make similar cuts. Many of the roads which asked reductions for only a part of their employes, came back with applications to cover all employes. The 12% reduction was generally unsatisfactory to carriers, who wanted the entire 1920 wage award wiped out, but the board was determined not to change its award as announced June 1.

"Wage reduction orders, effective July 1, were today extended by the Board to practically every large railway in the country. 210 systems are affected by today's order, and the reductions now ordered represent a saving of approximately $400,000,000 annually for the roads. No change from the average 12% reduction granted 104 carriers on June 1, was made by today's decision. About one-half of the roads included in today's order were parties to the original decision, the duplication resulting from the fact that many roads did not include all classes of employes in their first petition. All classes of employes have now been named. Rates of reduction for several minor classes of employes were added to the order today. Chefs and other restaurant workers, dining car employes, laundry workers and porters were named in added sections of the decision. Reductions of 60% of the increases granted such employes since Feb. 29, 1920, just before the roads were returned to private control, were directed for these employes."

British Empire Steel Corporation's Railways. The statement submitted to the stock exchanges recently, in connection with the list of this corporation's stock, contained the following: A most important element in the successful prosecution of the business of mining annd distributing coal is transportation. From the earliest days this has been recognized. One of the very first railways in Canada was operated in connection with the Pictou coal mines. The Cumberland Ry. and Coal Co's line and the Sydney & Louisburg Ry., with over 170 miles of track, have been developed to a high state of efficiency, and with their terminals at Parrsborough, Sydney and Louisburg represents a very large amount of capital."

Traffic Orders by Board of Railway Commissioners.

Wharfage and Port Warden Fees On Cheese at Port of Montreal.

31,043. May 28.—The application of Montreal Board of Trade for disallowance of proposed cancellation of arrnagements for absorption of wharfage and port warden fees on cheese shipped locally to Montreal and afterward exported, unless export rate has been paid: Upon reading what has been filed in support of the application, and upon consideration of orders 7343 and 8337, the Board orders that the portion of item 10-A in Supplement 4 to C.P.R. Tariff C.R.C. no. E-3839, which reads s follows: "This arrangement will only apply when charges have been collected under the export rate"; also that portion of item 84-A in G.T.R. Supplement 18 to Tariff C.R.C. no. E-4219, which reads as follows: "This arrangement will only apply when charges have been collected under export rates," be suspended, pending hearing on a date to be fixed by the Board.

Demurrage Charges During Influenza Epidemic.

31,047. May 20.—Re complaint of Canada Starch Company, of Cardinal, Ont., regarding claim against G.T.R. for demurrage charges assessed during the influenza epidemic in 1918: Upon reading the submissions filed in support of the complaint, the Board orders that the same be dismissed.

Classification of Sausage Casings.

31,057. May 30.—Re application of Oppenheimer Casing Co. of Canada, Toronto, regarding the classification of sausage casings shipped by express: Upon hearing the application at Toronto, May 27, the Express Traffic Association of Canada and the Dominion Express Co. being represented, no one appearing for the applicant company, the Board orders that the application be refused.

Regulations Governing Unrouted Shipments.

31,065. June 7.—Re application of N. W. Hawkes, Chairman, New England Freight Association, Boston, Mass., on behalf of various railway companies, for permission to withdraw certain schedules naming regulations governing unrouted shipments, upon one day notice, after filing thereof with the Board: Upon it appearing that the Interstate Commerce Commission has, by its special permission 53,196, dated May 31, ordered the withdrawal of the said schedules; and it being advisable that there should be uniform action on the part of this Board, it is ordered that the following schedules may be cancelled upon one day notice to the Board, viz.:

Bangor & Aroostook Rd.	C.R.C.	392
Boston & Albany Rd.	C.R.C.	624
Boston & Maine Rd.	C.R.C.	2074
Central Vermont Ry.	C.R.C.	1583
Grand Trunk Ry.	C.R.C.	E-4479
Maine Central Rd.	C.R.C.	C-2024
New York, New Haven & Hartford Rd.	C.R.C.	F- 232
Rutland Rd.	C.R.C.	1106

Express Classification of Ice Cream.

31,100. June 6.—Re application of National Dairy Council of Canada, on behalf of Canadian Association of Ice Cream Manufacturers, under order in council 1509, July 5, 1920, for a reconsideration of the Board's order 28,883, Oct. 9, 1919, refusing the Association's application for a reduction in the express classification of ice cream from the first to the second class: Upon hearing the application at Ottawa, Nov. 3, 1920, in the presence of counsel for the National Dairy Council of Canada and the Express Traffic Association of Canada, and what was alleged, the Board orders that the application be refused.

The judgment was given by Chief Commissioner Carvell, as follows: This case was heard at Ottawa on Oct. 27, 1920, and, in substance, is an application of manufacturers of ice cream that that commodity should be placed in the second class for express purposes, and not in the first, the contention being that, as ice cream is a food, it should be placed on the same footing for express charges as most other food products. Practically the whole object of the applicants at the hearing seemed to be to establish the fact that ice cream is a food. I felt then, and now feel, that it was unnecessary to have gone to all the trouble, because every person knowing the component parts of ice cream must admit that it possesses food value of a very high order. On the other hand, I cannot get away from the idea that ice cream is essentially a luxury. It was argued very strenuously, and no doubt is true, that in hospitals it is used to some extent as a food and that, in many cases, with delicate children, they may be induced to partake of milk and cream in the form of ice cream which they would refuse in their ordinary condition, but these instances must be very rare, and, in my opinion, are not such as to place it in the category of an ordinary food product. From a somewhat intimate knowledge of the manner in which this product is consumed in the country, I consider it a luxury just the same as soda water or candy. Ice cream is shipped in bulk, usually in 5-gall. cans. It goes to hotels, restaurants, ice cream parlors, etc., and is served out in very small quantities, at a tremendously increased rate over the original cost of the article, and a reduction in the express rate, in my opinion, would in no case inure to the benefit of the ultimate consumer, but would simply be an added profit to the manufacturer and the middleman. For these reasons, I think the application should be dismissed.

Assistant Chief Commissioner McLean and Commissioner Rutherford concurred.

Express Cartage of Ice Cream and Returned Empties.

31,114. June 9.—Re application of National Dairy Council of Canada for an order directing that a reduction be made of 10c. on ice cream and 5c. on returned empties shipped by express, respectively, from and to points where a wagon service is provided by express companies, whenever the service is not furnished as required, thus necessitating cartage by the shipper and receiver respectively: Upon hearing the application at Ottatwa, Nov. 3, 1920, in the preence of counsel for the National Dairy Council of Canada and the Express Traffic Association of Canada, and what was alleged, the Board orders that the application be refused.

Lake Erie & Northern Ry. Freight and Passenger Tariffs.

31,115. June 10.—Re application of Lake Erie & Northern Ry., under secs. 330 and 334 of the Railway Act, 1919, for approval of Supplement 1 to Standard Freight Tariff C.R.C. 165 and Supplement 1 to its Standard Passenger Tariff C.R.C. 23: Upon reading the submissions filed in support of the application and on behalf of the parties interested, the Board orders as follows:—That the company be authorized to publish and file a standard freight tariff showing an increase in freight rates on the basis of those authorized under the provisions of general order 308, Sept. 9, 1920; that the application for increased passenger fares be refused.

31,117. June 16.—Re application of Lake Erie & Northern Ry., under sec. 330 of the Railway Act, 1919, for approval of its Supplement 1 to Standard Mileage Freight Tariff C.R.C. 165: Upon it appearing that the said tariff is on the basis of the rates authorized under order 31,115, June 10; and upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the said supplement be approved.

Grand River Ry. Freight and Passenger Tariffs.

31,116. June 10.—Re application of Grand River Ry., under secs. 330 and 334 of the Railway Act, 1919, for approval of Supplement 1 to Standard Freight Tariff C.R.C. 57 and Supplement 1 to Standard Passenger Tariff C.R.C. 14: Upon reading what is filed in support of the application and on behalf of the parties interested, the Board orders as follows: That the company be authorized to publish and file a standard freight tariff showing an increase in freight rates on the same basis as those authorized under general order 308, Sept. 9, 1920; that the application for increased passenger fares be refused.

31,118. June 16.—Re application of Grand River Ry., under sec. 330 of the Railway Act, 1919, for approval of its Standard Mileage Freight Tariff, C.R.C. 57: Upon it appearing that the tariff is on the basis of the rates authorized under order 31,116, June 10, and upon the report and recommendation of the Board's Chief Traffic Officer, the Board orders that the said tariff be approved.

Coal Rates From Alberta.

31,124. June 13.—Re complaint of Canada West Coal Company, of Taber, Alta., and the International Coal & Coke Co., of Coleman, Alta., against the rates on coal from Lethbridge and Crowsnest districts to Winnipeg and intermediate points, as compared with rates prevailing from Drumheller and Rocky Mountain districts to Winnipeg and intermediate points: Upon hearing the complaint at Winnipeg, April 27, 1921, in the presence of counsel for the applicant companies, and what was alleged; and upon reading the written submissions filed on behalf of the Canadian National and the Canadian Pacific Rys., the Board orders that the complaint be dismissed.

Chatham, Wallaceburg & Lake Erie Passenger Tariff.

31,128. June 14.—Re application of Chatham, Wallaceburg & Lake Erie Ry., under sec. 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff C.R.C. 45: Upon reading what is filed in support of the application, the Board orders that the said tariff be approved.

31,138. June 18.—Re application of the Delaware, Lackawanna & Western Rd. for permission to file, on one day notice, effective July 1, a supplement to its tariff of exceptions to official classification, C.R.C. 1645: Upon it appearing that a similar application has been made to the Interstate Commerce Commission, and uniformity of action being advisable, the Board orders that the company be permitted to publish in Supplement 2 to its Tariff of Exceptions to tive July 1, upon one day notice, cor-Official Classification C.R.C. 1645, effec-rection in items 5-A and 54-A, as now appearing in Supplement 1 to the said tariff C.R.C. 1645, provided that similar authority be granted by the Interstate Commerce Commission.

Reduction of Standard Passenger Fares.

Chief Commissioner Carvell's judgment of Sept. 6, 1920, as published in Canadian Railway and Marine World for Oct. 1920, pg. 531, contained the following:—"Until Dec. 31, 1920, I would give a general increase of 40% in eastern freight rates, and 35% in western freight rates, with 20% both east and west in passenger fares, which, however, should not exceed 4c. a mile, 50% in sleeping and parlor car rates and 20% on excess baggage. Commencing Jan. 1, 1921, and until there is another revision of rates, I would reduce these percentages on freight to 35% in eastern territory and to 30% in western territory, with 10% reduction in passenger fares up to July 1, 1921, when passenger rates should come back to the basis in effect prior to the coming into force of this judgment; but continuing the full increases in parlor and sleeping car rates and excess baggage. It will, of course, be understood that the percentages of increases in the rates east and west of Port Arthur herein granted will, in the case of through rates between the east and the west, excepting transcontinental commodity rates, apply to the east and west factors thereof respectively." These recommendations were put into effect by general order 308, dated Sept. 9, 1920.

The board passed general order 342, June 9, 1921, as follows: Re application of railway companies subject to board's jurisdiction for approval of reduced standard passenger fares, to become effective July 1, 1921: Whereas supplements to standard passenger tariffs have been filed by the undermentioned railways, to become effective July 1, 1921, on the reduced basis prescribed by the board's judgment of Sept. 6, 1920, and general order 308, dated Sept. 9, 1920: The board orders that the following supplements to standard passenger tariffs be approved; the said supplements to be published in at least two consecutive weekly issues of The Canada Gazette, preceded by the following notice:—"The undermentioned supplements to standard passenger tariffs, effective July 1, 1921, having been filed for the approval of the Board of Railway Commissioners for Canada, and having been found by the board to be in accordance with its judgment, dated Sept. 6, 1920, and its general order 308, dated Sept. 9, 1920, and having been approved by its general order 342, dated June 9, 1921, the same are hereby published:—

Boston & Maine Rd., supplement 3 to C.R.C. no. 305.

Canadian National Rys., supplement 4 to Canadian Northern C.R.C. no. W-1492.

Canadian National Rys., supplement 3 to Canadian Northern C.R.C. no. E-1064.

Canadian National Rys., supplement 3 to Halifax & South Western C.R.C. no. P-77.

Canadian Pacific Ry., supplement 3 C.R.C. no. E-3187.

Central Vermont Ry., supplement 4 C.R.C. no. 502.

Dominion Atlantic Ry., Supplement 4 C.R.C. no. 404.

Fredericton & Grand Lake Coal & Ry., supplement 3 C.R.C. no. 4.

Glengarry & Stormont Ry., supplement 4 C.R.C. no. 2.

Grand Trunk Pacific Ry., supplement 4 C.R.C. no. 660.

Grand Trunk Ry., supplement 4 C.R.C. no. E-2669.

Great Northern Ry., supplement 4 C.R.C. no. 1161.

Maine Central Rd., supplement 4 C.R.C. no. 214.

Michigan Central Rd., supplement 4 C.R.C. no. 2441.

Napierville Jct. Ry., Supplement 4 C.R.C. no. 92.

New Brunswick Coal & Ry., supplement 3 C.R.C. no. 4.

New York Central Rd., supplement 5 C.R.C. no. 191.

Northern Pacific Ry. (Midland Ry. Co. of Manitoba), supplement 3 C.R.C. no. 317.

Pere Marquette Ry., standard passenger tariff 6 C.R.C. 609.

Quebec Central Ry., supplement 3 C.R.C. no. 174.

Toronto, Hamilton & Buffalo Ry., supplement 3 C.R.C. 1209.

Wabash Ry., supplement 3 C.R.C. no. 996.

Up to Dec. 31, 1920, the rates were 4c. a mile. On Jan. 1 they were reduced to 3.795c. a mile, and on July 1 they were further reduced to 3.45c. a mile. These reductions do not apply in territory west of the Rocky Mountains, where the standard rate was 4c. a mile prior to the advance made on Sept. 13, 1920. The reduction on July 1 was to the basis that was in effect prior to Sept. 13, 1920.

Higher Freight Rate Caused by Error in Routing.

The Grasselli Chemical Co., Cleveland, Ohio, complained to the Board of Railway Commissioners recently, that it shipped ore from Hamilton, Ont., to its Grasselli, New Jersey, works; that the bill of lading given by its representative in Canada to the freight agent, designated the Pennsylvania Lines as the carrier, and designated the freight rate as approximately $2.25; that at that time the freight rate over the G.T.R. from Hamilton was approximately $2.25, and that over the Pennsylvania Lines was approximately $3.25; and that it had been in the habit of shipping ore via the G.T.R., but through error the Pennsylvania Lines were designated. The company further alleged that the shipment referred to was made in 1913; that in 1918 it received from the Central Rd. of New Jersey freight due bills covering the difference between the $2.25 it paid on the shipment and the published tariff rate of $3.25, that it paid these two bills and filed a claim with the Central Rd. for the amount thereof; that in due time it received payment of the claim, but recently had received notice from the Central Rd. that the claim had been paid in error, and requesting a refund of the amount.

The Board's ruling was conveyed by a letter from its Secretary to the Grasselli Chemical Co. on May 9, 1921, as follows: "The Steel Co. of Canada wrote the Board on Oct. 30, 1918, as follows: 'Some time ago we shipped a car of pig-iron from Hamilton, consigned to Woodstock, N.B., on a C.P.R. bill of lading, and in error our shipper showed in the space provided on the bill of lading for routing "C.P.R. via Ste. Rosalie." As you are aware, specific commodity rates are in effect on pig-iron from Hamilton to various consuming points, including Woodstock, N.B., but this rate from Hamilton to Woodstock, N.B., applies only via C.P.R. direct. At the time this car was shipped, the C.P.R. biller at Hamilton billed the car at the specific commodity rate, applicable only via C.P.R. direct, but followed the routing instructions shown on the bill of lading, "C.P.R. via Ste. Rosalie," with the result that the car travelled via that route and arrived at the destination over St. J. & Q. Rd., with excess freight of $21.26, which was collected from consignee. We have taken the position that the C.P.R. biller at Hamilton had no right to send this car forward via route having no through rate in effect, without notifying us that such action was being taken, and, while we admit that the routing shown on the bill of lading was placed there in error by our shipper, at the same time we feel the railway company should have ascertained if it was our intention that the car go forward via that route before such action was taken. This seems to be the common sense view of the matter, but there may be some authorities on the subject with which we are not familiar.'

"The following answer was sent to the Steel Co. of Canada: 'The Board has recognized that the shipper has the right of routing, and it would appear that the higher rate resulting from an erroneous routing given by the shipper is one for the results of which the shipper is alone responsible. The only added feature that your letter covers is the statement that the C.P.R. biller billed the car at the specific commodity rate applicable via C.P.R. direct, which, however, did not apply via the routing as given by your shipper, with the result that the combination rate applied. The obligation of the railway, under the Railway Act, is to charge the tariff rate, that is the tariff rate for the route as given in the case you cite. The Board, therefore, would have no power to vary the rate by the routing as given and make applicable on a past transaction the rate applicable by another route.'

"I am directed to say that this appears to be on all fours with what is presented in the application."

Quebec Transportation Club.—The following were elected at the annual meeting in Quebec, June 7:—Hon. President, W. A. Kingsland, Assistant General Manager, Canadian National Rys., Montreal; 1st Hon. Vice President, W. J. Lynch, General Manager, Quebec Ry., Light & Power Co.; 2nd Hon. Vice President, E. J. Hebert, 1st Assistant General Passenger Agent, Eastern Lines, C.P.R., Montreal; President, J. S. Thom, President, Quebec & Levis Ferry Co.; 1st Vice President, J. A. Everell, Superintendent, Quebec Ry., Light & Power Co.; 2nd Vice President, S. J. Nestor, City Passenger Agent, Canadian National Rys., Quebec; Secretary-Treasurer, A. F. Dion, Traffic Manager, Quebec Harbor Commission; Executive Committee: C. A. Langevin, City Passenger Agent, C.P.R.; J. A. Cote, Car Accountant, Quebec Ry., Light & Power Co.; M. P. Conolly, General Agent, Canada Steamship Lines; W. J. Thompson, Manager, Quebec & Levis Ferry Co.; C. Senay, C.P.R.

Senator Cummins is reported to have stated, during a recent session of the U.S. Senate Committee enquiring into railway matters, that Federal control of railways, which existed for 26 months, cost the country $1,800,000,000.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, JULY, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 368
Birthdays of Transportation Men 352
Board of Railway Commissioners,—
Orders by, Summaries of 369
Traffic Orders 365
Booster Tests on Timiskaming & Northern Ontario Ry. Locomotives 356
Canadian National Rys. and Shipping, House of Commons Committee on 348, 362
Electric Railway Department .....377 to 382
Answers to Questions on Electric Railway Topics 380
Edmonton Radial Ry. Operation 378
Finance, Meetings, Etc. 380
Freight and Passenger Rates 382
Regina Municipal Ry., One-man cars 378
Toronto Transportation Commission 379, 382
Wages, working conditions, etc. 377
Winnipeg Electric Ry. Franchise, Fares, Etc. 379
Express Companies, Among the 375
Freight and Passenger Traffic Notes 355
Grain in Store at Elevators 374
Grand Trunk Ry.,—Arbitration 358
New Directorate 367
Mainly About Railway People 360
Marine Department .....383 to 400
Canada Steamship Lines annual meeting... 396
Canadian Government Merchant Marine, Shipbuilding, Operation, Etc. 386
Canal Openings, Traffic, Etc. 398
Grain Shipped from Fort William and Port Arthur 387
Reconditioning s.s. Prince Rupert 389
Sault Ste. Marie Canals Traffic 394
Shipbuilding, General 383
Ships Registered 392
Rail orders 375
Railway Earnings 375
Railway Finance, Meetings, Etc. 363
Railway Mechanical Methods and Devices 353, 354
Railway Operating Revenues, Expenses and Statistics for January 351
Railway Problems in the United States 373
Railway Rates, Maritime Provinces Demand for Special 370
Railway Wages Question in Canada and the United States 364
Telegraph, Telephone and Cable Matters 376
United States Railroad Labor Board orders Reduction in Wages 345

An Unjustifiable Strike by Printers, Etc.

Although the agreements between the employing printers of Toronto, including the job printers, and national newspaper and periodical publishers, and their compositors, pressmen and bookbinders, were entered into to continue until May 30, 1921, the rate of wages being $32 a week of 48 hours, the employers, a little over a year ago, recognizing that costs of living were advancing, consented to vary the agreements, and granted a bonus of 10%, making the weekly wages $35.20. Early in May of this year the Typographical Union's Toronto members, acting on orders from its headquarters in Indianapolis, demanded a reduction of hours from 48 to 44, and an increase of pay from $35.20 to $44, which would have entailed an increase of over 33% in the hourly rate. The pressmen's and binders unions made similad demands.

The employers' feeling that the demands were absolutely unreasonable, in view of the marked reductions in the cost of living, the general deflation going on, and the reductions being made in wages generally, decided they would not be justified in granting terms which would require greatly increased prices for job printing, subscriptions and advertising, and refused the demands, and the union men went on strike on June 1 and are still out.

There is absolutely no doubt that the majority of the public are emphatically against the unions' demands and will submit willingly to any little inconveniences which they may experience, in delays in getting job printing done, or in irregularity in the issue of publications, rather than see the demands acceded to. These are not times for reduction of hours of labor, or for increases in pay, and the unreasonable demands of the unions, which are under foreign control, must be fought to a finish.

Canadian Railway and Marine World, being produced in an open shop, has not been affected by the strike, but many of its contemporaries have been, and in several cases have had to be got out by considerably depleted staffs or to be printed outside of Toronto. For them we bespeak every consideration and assistance.

Postponement of the June Mechanical Meetings.

As announced previously in Canadian Railway and Marine World, the American Railway Association's Mechanical Division, which embraces the former American Railway Master Mechanics Association, and the Master Car Builders Association, decided, in consequence of the financial stress and serious business condition in the United State, not to hold the annual convention which had been arranged for Atlantic City in June. Instead of the convention, a two days meeting was decided on, to be held at Chicago on June 15 and 16, the usual manufacturers' exhibits to be omitted. On June 9 it was announced that the meetings had been postponed to June 29 and 30, and on June 21 it was further announced that on account of mechanical men being engaged in formulating new working conditions for submission to the U.S. Labor Board, and consequently being unable to attend, the meetings had been again postponed, that in view of the unsettled conditions for the next few weeks no date had been set for the meetings to be held, but that just as soon as conditions warranted, the general committee would fix dates, giving members 15 days advance notice.

The second and entirely unexpected postponement of these meetings has put Canadian Railway and Marine World to considerable inconvenience and expense. As usual, the reports of the various standing committees were supplied to us in advance, on the understanding that they would not be published until after their presentation at the meetings. We had them put in type, and a number of them were actually printed in the forms for this issue, when notice of the second postponement was received, the result being that we had to destroy the printed pages, and to keep the type standing for use in some subsequent issue.

The Grand Trunk Railway's New Directorate.

The nominations, by the Dominion Government, of persons to become directors of the Grand Trunk Ry. Co. of Canada, in place of the directors elected by the shareholders, were announced in Canadian Railway and Marine World for June, viz., Sir Joseph Flavelle, Bart., Toronto; J. N. Dupuis, of Dupuis Freres, dry goods merchants, Montreal; H. G. Kelley, theretofore President, G.T.R.; A. J. Mitchell, Vice President, Finance and Accounts, Canadian National Rys., and E. L. Newcombe, K.C., Deputy Minister of Justice, Ottawa. These nominees were elected at meetings of the G.T.R. directors, in London, Eng., the latter retiring.

The first meeting of the new board of directors was held in the G.T.R. offices in Montreal on May 28, when notifications of the resignations of the members of the previous board, and of the appointment of the members of the new board were submitted. Sir Joseph Flavelle was elected Chairman of the Board, and H. G. Kelley was elected President of the company.

An official statement issued after the meeting said:—"General questions relating to organization and consolidation of facilities were discussed. The date for regular meetings of the board was determined and provision was made for extra meetings at the call of the Chairman. It is expected that the unification of the Canadian National and the Grand Trunk Railways will now proceed rapidly, with resulting satisfactory economies and efficiency in operating results."

We have since been advised that the second Monday of each month was selected for the directors' regular meetings. The committee of management, which was appointed some time ago, to co-ordinate the G.T.R. service with the Canadian National Rys., and which consisted of H. G. Kelley, President, G.T.R., as Chairman; C. A. Hayes, Vice President, Traffic, and S. J. Hungerford, Vice President, Operation and Maintenance, Canadian National Rys., representing the Dominion Government, and W. D. Robb, Vice President, Transportation, Construction and Maintenance, and Frank Scott, Vice President and Treasurer, G.T.R., representing that company, ceased to function on the appointment of the new board, as provided for in the act passed at the Dominion Parliament's recent session.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canada Steamship Lines Ltd.—Canadian Railway and Marine World for June stated that DR. W. L. McDOUGALD, President, Century Coal Co., and Ogdensburg Coal & Towing Co., was reported to have been appointed Director of Operation, Canada Steamship Lines, to succeed H. W. Cowan, resigned. We are advised that the report referred to, which appeared in Montreal and other daily papers, was incorrect, and that Dr. McDougald was elected a director of Canada Steamship Lines at the recent annual meeting, but does not hold any other position in the company.

T. R. ENDERBY, Operating Manager, has been given charge of the work formerly under Mr. Cowan's control, and we are advised that it is not the management's intention to fill the position of Director of Operation.

C. C. BONTER, heretofore General Baggage Agent, has been appointed Assistant to President, and Assistant Treasurer. Office, Montreal.

Canadian National Rys. — G. C. BRIGGS, heretofore Architect, Eastern Lines, Toronto, has been appointed Architect, Western Lines, vice John Schofield, transferred to Toronto. Office, Winnipeg.

J. T. B. FOOTE, heretofore Assistant Manager, Fort Garry Hotel, Winnipeg, has been appointed Manager, Prince Edward Hotel, Brandon, Man., vice J. Van Wyck, appointed Manager, Minaki Inn.

A. H. JONES, heretofore Assistant Engineer, Canadian Government Rys., Moncton, N.B., has been appointed Assistant Engineer to Engineer of Standards, Canadian National Rys., Toronto.

D. B. NIBLOCK has been appointed Special Ticket Auditor in charge of ticket collectors, Canadian Northern Ry. System and Grand Trunk Pacific Ry. Office, Toronto.

C. S. G. ROGERS has been appointed Assistant Bridge Engineer, Eastern Lines, Moncton, N.B., vice R. O. Stewart, transferred to Engineer of Standard's staff at Toronto.

JOHN SCHOFIELD, heretofore Architect, Western Lines, Winnipeg, has been appointed Architect, Eastern Lines, vice G. C. Briggs, transferred to Winnipeg. Office, Toronto.

J. VAN WYCK, heretofore Manager, Prince Edward Hotel, Brandon, Man., has been appointed Manager, Minaki Inn, Minaki, Ont.

Canadian Pacific Ry.—F. DALY, heretofore Travelling Passenger Agent, Victoria, B.C., has been appointed City Ticket Agent, Vancouver, B.C.

S. C. BURKETT, heretofore chief clerk to Assistant Freight Traffic Manager, Montreal, has been appointed acting Assistant General Freight Agent, vice C. E. Jefferson, promoted. Office, Montreal.

C. E. JEFFERSON, heretofore acting Assistant General Freight Agent, has been appointed acting General Freight Agent. Office, Montreal.

D. R. KENNEDY, heretofore Assistant District Passenger Agent, Montreal, has been appointed General Agent, Passenger Department, Buffalo, N.Y., vice G. O. Walton, resigned.

R. E. LARMOUR, heretofore General Freight Agent, Montreal, has been appointed acting Assistant Freight Traffic Manager, during the absence for an indefinite period, through illness, of H. E. Macdonell. Office, Montreal.

ROY McMORRAN has been appointed Travelling Passenger Agent, Vancouver, B.C., vice F. H. Daly, promoted.

A. L. PRESTON, heretofore Assistant General Freight Agent, Minneapolis, St. Paul & Sault Ste. Marie Ry., St. Paul, Minn., has been appointed General Agent, Freight Department, C.P.R., M. St. P. & S.S.M.R., Duluth, South Shore & Atlantic Ry., and Spokane International Ry., New York, N.Y., vice M. S. Throne, deceased.

M. J. ROHNE, heretofore Roadmaster, Expanse Subdivision, Moose Jaw Division, Saskatchewan District, Assiniboia, Sask., has been appointed Roadmaster, Kerrobert Subdivision, Moose

John Schofield,
Architect, Eastern Lines, Canadian National Railways.

Jaw Division, Saskatchewan District, Kerrobert, Sask., vice L. Herbert, transferred.

P. TAPSEY has been appointed Roadmaster, Expanse Subdivision, Moose Jaw Division, Saskatchewan District, Assiniboia, Sask., with territory from Assiniboia to Aneroid, Sask., vice M. J. Rohne, transferred.

Duluth, South Shore & Atlantic Ry.—See Canadian Pacific Ry.

London & Port Stanley Ry. — G. E. LENHART, Master Mechanic, has been appointed acting Superintendent in charge of Transportation and Mechanical Departments. Office, London, Ont.

Minneapolis, St. Paul & Sault Ste. Marie. Ry.—See Canadian Pacific Ry.

Ottawa & New York Railway—Ottawa Division, New York Central Rd.—G. D. DAGER, Superintendent, Adirondack Division, New York Central Rd., Utica, N. Y., who has had his jurisdiction extended over the Ottawa & New York Ry. and the Ottawa Division of the New York Central Rd., in consequence of the death of S. R. Payne, advises that no changes will be made at Ottawa, and that while, as Superintendent, he is located at Utica, the office maintained heretofore at Ottawa will remain there, with the same other local officials as heretofore.

Pennsylvania Rd.—T. L. COOK has been appointed Canadian Freight Agent, Toronto.

H. E. HALL has been appointed Canadian Passenger Agent, Toronto.

Spokane International Ry.—See Canadian Pacific Ry.

Timiskaming & Northern Ontario Ry. Col. J. I. McLAREN and LIEUT.-COL. L. T. MARTIN, D.S.O., have been appointed commissioners, vice J. L. Englehart, deceased, and Dr. R. E. Preston, ex M.L.A., resigned.

Cancellation of Trains on Canadian National Railways.

The following discussion took place in the House of Commons recently:—

G. Parent, Quebec West:—May I ask the Minister of Railways if his department has anything to do with the cancellation of certain trains on the Canadian National Rys.?

Hon. J. D. Reid, Minister of Railways The Railways Department has nothing whatever to do with the cancellation of trains, or in fact with anything connected with the operation of the road.

Mr. Parent:—I want to find out from the Minister, because on Feb. 28 he answered that the Government had something to do with the cancellation of trains and was in possession—

The Speaker:—On the orders of the day there can be no cross-questioning of ministers; any answer received must be accepted.

Jacques Bureau, Three Rivers:—Are the Canadian National Rys. operated under the Canadian National Railways Aet, passed by this Parliament some years ago?

Mr. Reid:—No, that act has not yet been brought into force.

E. H. Fitzhugh vs. Central Vermont Railway, et al.—In regard to this suit, particulars of which were given in Canadian Railway and Marine World for June, pg. 314, we are officially advised that no evidence was submitted at the hearing fixed for Concord, N.H., on May 17, and that the hearing was postponed to Sept. 6.

C.P.R. Annual Inspection. — E. W. Beatty, K.C., President, C.P.R., and Grant Hall, Vice President, have completed a trip of inspection over most of the company's eastern lines. The inspection will be extended to Vancouver, where the President is expected early in July.

Railway Lands Patented. — Letters-patent were issued during May for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	26.84
Canadian Pacific Ry.	3.63
Manitoba Southwestern Colonization Ry.	154.63
Total	185.10

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 340. May 19.—Extending from June 1 to June 15 time in which all railway companies may withdraw Special Instruction E from their respective working timetables. This order was given in full in our last issue.

General order 341. May 21.—Requiring all railway companies subject to Board's jurisdiction, interested in coal movement in the three Prairie Provinces to reduce rates on coal from mines in Alberta and Saskatchewan to points in Alberta, Saskatchewan and Manitoba, by 10%. This order was given in full in our last issue.

General order 342. June 9.—Approving supplements to Standard Passenger Tariffs of a number of railway companies to bcome effective July 1, on reduced basis prescribed by the Board's judgment of Sept. 6, 1920, and general order 308, Sept. 9, 1920. This order is given in full under "Traffic Orders by Board of Railway Commissioners, on another page of this issue.

31,032. May 17.—Relieving Canadian National Rys. and C.P.R. from maintaining a night signalman and authorizing them to close tower on Sundays at crossing of C.P.R. Pheasant Hill Branch, Balcarres, Sask.

31,033. May 16.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Jarrow, Alta.

31,034. May 17.—Extending to Aug. 31, time in which Canadian National Rys. shall complete alterations to interlocking plant at connection between its St. Maurice and Montreal Divisions at Allenby Jct., mileage 5.6 St. Lawrence Subdivision.

31,035. May 16.—Rescinding order 30,903, Apr. 15, authorizing C.P.R. to build spur for M. & L. Samuel Benjamin & Co., Toronto.

31,036. May 18.—Ordering G.T.R. to install two automatic bells and wigwag signals, within 60 days, at Haggerty St., Newbury, Ont.

31,037. May 18.—Authorizing Canadian National Rys. to make highway crossing between east and west halves of Sec. 4, Tp. 11, Range 14, west 2nd meridian, Sask., and to close farm crossing in n.e. ¼ Sec. 4.

31,038. May 18.—Ordering Canadian National Rys. to build spur for Scottish Manitoba Co., Winnipeg.

31,039. May 20.—Approving agreement between Bell Telephone Co. and Mayo & Blanche Rural Telephone Co.

31,040. May 20.—Authorizing Canadian National Rys. to open for traffic its connection with Timiskaming & Northern Ontario Ry., at North Bay, Ont.

31,041. May 25.—Extending to Aug. 1 time within which C.P.R. may install gates at crossing of Waterloo and Pall Mall Sts., London, Ont.

31,042. May 25.—Authorizing Michigan Central Rd. to remove the interlocker at Niagara Jct., Ont.

31,043. May 28.—Suspending portion of item 10-A in Supp. 4, to C.P.R. Tariff C.R.C. no. E-3839, and portion of item 84-A in G.T.R. Supp. 18, to Tariff C.R.C. no. E-4219, pending hearing to be fixed by Board.

31,044. May 28.—Authorizing C.P.R. to build siding and spur for Imperial Oil, Ltd., Brandon, Man.

31,045. May 28.—Authorizing Great Northern Ry. to issue annual pass between Brandon and Bannerman, Man., in favor of W. Little, Dominion Veterinary Inspector.

31,046. May 20.—Declaring that Canadian National Rys. crossing near Cardinal, Man., is protected to Board's satisfaction.

31,047. May 20.—Dismissing complaint of Canada Starch Co., Cardinal, Ont., re claim against G.T.R. for demurrage charges assessed during influenza epidemic in 1918.

31,048. May 30.—Approving Vancouver, Victoria & Eastern Ry. & Navigation Co.'s plan showing deviation, and scheme for drainage and dyking of lands in Sumas District, B.C.

31,049. May 25.—Declaring that Canadian National Rys. crossing at Rockland, Ont., is protected to Board's satisfaction.

31,050. May 30.—Approving agreement of Bell Telephone Co. and Pembroke & Mud Lake Telephone Co., Renfrew County, Ont.

31,051. May 30.—Refusing application of Toronto & York Radial Ry. for reconsideration of order 30,296, for apportionment of cost of protection at crossing of Kingston Road, near West Hill, Ont.

31,052. May 30.—Approving agreement between Bell Telephone Co. and St. Marys Telephone System, Shefford County, Que., and rescinding order 28,107.

31,053. May 30.—Authorizing C.P.R. to build spur for Fraser Valley Farmers Feed Association, Mission, B.C.

31,054. May 30.—Authorizing Sandwich West Tp., Ont., to extend Curry Ave. over Essex Terminal Ry.

31,055. May 28.—Authorizing Grand Trunk Pacific Ry. to build spur for Swift Canadian Co., Edmonton, Alta.

31,056. May 30.—Authorizing London & Port Stanley Ry. to build two tracks across Bridge St., Port Stanley, Ont.

31,057. May 30.—Dismissing application of Oppenheimer Casing Co. of Canada, Toronto, regarding classification of sausage casings shipped by express.

31,058. May 30.—Amending order 28,631 apportioning cost of protection at crossing of G.T.R. Union Stock Yard Branch and Toronto Suburban Ry. at Keele St., Toronto.

31,059, 31,060. June 2.—Authorizing New Brunswick Public Works Department to divert highway on C.P.R. between Ketepec and Acamac, and between Nerepis and Blagdon.

31,061. June 1.—Extending to June 4, 1922, time within which C.P.R. may complete two spurs for Northern Aluminum Co., Toronto, authorized by order 30,636.

31,062. May 25.—Authorizing Ottawa Electric Ry. to disconnect derail switches from interlocking plant at crossing of G.T.R. at junction of Albert and Broad Sts., Ottawa.

31,063. June 1.—Dismissing application of Canadian National Rys. to remove station agent at Strathcona, Ont.

31,064. June 1.—Authorizing Canadian National Rys. to make highway crossing in station yards at Lucky Lake, Sask., at expense of Saskatchewan Public Highways Department.

31,065. June 7.—Authorizing New England Freight Association to cancel on one day notice certain schedules naming regulations governing unrouted shipments.

31,066. May 25.—Authorizing Canadian National Rys. to build spur for Hunter Lumber Co., being an extension of Imperial Oil spur, Fort Saskatchewan, Sask.

31,067. May 25.—Authorizing Canadian Northern Ry. to extend highway across its tracks at Redwater, Alta.

31,068. May 30.—Authorizing C.P.R. to remove station agent at Versailles, Que., caretaker to be appointed.

31,069, 31,070. June 2.—Authorizing Bell Telephone Co. agreements with Gloucester Township Telephone Co., Carleton and Russell Counties, and Allenford Rural Telephone Co., Bruce and Grey Counties, Ont., and rescinding order 27,135.

31,071. June 1.—Relieving Michigan Central Rd., so long as existing conditions continue, from maintaining night watchman to operate crossing of Pere Marquette Ry. at Courtright Jct., Ont.

31,072. June 1.—Authorizing G.T.R. to operate over Harris Abattoir Co.'s spur, Toronto.

31,073. June 2.—Ordering C.P.R., J. Booth and J. Smith, to clean out ditch at Bar River, Ont.

31,074. June 2.—Authorizing use of subway under G.T.R. at St. Paul's Ave., Brantford, Ont.

31,075. June 1.—Extending to May 31, 1922, time within which C.P.R. may build spur for Rock Creek Lumber Co., in Lot 4588, Group 1, East Kootenay District, B.C.

31,076. May 25.—Authorizing G.T.R. to connect with Canadian National Rys. on Lot 13, Con. 1, Pembroke Tp., Renfrew County, Ont.

31,077. June 2.—Extending to July 1, time within which Canadian Northern Ry. may build spur for municipal power plant, Prince Albert, Sask., authorized under order 30,714, March 7.

31,078. June 2.—Declaring that G.T.R. crossing at Woodbine Ave., Toronto, is protected to Board's satisfaction, and relieving G.T.R. from maintaining automatic bell installed under order 17,961, Nov. 8, 1912.

31,079. June 4.—Ordering Toronto, Hamilton & Buffalo Ry. to build foot bridge over its tarcks at Sherman Ave., Hamilton, Ont.

31,080. June 2.—Extending to Aug. 31, time within which C.P.R. may build spur for Dominion Brass & Iron Bedstead Co., Outremont, Que., authorized under order 29,689, June 2, 1920.

31,081. June 4.—Ordering C.P.R. to make level approaches on south side of crossing between Secs. 14 and Tp. 15, Range 2, and on north side of crossing between Secs. 21 and 22, Tp. 13, Range 3, west 4th meridian, Pashley Northeasterly Branch, and amending order 30,933.

31,082. June 6.—Ordering C.P.R. to appoint station agent at McTavish, Man.

31,083 to 31,085. June 8.—Authorizing St. Thomas Municipal Ry., pending further order, to operate p.a.y.e. one-man cars over London & Port Stanley Ry., on Wellington, Elm and Talbot Sts., St. Thomas, Ont.

31,086. June 6.—Approving location of Canadian Northern Ry. Acadia Valley Branch, mile 23.03 to 43.36, Alberta, and authorizing crossing of highways.

31,087. June 6.—Extending to June 30, time within which Canadian Northern Ry. may make crossing and diversion in n.w. ¼ Sec. 30, Tp. 11, Range 26, west 2nd meridian, Sask.

31,088. June 8.—Approving G.T.R. layout of bell, etc., at the crossing 335 ft. east of Caledonia Station, Ont., first track north of the station to be bonded, with a cutout opposite station.

31,089. June 4.—Declaring that G.T.R. crossing over public road 1½ miles east of Baden, Ont., is protected to Baord's satisfaction.

31,090. June 6.—Amending order 30,892, Apr. 11, re overhead crossing and highway approaches at mile 6, Lunenburg Subdivision, Halifax and South Western Ry.

31,091. June 8.—Authorizing Saskatchewan Highways Department to make highway crossing over C.P.R. on surveyed road running east and west through Sec. 6, Tp. 40, Range 19, west 3rd meridian, Sask.

31,092. June 4.—Extending to Nov. 29, time within which C.P.R. may build spur for Milverton Furniture Co., Milverton, Ont., authorized by order 30,379.

31,093. June t4.—Dismissing C.P.R. application to divert road allowance on west boundary of n.w. ¼ Sec. 3, Tp. 12, Range 24, west principal meridian, Man.

31,094. June 4.—Declaring that C.P.R. crossing ½ mile east of Foxwarren, Sask., is protected to Board's satisfaction.

31,095. June 4.—Declaring that Canadian National Rys. crossing, 4.2 miles north of Ericsdale, Man., is protected to Board's satisfaction.

31,096 to 31,099. June 2, 7.—Approving Bell Telephone Co. agreements with Johnson Municipal Telephone System; Lcuknow & Kinloss Telephone Co., Bruce County, Ont.; Sandwich South Tp., Ont., rescinding orders 26,007, Apr. 10, 1917, and 11,827, Sept. 29, 1910; and Waterloo Municipal Telephone System, Waterloo County, Ont., rescinding orders 21,430 and 22,482.

31,100. June 8.—Dismissing National Dairy Council's application for reconsideration of order 28,883, Oct. 9, 1919, for reduction in express classification of ice cream from first to second class.

31,101. June 9.—Relieving Grand Trunk Ry. from speed limitation of 10 miles an hour when watchman is on duty at crossing at Beaconsfield, Que.

31,102. June 8.—Authorizing St. Thomas Municipal Ry. to operate one-man p.a.y.e. cars over Pere Marquette Ry. on Wilson Ave., St. Thomas, Ont.

31,103. June 7.—Amending order 18,242, Nov. 19, 1912, re crossing of Brandon Municipal Ry. and Canadian National Rys. at Brandon, Man., so that gate protection be suspended, and that empty cars to and from car barns be flagged over, and rescinding order 21,106, Dec. 26, 1913.

31,104. June 8.—Ordering C.P.R. to appoint station agent at Osborne, Man., by Sept. 15, caretaker to be appointed in the meantime.

31,105. June 6.—Rescinding order 15,565, Dec. 6, 1911, authorizing Grand Trunk Pacific Branch Lines Co. to build spur for Calgary Collieries, Ltd., in Sec. 29, Tp. 38, Range 23, west 4th meridian, Alta.

31,106. June 2.—Ordering G.T.R. to protect crossing of Kelly St., Hamilton, Ont., by flagman between 9 a.m. and 7 p.m. daily.

31,107. June 6.—Ordering C.P.R. to install automatic bell with wigwag signal at crossing near Moffat station, Ont.

31,108. June 9.—Authorizing Canadian Northern Ry. to cross and divert highway at corner of John St. and Third Ave., North Bay, Ont.

31,109. June 10.—Ordering that tolls to be charged by Bell Telephone Co. for service in village of Rockcliffe shall be same as those now charged within distance limited by maximum air line distance from Queen exchange to boundaries of Hull, Que., as they existed at Apr. 4, 1912.

31,110. June 9.—Authorizing Saskatchewan Highways Department to make highway across C.P.R. station grounds at Ravenscrag, Sask.

31,111. June 4.—Declaring that Napierville Jct. Ry. crossing over first highway north of Lacolle, Que., is protected to Board's satisfaction.

31,112. June 10.—Authorizing Canadian National Rys. to build bridge over Red Deer River, mile 59, Hanna-Medicine Hat Branch, Alta.

31,113. June 10.—Approving agreement between Bell Telephono Co. and Parkhill Rural Telephone Co., Middlesex County, Ont.

31,114. June 9.—Dismissing application of National Dairy Council for order directing a reduction of 10c. on ice cream and 5c. on returned empties by express, from and to points where wagon service is provided by express companies, whenever service is not furnished as required, thus necessitating cartage by shippers and receivers respectively.

31,115, 31,116. June 10.—Authorizing Lake Erie & Northern Ry. and Grand River Ry. to publish standard freight tariffs showing increase in freight rates on basis of those authorized by gen-

eral order 308, Sept. 9, 1920; and dismissing application for increased passenger rates.

31,117, 31,118. June 16.—Approving Lake Erie & Northern Ry. standard mileage freight tariff supp. 1 to C.R.C. 165, and Grand River Ry. standard mileage freight tariff C.R.C. 57.

31,119. June 10.—Ordering G.T.R., within 15 days, to restore farm crossing on property of Ed. Phaneuf, St. Hyacinthe Parish, Que.

31,120. June 10.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Tallman Brass & Metal Ltd., Hamilton, Ont.

31,121. June 16.——Approving location and details of Canadian National Rys. station at Prince Rupert, B.C.

31,122. June 16.—Extending to June 30, time within which Canadian National Rys. may divert road in s.w. ¼ Sec. 5, Tp. 39, Range 24, west 4th meridian, Alta., as required by order 30,761, March 11.

31,123. June 16.—Authorizing British Columbia Public Works Department to build highway bridge over C.P.R. at mile 15.2 west of Revelstoke, near Three Valley, B.C.

31,124. June 13.—Dismissing complaint of Canada West Coal Co., Taber, Alta., and International Coal & Coke Co., against rates on coal from Lethbridge and the Crowsnest Districts to Winnipeg and intermediate points, a scompared with rates prevailing from the Drumheller and Rocky Mountain Districts to Winnipeg and intermediate points.

31,125. June 10.—Amending order 29,672, directing Grand Trunk Pacific Ry. to build station at Bechard, Sask.

31,126. June 16.—Authorizing British Columbia Public Works Department to build highway bridge over C.P.R. at mile 8.7 west of Revelstoke, near Clanwilliam, B.C.

31,127. June 14.—Authorizing G.T.R. to build spur for MacConnell & Hicklin, on Lot 10, Con. 3, Canboro Tp., Ont.

31,128. June 14.—Approving Chatham, Wallaceburg & Lake Erie Ry. standard passenger tariff C.R.C. 45.

31,129. June 14.—Extending to Sept. 30 time within which G.T.R. may complete station building at Allanburg, Ont.

31,130. June 14.—Authorizing C.P.R. to build spur for British American Oil Co., at mile 65.10 Windsor Subdivision, Chatham, Ont.

31,131. June 14.—Authorizing G.T.R. to build spur for Imperial Steel & Wire Co., Collingwood, Ont.

31,132. June 14.—Authorizing Canadian Northern Pacific Ry. to build transfer slip and trestle at Victoria, B.C., on south shore of harbor and south of Point Ellice bridge.

31,133. June 14.—Authorizing Canadian Northern Ontario Ry. to build across C.P.R. in Lot 285, Nord de la Cote des Anges Concession, St. Augustin Parish, Que.

31,134. June 11.—Authorizing G.T.R. to install, in lieu of watchmen, required by order 27,768, improved type of automatic bell and wigwag signal at crossing of Ingersoll Road, Woodstock, Ont.

31,135. June 16.—Extending to Aug. 1 time within which London & Port Stanley Ry. may make highway crossing at bend of Carlow Road, at north end of its yard, Port Stanley, Ont.

31,136. June 16.—Ordering 10% of cost of maintaining watchmen at G.T.R. crossing of Hurontario St., Port Credit, Ont., assessed against Toronto Tp., Ont., to be paid by Ontario Public Highways Department.

31,137. June 13.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Lorlie, Sask., by Sept. 1.

31,138. June 18.—Authorizing Delaware, Lackawanna & Western Rd. to file Supplement 2 to its tariff of exceptions to official classification C.R.C. 1,645, effective July 1, on one day notice, correction in items 5-A and 54-A, as now appearing in Supplement 1 to C.R.C. 1,645.

31,139. June 10.—Authorizing Canadian Northern Ry. to build additional tracks across Fraser St., North Bay, Ont.

31,140. June 16.—Ordering that L'Anse au Beaufils, flag station at mile 63.25, Atlantic, Quebec & Western Ry., be moved and placed at Caron's Siding mile 63.25, Gaspe County, Que., caretaker to be appointed.

31,141. June 14.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Lousana, Alta., by July 15.

31,142. June 17.—Authorizing Canadian Northern to build spur for Purpore Bros., at mlie 86.2 Ruel Subdivision, Sudbury District, Ont.

31,143. June 17.—Approving plan and specifications of work done on municipal drain 13, under G.T.R. in Minto Tp., Ont.

31,144. June 14.—Declaring that for the present C.P.R. crossing near Dalhousie Mills station, Ont., is protected to Board's satisfaction.

31,145. June 17.—Extending to Aug. 31, time within which C.P.R. may build spurs for Cowan Co., Toronto, authorized by order 29,695, June 20, 1920.

31,146. June 13.—Authorizing Western Terminal Elevator Co. to build connecting track from Canadian National Rys. to tracks east of easterly switch, Fort William, Ont., and to cross Paterson spur near King St., all trains to stop before crossing.

The Maritime Provinces' Demand for Special Railway Rates, Etc.

The agitation in the Maritime Provinces for special freight rates and other concessions in connection with the Intercolonial Ry., which was dealt with very fully in Canadian Railway and Marine World for May and June, has been growing steadily, and culminated in about seventy Government, industrial and other representatives of the three Maritime Provinces appearing before Premier Meighen and some of his cabinet at Ottawa on June 1. The delegates included Premier Bell of Prince Edward Island; Hon. R. E. Finn, minister without portfolio in the Nova Scotia Government; Ivan Rand, K.C., representing the New Brunswick Government; G. L. Stairs, President of the Halifax Board of Trade; H. J. Logan, representing the Maritime Board of Trade and the Maritime Stock Breeders' Association; R. Hendry, President, Commercial Club, Halifax, and representatives of the Canadian Manufacturers' Association, Maritime Division, various merchants' associations and boards of trade. Members of the Dominion Parliament from the Maritime Provinces were also present.

The delegates demanded: (1) That the Intercolonial Ry. be disassociated from the Canadian National Rys., and operated as a separate unit. (2) That the Intercolonial management be located at Moncton, so that it would have a thorough understanding of the conditions and needs of the Maritime Provinces and be in a position to meet them. (3) That freight rate concessions and differentials enjoyed formerly by the Provinces should be again put into force, so far as it is possible to do this without injustice to the remainder of Canada. (4) That the Intercolonial Ry. be operated under the direction of the Minister of Railways, and that it be not subject to the Board of Railway Commissioners' regulative powers.

In making these demands, the delegates laid great emphasis on the British North America Act, sec. 145 of which provided for the construction of the railway as a condition of Confederation, or rather, it should be said, they placed great emphasis on their interpretation of that clause. They argued that the Dominion's obligation in the matter is a continuing one, and was not discharged by simply building the railway; the interests of the Maritime Provinces being continually at stake, and that the terms upon which those provinces entered Confederation would not be fulfilled unless, in the operation of the railway, their the first two of the demands, it was stated that centralization of the I.R.C. interests are protected. In support of management in the Maritime Provinces is necessary to protect their rights from the "autocracy of Ontario and Quebec"; that the location of the Intercolonial management at Toronto deprives the Maritime Provinces of the whole value of the Intercolonial Ry., for its "special purposes," and that therefore a management sympathetic with Maritime needs should be appointed, and located at Moncton.

In speaking of present rates, the delegation advanced the argument that the Ontario and Quebec canals were built and are maintained by the Dominion, the Maritime Provinces contributing their share through taxation. These canals, they said, are operated without tolls in the interests of Ontario and Quebec, and therefore the Maritime Province producers, in their own interests, should have special rates on the Intercolonial. It was further pointed out that, prior to Confederation, the Maritime Provinces enjoyed a large volume of trade with the United States; that they are now shut out of the U.S. market by high tariff walls, which possibly might not have been raised against them if they had not entered Confederation and had retained their right to bargain with the U.S. independently. In addition to being barred from the U.S. market, they claimed they are also barred from the Quebec, Ontario and Western Canada markets by high freight rates and vastly increased differentials (See Canadian Railway and Marine World for May, page 259), and stated that unless relief were granted, the Maritime Provinces' industrial development would be seriously restricted.

In demanding that the Intercolonial be operated under the Minister of Railways and that the Board of Railway Commissioners have no jurisdiction over it, the delegates claimed that the Commission is "purely a legal organization" and would treat the Intercolonial on a "mile for mile basis." The delegates claimed that economic regulation of the Intercolonial Ry. by the Board of Railway Commissioners would be fatal to their interests, and would constitute a violation of the Confederation terms.

In reply to the representations, Premier Meighen is reported to have stated that they would receive close attention, and that whatever could be done, without injustice to any other part of Canada, would be done. He pointed out that freight rates all over the country are high, and agreed that any special disability of the Maritime Provinces is accentuated by the present high rates.

On June 4, various members from the Maritime Provinces referred in the House of Commons to the delegation's visit, and spoke at length in support of the demands made. On June 7, Hon. R. E. Finn, minister without portfolio in the Nova Scotia Government, met D. B. Hanna, President, Canadian National Rys., in Toronto, and laid before him the views of Maritime Province interests.

An examination of these Maritime Province demands discloses the fact that they suggest what would be great injustices in so far as the other Canadian provinces are concerned, and that the supporting contentions put forward by the Maritime representatives have no foundation in fact. Great stress is laid by them on the statement that the promises of the Confederation agreement are not being carried out by the Dominion. On analysis, the fallacious

nature of this argument is fully apparent. The provisions of the agreement which concerned railway construction were given fully in Canadian Railway and Marine World for May, pg. 259. They were carried out long since by the building of the railway between Riviere du Loup and Truro, and beyond the construction of the railway the agreement did not go, so far as we have been able to determine. There were, in the agreement, no provisions that preferential rates were to be given the Maritime Provinces, or that the railway was to be operated at a loss, with the deficiency made up through taxation, or that the railway was to become and remain a great instrument for the furtherance of political aspirations. The only grounds upon which the Maritime Provinces could claim the right to use the railway in this way would be that it had been so used in the past; but the mere fact of an unjust condition having been brought about is certainly no reason for its continuance. Obviously, then, the position taken by the Maritime Province delegates, in claiming that the Confederation agreement has been violated, is thoroughly untenable.

The argument that Ontario and Quebec canals are operated without toll, in the interests of the trade and industrial expansion of those provinces, while the Maritime Provinces bear their portion of the cost of them, is equally fallacious. The Intercolonial Ry. has always been operated at a loss, and has yielded no return on its capital cost. Although its present capital cost is officially placed at $152,000,000, and the Prince Edward Island Ry. at $12,300,000, the accumulated cost to the country for the two railways, figuring in losses and interest, is in the neighborhood of $570,000,000. The fact is that a free right of way has been provided over the Intercolonial in the same way that a free right of way has been provided through the canals. People using the canals pay the cost of transportation through them, as people using the Intercolonial pay for transportation on it, but there is this difference, viz., that the people using the canals have paid for transportation a charge equal to the cost of producing it, plus a fair profit, while the people using the Intercolonial have obtained their transportation at less than the cost of providing it. The members of the delegation would have been well advised not to have advanced that argument.

The demand that the Intercolonial Ry. should be operated as a unit, separately from the Canadian National Rys., and managed from Moncton, could not be met without injustice to all other parts of Canada. The complaint by the Maritime Provinces interests that the Canadian National Rys. lines in those provinces cannot be satisfactorily managed from Toronto carries no more weight than would a complaint from Alberta, that Canadian Pacific Ry. lines in that province are not efficiently operated because the C.P.R. headquarters are in Montreal. If the Maritime Provinces' demands were to be complied with, it would mark the first step in the disintegration of the Canadian National Rys. system. The people of this country have spent large sums in building and acquiring their various railways, and it is conceded that co-ordination of these lines into one system, accompanied by the elimination of duplicate managerial and other expense, is the only means by which the country's railway venture can have prospects of becoming successful financially. If such a demand were acceded to, it would establish a precedent for any other province, or portion of the country, to claim the privilege of directing the operation of the railway mileage within its boundaries, which, if acceded to, would mean that the National lines, now in process of consolidation into a co-ordinated system, would be broken up into a number of independently operated and loosely related portions of railway. The logical effect of this would be to make transportation charges prohibitive, and seriously restrict the development of the country. Co-ordination and consolidation are absolutely necessary to success in the operation of the Government-owned railways; compliance with this demand of the Maritime Provinces would mark the beginning of an era in Canadian railroading which would inevitably terminate in national disaster.

In the demand that the principle of freight rate concessions, particularly as concerns the differentials formerly prevailing, should be re-adopted, to make effective the understanding on which Confederation was based, the delegates displayed a most remarkable persistency in confusing matters of previous usage with the terms of the Confederation agreement. As before stated, we are aware of no clause in that agreement which purported to give the Maritime Provinces any rate concessions. It may be stated, in all fairness, that these concessions, so far as they were not based on purely economic and business principles, and so far as they were based on principles of political expediency, should never have been made. The Canadian Pacific Ry. was built through British Columbia as a condition of the agreement by which that province entered Confederation, and British Columbia could advance claims for preferential rates with as much justice as the Maritime Provinces. As a matter of fact, the Maritime Provinces' complaints in connection with freight rates have been echoed by British Columbia lumber producers; by the agricultural interests of the western provinces, and by the producers and consumers of Ontario and Quebec. While we are fully aware of the fact that low transportation charges are desirable from the point of view of prosperity and development, and that a railway should seek its revenues from the movement of the maximum of traffic at the lowest rate consistent with a fair return, it is a fact that freight rates have not increased disproportionately to the value of commodities. Present freight rates are blamed unduly for a business depression which is the logical result of other causes, which, though more obscure, are nevertheless well defined and evident to those taking the trouble to enquire into them.

The principal point worthy of emphasis, however, is that while the Maritime Provinces may be justified, as other sections of the country may be justified, in their own opinions at least, in voicing their dissatisfaction with present levels of charges for transportation service, the method of removing these grievances which the Maritime Provinces propose is utterly wrong and indefensible. In the demand that the Intercolonial Ry. be replaced under the Minister of Railways and operated as a Government department enterprise, and that the Board of Railway Commissioners has no regulative authority in connection with it, it is obvious that they desire to have their grievance removed, not by action along business lines, but by using the Intercolonial Ry. as a political weapon. Their demand could not be met with justice to the rest of Canada; it means, in effect that the grievances of the remainder of the country would be dealt with by the Board of Railway Commissioners in accordance with strict economic principles; while the grievances of the Maritime Provinces would be entirely removed as a reward for the use, first by one political party and then by another, of the Intercolonial Ry., as a means of furthering political ends; and that the remainder of the Canadian people would pay, by taxation, the greater part of the losses which would inevitably accompany Intercolonial Ry. operation.

The attitude of the Maritime Provinces' interests in this connection was admirably expressed by a member of the delegation, who is credited with stating that "if the Government ignored the deputation's requests, they would be taking their political lives in their hands." That states the whole thing. If an appeal to political prejudice could be better expressed, if the desire to put the Intercolonial back into politics and regard it as an instrument of political patronage could be more suitably conveyed by the vehicle of speech, if a more deliberate intention of wrecking the prospects of success of the Canadian National Rys. by subjecting them to political interference could be better demonstrated, and if greater disregard for the rights of the people of other parts of Canada could be shown to more advantage than in that direct statement, it would astonish us.

The Maritime Provinces demands are utterly wrong in principle. If they feel certain that increased freight rate differentials are destroying the ability of their industries to compete in central and western markets, the Board of Railway Commissioners should be empowered to investigate them. Rate adjustments are made from day to day, and if adjustments are required in the Maritime Provinces they should be made as all others are, as a matter of business equity. The Board of Railway Commissioners should have the same absolute power of regulation over the Intercolonial Ry. as over any privately owned railway. The Board was established for the very purpose of removing political influence from the business activities of railway operation, and is necessarily composed of men who would bring expert knowledge to the task of hearing the Maritime Provinces complaints. The best advice these Maritime interests can act upon is to have their difficulties reviewed and settled on business lines through the Board's instrumentality, and, above all, to stop the agitation, based on an entirely false interpretation of their rights as derived from the Confederation agreement, by means of which they would obtain concessions by the underhand and objectionable method of political action. The days when the Intercolonial was used as a political machine are not difficult to remembers, but surely our railway experiences to date should indicate that those days should never return. The consensus of opinion in other parts of Canada is that in the future our railways are not to be defiled by being used as political weapons. The Maritime Provinces interests will be rendering themselves a real service by becoming educated con-

cerning the existence of this line of thought in all other parts of the country, and by deciding to adopt it and to forget the past.

Canadian Government Railways Supplementary Estimates.

The further supplementary estimates for the year ended March 31, 1921, submitted at the Dominion Parliament's recent session, contained the following item:—

Chargeable to collection of revenue.—Canadian Government Railways, toward deficit of working expenditure for 9 months ended Dec. 31, 1920, the management of the railways being hereby authorized to apply the receipts and revenues toward payment of the working expenditure, additional amount required	$2,000,000

The further supplementary estimates for the year ending March 31, 1922, contain the following items, chargeable to capital:—

Dartmouth to Deans Branch, balance due contractors	$3,000.00
Refund to St. Martins Ry. of amount overpaid	$1,405.39
Prince Edward Island, car ferry terminals, Cape Tormentine, to pay claims	$97,000.00
To provide for purchase, at prices not exceeding the amounts herein specified, of following railways (the debts of each railway to the Canadian Government Rys. to be cancelled), interest on the purchase price of each to be payable at the rate of 5% per annum from the date of taking possession to the date of transfer of title (such of the said railways as are within the jurisdiction of the Parliament of Canada are hereby authorized to sell their respective assets and undertakings accordingly):—	
York & Carleton Ry., $18,000; revote	$4,500.00
Moncton & Buctouche Ry., $70,000; revote	$70,000.00
Caraquet & Gulf Shore Ry., $200,000; revote	$50,000.00
Interest estimated, from date of taking possession to March 31, 1922, not exceeding (including revote $39,000)	$47,500.00

The following items are chargeable to income:—

To reimburse for expenditures incurred during fiscal year 1920-21 in settlement of claims arising out of military service overseas of employes of Canadian Government Railways	$80,000.00
To supplement pension allowances payable under the provisions of Intercolonial and Prince Edward Island Railway Employes' Provident Fund Act so as to make the minimum payment, during the fiscal year of $30.00 a month instead of $20 as fixed by the act.	$50,000.00
To pay for damages claimed by s.s. Harlem not exceeding	$130,000 00

Railway Fatalities.—During the three months ended March 31, 38 railway employes were killed in the operation of Canadian railways.

Railway Rolling Stock Orders and Deliveries.

The Eastern Car Co. has delivered 100 box cars, 60 tons capacity, to the C.P.R., completing a contract.

Canadian General Agencies, Quebec, is in the market for 25 second hand flat cars, of about 30 tons capacity.

Canadian National Rys. have received 29 express refrigerator cars, out of an order of 50, from Canadian Car & Foundry Co.

The C.P.R., between May 12 and June 12, received 8 steel sleeping cars from its Angus shops, Montreal, the frames of which were built by Canadian Car & Foundry Co.

The Alberta & Great Waterways Ry. is reported to have bought three passenger cars, one sleeping car, one combined sleeping and buffet car, one baggage car, 40 ballast cars and 2 locomotives in Chicago, Ill.

The G.T.R., between May 12 and June 14, received the following additions to rolling stock: 297 flat cars, 100,000 lb. capacity, from National Steel Car Corporation; 2 switching locomotives from its Montreal shops and 6 express horse cars from Osgood-Bradley Co.

Canadian Car & Foundry Co., between May 14 and June 16, delivered 2 business cars to Canadian National Rys., and 234 tank cars to Imperial Oil Ltd., and received an order from the Toronto Transportation Commission for 40 additional motor cars for operation on the street railway at Toronto, this making the order at present in hand 140 motor cars and 60 trailer cars.

Consolidation, 2-8-0, Locomotive, Algoma Eastern Railway, built by Montreal Locomotive Works.

Algoma Eastern Ry. Locomotives.

As stated in Canadian Railway and Marine World for June, the Algoma Eastern Ry. received recently two consolidation, 2-8-0, locomotives from Montreal Locomotive Works, an illustration of one of which is given herewith. They are representative of the highest degree of development of the consolidation type for freight service, their tractive power of 49,400 lb. comparing favorably with that of many of the mikado type, with much longer wheel base. The frames are of vanadium cast steel of extra heavy section, securely panel-braced behind the cylinder castings. These, and the running gear, are designed for 24 x 30 in. cylinders, with boiler pressure of 200 lb., although the cylinders at present are bushed to 23½ in. diam. The straight top type boiler is equipped with a one-piece dome, of large pattern, to permit of convenient internal inspection. The cabs are of the vestibule type, steel and wood lined. A steel pilot, of a design suitable for yard service without removal, is a feature worthy of note, as is also the specially designed cross-head wrist-pin, entering from the outside. The chief details are as follows:

Gauge	4 ft. 8½ in.
Cylinders	23½ x 30 in.
Valves, piston	14 in. diam.
Boiler, type	Straight top
Diameter	72 7-16 in.
Working pressure	200 lb.
Firebox, length	109 in.
" width	64¾ in.
Tubes, diameter	5⅜ and 2 in.
" number	5⅜—34; 2 in.—208
" length	14 ft. 2¾ in.
Heating surface, firebox	200 sq. ft.
Tubes	1,538 sq. ft.
Arch tubes	27 sq. ft.
Flues	676 sq. ft.
Total	2,441 sq. ft.
Superheater	558 sq. ft.
Grate area	49 sq. ft.
Driving wheels, diameter	57 in. over tire, 50 in. centres
Journals, main, 11 x 24 in., others, 10 x 14 in.	
Engine truck wheels, diameter	33 in.
Journals	6 x 12 in.
Wheel base, driving	15 ft. 10 in.
Total engine	24 ft. 8 in.
Total, engine and tender	59 ft. 0½ in.
Weight on drivers	218,150 lb.
On truck	24,350 lb.
Total, engine	242,500 lb.
Totoal, engine and tender	397,300 lb.
Tractive effort	49,400 lb.
Factor of adhesion	4.42
Weight of tender	154,800 lb.
Capacity, water	6,600 gall.
" coal	12 tons
Tender type, 8-wheel, gravity coal space, with Cardwell friction draft gear	
Valve gear	Walschaert
Superheater	Schmidt, Type A
Brick arch	American Arch Co.
Fire-door	Franklin automatic, butterfly type
Grate shakers	Franklin, steam-operated
Driving box wedges	Franklin automatic
Reverse gear	Ragonet
Stay-bolts	Alco flexible
Top check boxes	Nathan, type T
Cylinder cocks	Air-operated
Electric headlights	Pyle-National
Main driving boxes	Cole extension type, equipped with Franklin automatic lubricator

Also Franklin unit safety-bar, laminated design, and Franklin radial buffers.

Railway News Agent Punished. — J. Caplan, news agent on a Canadian National Rys. transcontinental train, was fined $1,000 and costs or six months imprisonment, at South Porcupine, Ont., recently, for selling whisky to Indians west of Cochrane. A fellow news agent was fined $50 and costs for tampering with Crown witnesses in the case.

The C.P.R. Land Department is reported to have let a contract for removing 6,000,000 cubic yards of earth on 50 miles of irrigation ditches in the Lethbridge northern irrigation district in Alberta at an estimated cost of $1,680,279. The work will bring under irrigation 105,267 acres of settled country.

The Railway Problem in the United States.

Canadian Railway and Marine World for June contained, on page 303, particulars of the proceedings leading up to the hearings before a Senate Commitee in Washington in connection with the railway situation, and some of the principal points made by the first witness, Julius Kruttschnitt, chairman of Executive Committee, Southern Pacific Co.

Daniel Willard, President of the Baltimore & Ohio, stated that the present unsatisfactory railway conditions are a direct result of the war and the period of Federal control, when the railways were operated with entire disregard of their interests as independent properties. By a comparison of operating statistics, he showed that the railways under private operation in 1920 were operated more efficiently than ever before, and he expressed confidence in the provisions of the Transportation Act. He pointed out that the financial results attending railway operation in the United States in 1920 (See Canadian Railway and Marine World for May, pg. 255) were due to wage increases and high material prices, the necessity of making up for the under maintenance which the railways and their equipment were allowed to suffer during Government control, the necessity of paying back-time in wages without compensatory rates, and the necessity of getting cars back to home lines and building up operating organizations again. Dealing with charges made by W. J. Lauck (See Canadian Railway and Marine World, June, pg. 298) Mr. Willard said he would not deny there was a possibility of effecting savings and making improvements in present methods of railway operation, but this is a practical problem, not to be solved by Mr. Lauck's theoretical formulae. The physical improvements suggested would require huge sums of capital, which the railways during the past few years have found it almost impossible to obtain, and he claimed that all advisable improvements are being made as fast as capital can be obtained. If the new rates had been in effect during all of 1920, they would have added $643,000,000 to revenue, and if the Labor Board's award had been in effect all the year, it would have increased expenses by $102,000,000, making the net operating income for the year $543,000,000, instead of $62,000,000; but even at that, the return would have been scarcely more than 3% on the amount invested in the railways.

A. H. Smith, President, New York Central, who was one of the members of the commission to enquire into the Canadian railway situation in 1917, strongly urged that the Government quickly come to a settlement with the railways in connection with credits and debits arising out of Federal control, thousands of accounts being still open.

Julius Kruttschnitt, Chairman of the Southern Pacific Co., was recalled and questioned by members of the committee. His opinions may be summarized by stating, first, that the Transportation Act of 1920 is a good measure and should be given a fair trial, time for which it has not had to date; second, that the present bad financial condition of railways is the effect of the bad policies introduced during Government control; third, that the effect which it is claimed lower rates would have in the way of increasing traffic is speculative and theoretical, and, altogether likely, fallacious, and fourth, that the only thing to help U.S. railways is an immediate reduction in their operating expenses.

Senator Cummins, who is the moving spirit of the investigation, brought out the fact that the cost of Government control of railways to the U.S. people was over $1,800,000,000.

Howard Elliott, Chairman, Northern Pacific, outlined conditions on that line, and said that the making of a general reduction in freight rates would not help to solve the present complicated economical and psychological conditions in the U.S., but would reduce still further the ability of the railways to survive and exercise a large purchasing power. There was no inflation in railway rates during the war period and thereafter, as was the case with prices of products of most industries, so that at present there is no necessity for or possibility of deflation in rates. He considers that U.S. railways are too severely regulated, the fact being that regulation has encroached on the field of management, to the end that responsibility has been divided, and initiative checked, and costs and rates increased because of this. It was vision, initiative, energy, study and competition that made the railways what they were, and when these are removed by excessive regulation, the industry is bound to suffer.

Edward Chambers, Vice President, Santa Fe, in a prepared statement, clearly demonstrated that the present freight rates are not the cause of the diminished traffic. He showed that thousands of rates have been reduced since Sept. 1920, and that adjustments are going on all the time. By an analysis into present operating costs and past performance, he claimed that a general reduction in rates, which are not excessive under present conditions, would be impossible if the railways are not to be driven completely into bankruptcy.

H. E. Byram, President, Chicago, Milwaukee & St. Paul, outlined conditions on that system, and on other lines of that territory, which are similar to those obtaining on practically all railway properties in the U.S. On the C. M. & St. P., operating expenses in 1920 were over $90,000,000 more than in 1916; net operating revenue decreased from $36,844,637 in 1916 to $3,461,613 in 1920, and the payroll in 1920 was $61,000,000 greater than in 1916. He showed that, by applying all the tests by which efficiency in railway operation can be gauged, the property had been efficiently managed, but, on account of the magntiude of the operating expenses, net earnings of the railways generally have been so disappointing that capital for necessary improvements cannot be borrowed except at rates higher than the railways are entitled to earn on the value of their property under the Transportation Act.

Samuel Rea, President of the Pennsylvania, stated that the railways would be greatly helped in this time of financial trouble if the Government would quickly pay them the amounts still due from the period of Federal control. He pointed out that no general reduction in rates could be granted until such time as net operating income becomes satisfactory. He contended that the amounts, arising out of Federal control, owed to the railways by the Government should not be offset by amounts spent for permanent improvements financed by the Government during Federal control, and owed to the Government by the railways, but that the Government should pay the railways the sums owed, and allow the railways to fund their debts to the Government. He pointed out that the Transportation Act gives the President discretion as to this, and showed why it is desirable, not only in the interests of the railways, but in those of the country also, that the funding be allowed. The amount involved for all railways is about $800,000,000.

J. G. Walber, Secretary of the Bureau of Information of Eastern Railways, stated that the wage standardization policy of the U.S. Railroad Administration had produced many inequalities, and great injustice, in the pay of railway employes. The rigid application of standard rates of pay and working conditions, regardless of the section of the country where applied, and the great diversity in cost of living and other conditions, resulted in some employes being paid much more than they were entitled to, and others much less.

E. T. Whiter, who represented the railways before the U.S. Railroad Labor Board in the hearings leading to the abolition of the national agreements, as between railways and their employes, outlined to the senators the effects of these agreements in increasing operating expenses. He showed that the U.S. Railroad Administration made these agreements shortly before the railways were handed back to their owners. That with the shop crafts 4 months before; that with the maintenance of way employes 2½ months before; that with the clerks 2 months before; that with the firemen and oilers 6 weeks before, and that with the signalmen only one month before the properties were returned. In the classes of employment covered by the national agreement, there were employed in 1917, 1,206,520 men, whereas in 1920 there were employed 1,436,488. He showed how the abolition of piecework brought about an immediate reduction in efficiency, ranging from 10 to 40%. He doubted very much whether the abolition of the national agreements will help the railways in their financial trouble. If employes meet the individual managements in the spirit intended by the decision ending the agreements, much will be accomplished, but if, on the other hand, the organizations maintain a position contending for that which in effect would be a continuation of the agreements, thus ignoring the principles laid down in the decision, little or no progress would be made, and the whole question would again be thrown back to the Labor Board, in the form of innumerable disputes, for decision as to what constitutes reasonable rules.

Alfred Thom, General Counsel, Association of Railway Executives, dealt with the long-standing dispute between the railways and the Government concerning the character of the maintenance which the railways received while under Federal control. The agreement in this connection stated that the railways would be maintained during the period of Federal control in as good repair, and as complete equipment, as when taken over by the Government. The majority of the railways claim that their properties were under-maintained,

and the difficulty is to determine whether they were or not, or to find a means whereby it may be determined. The railways claim that the only true test is that of physical condition, while the Railroad Administration takes the stand that if sufficient money was expended upon maintenance, with due allowance made for increases in wages and the prices of materials, its obligations under the contract have been fulfilled. Mr. Thom analyzed the problem, pointing out that the interpretation placed upon the matter by the Railroad Administration's officers would not make the Administration responsible for the maintenance of the properties; it would only be responsible for the expenditure of a certain sum, and it would make no difference whether it were wasted or not.

Samuel Rea, President of the Pennsylvania System, stated that that company had a claim of about $40,000,000 against the Government for under-maintenance during Federal control, and that no decision had been reached as to the basis of settlement of such claims.

L. E. Wettling, Manager, Bureau of Statistics, Western railways, testified concerning the high maintenance costs of 1920, showing how the maintenance deferred while the railways were under Government control, added to the costs of 1920, and demonstrated how higher prices for rails, ties, ballast and all other materials, coupled with increased wages, acted to increase maintenance costs.

W. H. Williams, Vice President, Delaware & Hudson Co., and Chairman of the Board, Wabash Ry., presented a detailed analysis of the relation of freight rates to cost of commodities transported. He demonstrated conclusively that increases in freight rates has not affected the volume of business, and in a clear analysis of present worldwide financial and trade conditions, showed how a reduction in rates would not have the effect of giving the railways an appreciably greater volume of traffic to handle, or improve condititons in any other direction.

Hearings before the committee are continuing, it being the expectation that the testimony of the railway executives will be finished shortly. The committee will then hear from the National Associaton of Owners of Railroad Securities, after which it will give shippers an opportunity to present their views, and finally receive testimony from labor organizations' representatives.

That the U.S. Government is fully aware of the serious nature of the railway financial situation, is shown by President Harding exhibiting a great personal interest in railway earnings and rates. He stated in the latter part of May, that he considered that a reduction in railway operating expenses and rates was necessary in the interests of increased business activity, and on June 1 he called at the Interstate Commerce Commission's offices, where the situation was discussed with Chief Commissioner Clark and other commissioners. It is stated that the President was gratified to learn of the numerous downward revisions of rates which are being made from day to day where most needed, and that he is now fully informed, as a result of his talk with the Interstate Commerce Commissioners, and his study of the matter, of the impossibility and undesirability of a flat percentage decrease in rates while the operating expenses of the railways are so high and the net earnings so unfavorable.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Sstatistics, Internal Trade Division.

Week ended June 10.	Wheat.	Oats.	Barley.	Flax.	Rye.	Totals.
Fort William	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.
C.P.R. .	404,201	1,052,844	308,821	.....	23,433	1,789,299
Consolidated Elevator Co.	531,583	226,880	45,589	162,206	831	967,089
Ogilvie Flour Mills Co.	405,329	181,148	45,209	.....	.....	631,686
Western Terminal Elevator Co.	320,594	187,375	18,897	225,530	3,880	756,276
G. T. Pacific	768,127	1,214,115	102,421	216,308	7,237	2,308,208
Grain Growers' Grain Co.	674,321	527,612	70,612	.....	7,004	1,279,365
Fort William Elevator Co.	90,265	289,745	41,436	189,196	10,961	621,602
Northwestern Elevator Co.	410,044	34,028	13,096	.....	*29	457,139
Port Arthur—						
Port Arthur Elevator Co.	939,941	1,971,944	349,528	67,511	16,764	3,346,688
Sask. Co-op. Elevator Co.	1,130,757	460,695	32,245	240,127	7,406	1,871,230
Canadian Government Elevator	361,109	1,285,307	169,659	437,946	19,889	2,273,910
Davidson and Smith	141,981	360,374	75,035	.....	174	577,564
Private Terminal Elevators	1,180,249	1,832,405	201,923	279,610	8,935	3,503.122
Total Pub. & Pte. Terminal Elevators.	7,358,501	9,624,472	1,474,287	1,819,433	106,485	20,383,178
Total Pte. Term. Elevators, Winnipeg	7,887	47,542	3,603	860	.....	59,892
Saskatoon: Can. Gov't Elevator	26,690	591,257	3,801	972	.....	622,720
Moose Jaw: Can. Gov't Elevator	68,078	233,195	.....	2,791	81	304,145
Calgary: Can. Gov't Elevator	93,424	1,214,505	21,847	755	119	1,330,650
Vancouver, B.C., Can. Gov't Elevator..	21,325	3,132	9,641	.....	.....	34,098
Total Interior Terminal Elevators	209,517	2,042,089	35,289	4,518	200	2,291,613
Midland—						
Aberdeen Elevator Co.	.....	33,394	.....	.....	.....	33,394
Midland Elevator Co.	42,324	136,071	.....	.....	.....	178,395
Tiffin, G.T.P.	1,002	273,992	.....	37,831	.....	312,825
Port McNicoll	45,340	20,009	.....	.....	.....	65,349
Goderich—						
Elevator & Transit Co.	45,208	212,006	10,000	.....	.....	267,214
West Can. Flour Mills Co. Ltd.	68,611	.....	.....	.....	.....	68,611
Kingston—						
Commercial Elevator Co.	.....	1,432	2,814	.....	.....	4,246
Port Colborne—						
Can. Gov't Elevator	18,813	.....	.....	.....	.....	18,813
Maple Leaf Milling Co. Ltd.	14,933	57,545	.....	.....	.....	72,478
Montreal—						
Harbor Commissioners No. 1 and 2..	1,027,632	1,618,962	339,409	.....	22,448	3,008,451
St. Lawrence Milling Co.	129,550	14,280	574	.....	.....	144,404
**Montreal Warehousing Co.	151,977	480,777	163,135	.....	14,947	810,836
Ogilvie Flour Mills Co.	56,950	.....	.....	.....	.....	56,950
Quebec Harbor Commissioners	.....	67,512	.....	.....	.....	67,512
West St. John, N.B., C.P.R.	5,373	.....	.....	.....	.....	5,373
Total Public Elevators	1,607,713	2,915,980	515,932	37,831	37,395	5,114,851
**Total Country Elevators	4,331,449	5,940,660	1,086,796	558,033	.....	11,916,938
U.S. Atlantic Seaboard Ports—						
Portland, Me.	23,669	.....	27,931	.....	.....	51,600
Baltimore, Md.	455	.....	.....	.....	13,862	14,317
New York, N.Y.	776	306,641	31,906	.....	527	339,850
Total U.S. Atlantic Seaboard Ports	24,900	306,641	59,837	.....	14,389	405,767
Total U.S. Lake Ports						
Duluth, Minn.	118,361	.....	.....	.....	.....	118,361
Buffalo, N.Y.	15,000	.....	.....	.....	.....	15,000
Total Quantity in Store	133,361	.....	.....	.....	.....	133,361
U.S. Lake Ports—	13,673,328	20,877,384	3,175,744	2,420,675	158,469	40,305,600

*Overshipped. **Week ending June 3.

Caterpillars Interrupt New Brunswick Train Service.

Operation of trains on the C.P.R. between Fredericton Jct., mile 44.4, and Harvey, mile 65.1, on the St. John Subdivision, New Brunswick District, was seriously interfered with in June by great numbers of caterpillars on the rails, which made it almost impossible to prevent locomotive driving wheels from slipping. We are officially advised that difficulty was experienced in handling both passenger and freight trains, and a great deal of doubling of grades was necessary. Similar trouble was experienced on the Fredericton Subdivision, between Fredericton Jct. and Fredericton, 22.2 miles, but owing to the light grades on this subdivision, the difficulties of operation were not so pronounced.

To overcome the trouble, ½ in. pipes were connected to the siphon valves in the locomotive domes and carried to the tops of the pilots, with ¼ in. pipes branching to each side of the pilots, and suspended over the rails, the idea being to have the jets of steam from the pipes clear the caterpillars from the rails ahead of the locomotive wheels. This arrangement did not work very satisfactorily, so ¾ in. pipes from the domes were substituted for the ½ in. pipes, and ½ in. branch pipes for the ¼ in., the ½ in. pipes being supported over the rails by the pilot. This arrangement proved effective, and operation has not been interfered with by caterpillars since the locomotives were so equipped.

Railway Lands Patented.—Letters patent were issued during April covering Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia as follows:—

	Acres.
Canadian Northern Ry.	480.00
Canadian Pacific Ry. roadbed and station grounds .	72.39
Total . .	552.39

The production of bituminous coal in the U.S. for the year ended March 31, 1921, was 522,000,000 net tons, compared with 486,899,000 in 1919-20, 552,041,000 in 1918-19, 548,715,000 in 1917-18, and 504,102,000 tons in 1916-17.

Large Orders Given for Steel Rails.

The following orders in council were passed by the Dominion Government on the dates mentioned:—

April 21, 1921.—The committee of the Privy Council has had before it a report, dated April 20, from the Minister of Railways and Canals, representing that the Canadian National Rys. management advises that it requires for maintenance during 1921, in addition to the 20,000 tons of rails ordered in January, 20,000 tons for the eastern lines, and 35,000 tons for the western lines; and further, that to ensure safe operation, these rails should be ordered immediately. In addition to the above, 15,000 tons could be laid during this season, and thus relieve that quantity of used rails for branch lines graded last year. That negotiations have been carried on with the Algoma Steel Corporation and the Dominion Iron & Steel Co. for the purpose of agreeing on a price for the rails now required to be purchased. Both companies have quoted $60 a ton, but the Algoma Steel Corporation now signifies its willingness to accept $55 a ton, being the same price at which it was paid for the 50,000 tons ordered from it in 1920. The Minister, therefore, recommends that authority be given for ordering from the Algoma Steel Corporation, 50,000 gross tons of 85 lb. steel rails at $55 a ton f.o.b. Sault Ste. Marie, Ont., and from the Dominion Iron & Steel Co., if it is willing to accept the same price, 20,000 gross tons of 85 lb. steel rails, f.o.b. Sydney, N.S.; further, if they make any other sales prior to Nov. 1 at less than $55 a ton, the benefit of any reduced price will be given the Government on any rails so ordered. The committee concurs in the foregoing recommendation and submits the same for approval.

June 2, 1921.—The committee of the Privy Council has had before it a report, dated May 31, from the Minister of Railways and Canals, representing that, by order in council of April 21, authority was given for ordering from the Algoma Steel Corporation 50,000 gross tons of 85 lb. steel rails at $55 a ton f.o.b. Sault Ste. Marie, Ont., and from the Dominion Iron & Steel Co., 20,000 gross tons 85 lb. steel rails at the same price f.o.b. Sydney, N.S., the said price to be subject to adjustment, if the companies, prior to Nov. 1, make other sales at a price less than $55 a ton. These rails are required for the Canadian National Rys. To meet the G.T.R.'s requirements, the Minister, on the advice of the Deputy Minister, recommends that authority be given for ordering from the Algoma Steel Corporation 15,000 gross tons of 100 lb. steel rails at $55 a ton f.o.b. Sault Ste. Marie, Ont., and from the Dominion Iron & Steel Co. 20,000 gross tons of 100 lb. steel rails at the same price f.o.b. Sydney, N.S. The committee concurs in the foregoing recommendation and submits the same for approval.

The total orders given for steel rails this year under the authority of Dominion Government orders in council amount to 125,000 tons, viz: 90,000 tons of 85 lb. rails for Canadian National Rys., 70,000 tons of which were ordered from Algoma Steel Corporation, and 20,000 from the Dominion Iron & Steel Co., and 35,000 tons of 100 lb. rails, A.R.A. type A for the Grand Trunk Ry., 15,000 tons from Algoma Steel Corporation, and 20,000 from Dominion Iron & Steel Co. The price for all these rails is $55 a gross ton, f.o.b. Sault Ste. Marie, Ont. or Sydney, N.S. respectively, provided that if the steel companies make any other sales prior to Nov. 1 at less than $55 a ton, the benefit of any reduced price will be given the Dominion Government on rails ordered by it.

The Canadian Pacific Ry. has ordered from the Algoma Steel Corporation, 24,000 tons A.R.E.A. type, weighing 101.49 lb. a yard, shipment to be made in June, July and August.

The Napierville Jct. Ry. (Delaware & Hudson Co.) ordered recently from the Algoma Steel Corporation, 3,000 tons, 85 lb., C.P.R. section, rails, for delivery during June.

Special Instruction E to Railway Employes.

The Board of Railway Commissioners for Canada passed general order 343, June 17, as follows:—Re general order 322, Dec. 10, 1920, requiring railway companies to withdraw Special Instruction E from their respective working timetables, and hereafter observe the Uniform Code of Rules for Canadian Railways approved by general order 42, July 12, 1909; the necessary changes and instructions to employes to become effective June 1, 1921; and re order 340, May 19, 1921, extending such effective date until June 15, 1921; and re the applicatiton of the Railway Association of Canada for certain amendments to Rules 93 and 99 of General Train and Interlocking Rules, so as to provide for the method of operation now employed by certain of its member railways under Special Instruction E: Upon hearing the matter at Ottawa, June 15 and 16, the Railway Association of Canada, the Canadian Pacific, Grand Trunk, Toronto, Hamilton & Buffalo Ry. companies, and Canadian National Rys., the Michigan Central Rd., the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Brotherhood of Railway Trainmen, and the Brotherhood of Railway Conductors being represented at the hearing, and what was alleged—the Board orders that the time within which the said changes and instructions may become effective be extended until Sept. 1, 1921, or until further order.

The Railway Association of Canada has applied to the Board of Railway Commissioners for certain amendments to Canadian Train and Interlocking Rules 93 and 99, to provide for the method of operation now employed by certain of its member railways under the so called Special Instruction E.

Transportation Lodge, A.F. & A.M., has been founded in Toronto, for members of the order who are in transportation service. The officers are:—John Boyd, W.M.; J. W. Hicksqn, I.P.M.; W. Tansley, S.W.; L. C. Groom, J.W.; H. R. Butterill, Secretary; A. R. Curran, Assistant Secretary; L. L. Grabill, Treasurer; G. A. Hoag, Chaplain; C. G. Smith, D. of C.; R. W. Long, S.D.; T. G. Gracey, J.D.; F. Fowler, I.G.; P. C. Lord, S.S.; H. C. Kendal, J.S.

The Canadian National Rys. Association, Toronto, held its annual picnic at Cobourg, Ont., June 25, two special trains being run from Toronto to Cobourg and return.

Railway Earnings.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local lines in the Maritime Provinces and in Quebec, which have been acquired by the Dominion Government.

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
May	7,794,147	8,305,850
	$42,388,842	$37,788,285

Approximate gross earnings for three weeks ended June 21, $5,448,865, against $5,305,120 for same period 1920.

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System for 1921 and 1920 respectively:—

	1921	1920
January	$5,094,100	$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
	$16,054,300	$12,587,700

Canadian Pacific Railway.

Following are the monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,405,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
	$55,701,984	$49,150,127	$6,551,857	$952,431
Incr.	.....	.....	952,430	.....
Decr.	$3,415,042	$4,367,472	.....	.....

Approximate traffic earnings for May, $13,490,000, and for two weeks ended June 14, $6,198,000, against $16,161,000 and $7,279,000 for same periods 1920.

Grand Trunk Railway.

Following are gross earnings, operating expenses and net earnings, monthly, for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$6,402,587	$6,954,707	*$543,120	$270,100
Feb.	5,733,447	5,332,627	400,820	888,653
Mar.	6,223,007	5,624,893	598,113	332,880
	$18,359,041	$17,903,227	$ 740,413	$1,491,633
Incr.	$2,886,907	$1,395,274	$1,491,633	.....

Approximate traffic earnings for May, $7,852,176, and for two weeks ended June 14, $3,698,768, against $7,562,661 and $3,892,522 for same periods 1920.

Among the Express Companies.

W. B. Bradley has been appointed agent, Dominion Ex. Co., Estevan, Sask.

The Dominion Ex. Co.'s staff at St. John, N.B., has organized a baseball team.

The Canadian National Ex. Co. has opened offices at Grand Beach and Victoria Beach, Man.

The American Ex. Co. has declared its regular quarterly dividend of $2 a share, payable July 1.

The Dominion Ex. Co. has opened a fruit office at Hatzie, B.C., and has appointed O. L. Andrews agent.

R. Fennell, agent, Dominion Ex. Co., Maple Creek, Sask., has retired on pension, on account of ill health.

A. McMahon has been appointed agent, Dominion Ex. Co., Weyburn, Sask., vice G. A. Brown, who has left the service.

N. K. Vosper, agent, American Railway Ex. Co., Vancouver, B.C., has been appointed the company's attorney there, vice L. E. Cochrane.

J. A. Walford, heretofore agent, Dominion Ex. Co., Edmonton, Alta., has been appointed agent at Penticton, B.C., vice W. E. Davis, who has been granted leave of absence.

The American Railway Ex. Co., a consolidation of the different express companies operating in the U.S., which was effected during the war, has declared a dividend of $3.50 a share.

The Canadian National Ex. Co. has opened offices at Ste. Irenee, Les Eboulements and Petite Riviere, Que., and has closed its office at Zephyr, Ont. The name of the Victoria Park, Man., office has been changed to St. Andrews.

A special meeting of shareholders of the Dominion Ex. Co. was called for June 28, to consider the advisability of increasing the capital stock, and fixing the amount to which it would be increased, in accordance with the amendments to its act of incorporation as outlined in our last issue.

The American Railway Ex. Co. has applied to the United States Railroad Labor Board for a hearing of its proposal for a reduction of wages for all its employes. The company has held several conferences with representatives of its different grades of employes, but no agreement has been reached.

J. B. Letellier applied to the Board of Railway Commissioners recently, for an order directing the Canadian and Dominion Express companies to accept shipments of alcoholic liquors from him, when made at Quebec in conformity with general tariff and other regulations, for delivery to points where no prohibitive law against the importation of such liquors is in force.

The National Dairy Council of Canada's application for a reconsideration of the Board of Railway Commissioners' order 28,885 of Oct. 19, 1919, refusing an application for a reduction in the express classification of ice cream from the first class to the second, was dismissed by the Board on June 8. The judgment and order are given in full under "Traffic Orders by Board of Railway Commissioners," on another page of this issue.

The National Dairy Council of Canada's application for an order directing that a reduction be made of 10c. on ice cream, and 5c. on the returned empties, shipped by express, respectively, from and to points where wagon service is provided by the express companies, whenever the said service is not furnished as required, thus necessitating cartage by the shipper and receiver respectively, has been refused by the Board of Railway Commissioners.

Telegraph, Telephone and Cable Matters.

The Public Works Department has given a contract for transportation and delivery of supplies for the Yukon telegraph line, in Yukon and British Columbia, to M. Beirnes, Hazelton, B.C., at 22c. a lb.

The Naval Service Department has opened a radiotelegraph station at Port Burwell, Ont. It is equipped with the mot modern sending and receiving apparatus, and has three operators. The range covers Lake Erie, and the station connects with other radiotelegraph stations extending from Port Arthur to the Atlantic.

R. C. Macdonald, of the Dominion Government Telegraphs, was reported recently to be preparing an estimate for the installation of a telegraph line in the oil territories in northern Alberta. He is reported to have stated that the telephone line will be extended immediately from cache 23 to McMurray, and that at the end of May the right of way had been cleared to within about 2 miles from the latter point.

Canadian National Telegraphs have opened offices at Burnsville, N.B., Montreal East, Que., Beaumaris, Cardinal Canal, Clifton House, Niagara Falls, MacDiarmid, Shakespeare and Tannon, Ont., Tichfield, Sask., and Sunnynook, Alta., and have closed offices at Darey, Ferguson, Gouin, Langlade, St. Judes, and Weymont, Que., Blenheim, Collins, Hanover, Thor Lake, Uniacke and Varennes, Ont., Ladysmith and Liban, Man., and Harborg and Leslieville, Alta. The name of the office at Eaton, Sask., has been changed to Eatonia.

Aurora, or Earth Current, Effect on Telegraph Wires at Capreol.

Earth current of intensity sufficient to cause a marked reduction in the efficiency of telegraph circuits was observed on the Canadian National Telegraphs, at Capreol, Ont., at intervals for a day or two previous to May 14. It apparently reached a climax about 10.30 p.m. on that day, and persisted until after midnight, with such violence that the available measuring instruments were inadequate to measure it, and the wires were opened at 10.30 p.m. to save the equipment. It is, therefore, impossible to say exactly when the maximum disturbance occurred.

At 9.15 p.m. a no. 9 copper wire was grounded at Port Arthur, Capreol and Montreal, and mil-ameter readings, taken at Capreol, on the west section, till 9.55 p.m., recording the maximum current value. At the beginning of the obervation the wire showed a low positive potential from Port Arthur, but very quickly reversed to negative, the current rising to about 0.110 ampere. Frequent fluctuations and a maximum of 0.125 ampere were observed. The current then reversed and rapidly reached a maximum of 0.125 ampere positive, reversed to 0.070 negative, and after a few fluctuations again reversed and quickly reached 0.145 positive. Thereafter, until 9.55 p.m. the current, though fluctuating, was always positive. The maximum was 0.180 ampere. From 9.15 to 9.55 p.m. there were four complete reversals of polarity.

From 9.55 to 10.25 p.m. current readings were taken on both east and west sections of the wire at five second intervals. The section, Capreol to Montreal, showed negative potential from Montreal throughout the entire period of observation. The current varied from nearly zero to 0.130 ampere, until the final flood of current which terminated the readings. Readings on the section, Capreol to Port Arthur, followed roughly, but by no means, exactly, those on the eastern section, with the opposite polarity, as might be expected. The current from Port Arthur was generally positive, but dropped to negative four times, for brief intervals. On the western section the rise of current which terminated the readings was very rapid, rising in less than five seconds from a comparatively low value to something in excess of the capacity of the instruments and protecting apparatus. On the east section the rise was much less rapid, occupying fully a minute in reaching the limit of observation.

Before the repeater sets were cut out, the carborundum lightning arresters, having a resistance to ground of 50,000 ohms when cold, and connected in multiple with the regular set ground of 500 ohms, and the artificial line resistance of about 3,000 ohms, became white-hot. After the repeater sets were cut out, the current jumped the air gap lightning arresters at the switchboard. Attempts to open wires, by removing fuses, resulted in pulling out an arc 3 or 4 in. long. An attempt to open the line by removing a resistance lamp resulted in setting up an arc across the socket, which was blown out with difficulty.

Simplex telephone circuits were rendered useless by a roaring noise in the receivers, which rose and fell with marked regularity in periods of about two seconds. A telephone circuit became grounded at a lightning arrester. Just what happened on the telephone circuit is not clear, but the trouble was probably due to the fact that the circuit was connected to earth through the simplex.

Dominion Telegraph and Telephone Line Estimates.

The further supplementary estimates for the year ended March 31, 1921, submitted at the Dominion Parliament's recent session, contained the following item, under Public Works, chargeable to income:—

For contribution of half cost of reconstruction of telegraph lines jointly owned by Anglo-American Telegraph Co. and Dominion Government	$4,750

The following items are chargeable to collection of revenue:—

Land and cable telegraph lines, Lower St. Lawrence and Maritime Provinces, including working expenses of ships required for cable service, further amount required	$40,000
British Columbia, mainland, further amount required	12,000
British Columbia, Vancouver Island District, further amount required	35,000
Yukon system (Ashcroft-Dawson), further amount required	35,000

The further supplementary estimates for the year ending March 31, 1922, contain the following items:—

Quebec.	
Quebec County telephone lines, general repairs	$3,000
British Columbia.	
Extension, Lumby to Sugar Lake	$6,580
Telephone service on Pender Island, Mayne Island, etc., general repairs and improvements	2,000
Construction of telephone lines, Houston to Ootsa Lake, Francois Lake and Burns Lake	8,200
Caribou District, telephone line from 100 Mile House to Canim Lake	4,000
Mainland telegraph and telephone lines, general repairs and improvements	21,500
Skeena District, telephone line from Clinton to Gang ranch, to complete	5,000
Skeena District, erection of telegraph office at Williams Lake	2,200
Skeena District, erection of garage and store shed at Ashcroft	600
Vancouver Island, telephone line from Squamish to Checkamus House and Mons	1,200
Campbell Range and Robins Range	2,400
Celestia to Anglemont	1,600
Mount Olie to Vavenby	6,000
Slocan City to Silverton	5,160
Sorrento to Blind Bay	800
Fairmont Springs to Canal Flats	4,400
Telephone exchange at Smithers, to complete	1,000
Caribou District, telephone exchange and line extensions at Vanderhoof, to complete	2,481

The further supplementary estimates for the year ending March 31, 1922, contain the following items under Public Works, chargeable to collection of revenue, telegraph and telephone lines:—

Prince Edward Island mainland	$7,000
B.C. mainland, further amount required	13,000

Electric Railway Department

Electric Railway Wages, Working Conditions, Etc.

Cape Breton Electric Co.—During March and April, the Manager, C. C. Curtiss, issued three bulletins to employes explaining the company's earnings and expenses and showing the necessity for a reduction in wages. The last bulletin, issued April 30, was as follows:—

"For some time I have been hoping that it might be possible to continue the present schedule of wages, but condititons now are such that it is absolutely impossible to avoid a reduction. The only other alternative seems to be bankruptcy, receivership and all that goes with it. As I think you know, wages constitute more than half of our total operating expenses, and with business becoming more slack each day, it is imperative that we reduce expenses to a minimum. The company went behind $13,000 in the first three months of this year, without any allowance for depreciation, dividends, etc., and our best estimates at present indicate that April will increase this deficit. You have all undoubtedly noticed the falling off in traffic, and I can see no prospect of any immediate improvement. There is also a general falling off in the ferry and light and power department earnings from what we had anticipated. Although living costs have not fallen off as much as we would like to see, still, it is an admitted fact that considerable reduction has already been made. Such articles as sugar, butter, eggs, meats, flour, bread, etc., have declined considerably since a year ago and further declines seem certain. Clothing, shoes, etc., are also considerably cheaper than last year. It is true that coal has not yet declined in price, but for the next few months the item of coal will not be a serious consideration, and it is hoped that by the autumn there will be some reduction in the price of that commodity.

"Many men are out of employment all over the continent and thousands of others have had their wages cut, with further reductions in prospect. We are not making reductions simply because others are making them, but because we are faced by the same hard facts that confront all business men at present. You will remember that something over a year ago we merged into your regular wage schedule a 7½ to 15% war bonus, which had been in effect since shortly after the beginning of the war. Various other increases have been made to you at frequent intervals, and, as I am quite sure you will admit, we have given you every consideration at all times, and still expect to do so. Effective May 1, wages and salaries of all employes of this company will be reduced. In the case of superintendents and myself, this will mean going back to the salaries which were paid in Jan. 1920. In general, it is our intention to go back to the base of wages and salaries in effect in April, 1920, but in many cases slight adjustments will be made so that the average reduction will probably not be more than from 8 to 10%. A complete schedule showing proposed wages of each employe will be made up next week and furnished to the superintendents, so that they may communicate to each one of you the rate which you will be paid beginning May 1, 1921. I sincerely hope, and honestly believe, that each one of you will accept these reductions in the same good spirit which you have shown at all times in the past. Even these reductions are not going to make smooth sailing for the company, and continued watchfulness, care, economy and co-operation must be exercised. I am counting on every one of you to help."

In addition to issuing the bulletins, Mr. Curtis discussed the matter with various groups of employes, and explained fully why it was necessary to make reductions, emphasizing that they were not being made simply because an opportunity offered, but on account of the company being absolutely forced to do so, by reason of business conditions, and feeling that it was no injustice, as the cost of living had fallen off appreciably. The employes took the reductions in good spirit, without complaint or opposition. The old and new rates are as follows:—

	Cents per hour	
Conductors and motormen:	Old	New
1st six months	.40	.37
2nd six months	.42	.38
2nd year	.44	.40
3rd and 4th years	.46	.42
5th and 6th years	.48	.44
7th year and thereafter	.50	.46
	Rate per day	
Mechanical department:	Old	New
Foremen	$5.76	$5.38
Pitmen	4.30	4.00
Machinists	6.00	5.50
Blacksmiths	6.00	5.10
Carpenters	6.00	5.00
Painters	5.50	5.00
Armature winders	6.75	6.30
Track department:		
Foremen	$5.76	$4.23
Laborers	4.00	3.60
Line department:		
Foremen	$6.00	$5.60
Linemen	5.20	4.70
Groundmen	4.00	3.50
Power plant department:		
Station operators	$5.38	$4.80
Station firemen	4.58	4.26
Station repairmen	6.20	5.96

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

London Street Ry.—We are officially advised that during the latter part of March, at approximately the same time as the employes, through their executive committee, gave the company 30 days notice of their desire to change the agreement, asking that all wages be increased 4c. an hour, and that time and a half be paid for overtime, the company notified its employes of its desire to cancel any existing agreement. The Ontario Railway and Municipal Board, which had been operating the property for nearly a year, had given the company notice that it would return the property to the company on May 1 and that a new agreement would be a matter between the company and its employes. Several meetings between the company's officials and its employes were held, at which the company offered to maintain, on a 30-day basis, the then existing rates of wages, but without any so-called surplus or bonus as had been paid to the employes by the Ontario Railway and Municipal Board for some months during its management. This so-called surplus or bonus amounted to approximately 1c. an hour for 7½ months. The company's proposition was not satisfactory to the employes, particularly with regard to the 30-day clause, under which either party could seek revision of the wage scale. The employes made application to the Minister of Labor for a board of conciliation and named J. M. Donahue as their representative. The establishment of a board was authorized and the company was asked to name its representative. At the same time, the company was advised that F. A. Stevenson, of the Labor Department, who was in London on other business, had been instructed to look into the case to see what could be done. While the establishment of the board of conciliation was being proceeded with, negotiations between the company and its employes were continued, with the result that a new agreement was drawn up containing the same working conditions as previously, and the then existing rates of wages, without the so-called bonus, pay for overtime and Sundays to be at 12c. an hour extra, and provision was made for the revision of the rates of wages at any time upon 60 days notice from either party. This agreement having been effected, no further proceedings were taken towards the formation of a board of conciliation. The rates of wages fixed for motormen and conductors are:—1st year, 43c. an hour; 2nd year, 46c.; thereafter, 48c.

Montreal Tramways Co.—We are officially advised that on April 23, the company informed the president of the employes' union, that the agreement between the company would not be renewed on its expiry on June 30. In his letter announcing this, Lt.-Col. J. E. Hutcheson, General Manager, said: "While it is not the present intention to make any general readjustment of wages, etc., at the expiration of the agreement, the management believes that it should be entirely free later to make any changes warranted by general economic conditions. A rather serious business depression is now being felt,

which causes a feeling of uncertainty regarding the future." Two or three conferences were held with the General Manager, and as a result, it was announced that the men had decided not to press for the signing of another agreement until the company gives notice that changes in wages and working conditions are to be made.

New Brunswick Power Co.—We are officially advised that the company notified its union and non-union employes, May 12, that it did not desire to renew the agreement as to wages and working conditions which would expire June 14, and that the agreement would be cancelled from that date. The company subsequently submitted a new schedule of wages for motormen and conductors, and making certain changes in the working conditions. The new scale is as follows per hour:—

First 6 months	39c.
Second 6 months	41c.
After 1st year	42c.
After 2nd year	44c.
One-man car operation (extra)	5c.
Snow work and training students (extra)	4c.

The new scale makes a reduction of approximately 20% for motormen and conductors. For linemen, trackmen and car barn and mechanical department men, as well as for the majority of the gas house employes, the company proposed a 20% reduction, and for the power house staff, a reduction of 10%. The new schedule also abolishes overtime and extra payment for Sundays and holidays, and the wage contract is to be made between the company and individual employe. The working day is to be as near as practicable nine hours.

The local union decided, on May 24, to reject the company's proposal, and to insist upon the recognition of the union, and presented a demand for a renewal of the agreement at the old rate of wages. The company's proposals were bulletined at the shops, car barns, etc., May 26. Some attempts at negotiations were made, but without effect, and on June 6, the men applied to the Labor Department for the appointment of a board of conciliation. This was authorized, and W. F. Hatheway and C. W. Burpee were appointed to represent the employes and the company respectively.

Ottawa Electric Ry.—We are officially advised that at the end of March, thirty days prior to the expiry of its agreement with its employes, the company agreed to renew the agreement for another year to May 1, 1922. The agreement provides for the following rates of pay:—First year, 49c. an hour; second year, 51c.; third year, 53c.; fourth year and over, 55c. Time and a quarter is paid for Sundays and legal holidays, and time and a half for all overtime. The men work on a nine-hour day.

Port Arthur Civic Ry.—The city's public utilities commission is reported to have advised the railway employes that the present agreement as to wages, etc., is to be terminated before Aug. 1, and that it is prepared to meet the employes' representatives to discuss a new schedule.

The Toronto & York Radial Ry. having refused to become a party to the application of its dispatchers, storekeepers, freight men, wire men, line men, armature winders, boiler house operators and track men, for a board of conciliation, the Labor Department has appointed Allan Purvis, ex-General Superintendent, Ontario District, C.P.R., as chairman, and F. H. McGuigan, formerly Fourth Vice President, G.T.R., to represent the company. L. Braithwaite is acting for the employes.

Toronto Suburban Ry.—Local reports state that differences between the management and the employes as to wages and working conditions are developing, and that it is likely that a board of conciliation will be applied for in a short time.

Winnipeg Electric Ry.—Negotiations which began on May 25 between the management and representatives of the employes, and with respect to spare men, were reported to have been completed on June 4. The matter is stated to have affected 170 out of the company's 1,046 employes, and only 40 at all seriously. The spare men got $20 a week, whether they earned it or not, and the company desired to lay off about 40 of them, unless the other employes would agree to a rearrangement of hours so as to provide "time" for the spare men. The arrangement reached June 4, is reported to be the dropping of the guarantee of $20 a week for all spare men, and for some redistribution of the work so that spare men will all get a share of the work going.

Edmonton Radial Railway Operating Problems.

In connection with the consideration of plans for the improvement of service on the Edmonton Radial Ry. in Edmonton and Strathcona, Alta., a local paper has published the following from a report by the city commissioners:—

Referring to the recent plan which has been discussed and reported upon to the council, to route all street cars to a central belt line, discontinue all transfers, and reduce fares to 5c., your commissioners, after very careful consideration, are of the opinion that it would be a mistake to try such a system by using the present belt line on Sutherland Avenue from 101st St. to Syndicate Ave., for the following reasons: All cars would have to cross the C.N.R. on both sides. The belt line is too long, taking 13 minutes by car to complete the circuit. A definite tender is therefore being obtained for building a belt line from 101st St. along Elizabeth Ave. to Syndicate Ave., and will be submitted later.

Before coming to a definite decision on routing all cars to the centre of the city, and having no through cars, the following advantages and disadvantages must be considered: Advantages—The reduced fare from the outskirts to the centre of the city will be a benefit to the majority of citizens. The number of short haul passengers will be largely increased. If a breakdown occurs in one section of the city it does not affect the service in another part of the city. The elimination of transfers will help to speed up the service. Disadvantages—The objection of some passengers to having to pay 10c. to obtain street car service from their homes to their work or place of business; for instance, passengers from the east end going to the C.P.R. station, or the University, or passengers from the west end going to the Government buildings. The possible loss in revenue.

In connection with this, the following particulars are submitted: Passengers and traffic receipts for the year ended Dec. 31, 1920, were: Passengers carried, 12,371,091; receipts, $728,050. Required number of passengers at 5c. to produce same revenue during 1920: Passengers, 15,077,773; revenue, $728,050. Additional passengers, 2,706,682; monthly, 225,557; daily, 7,416. Transfers collected during 1920 approximately 1,900,000. Deficit during 1920, $200,100, which will probably be reduced to $75,000 in 1921. The additional passengers required to wipe out this deficit at a 5c. fare would be 1,500,000, or 4,109 a day. The average number of passengers a day in 1920 was 33,900. The record number carried in one year was 17,000,000 in 1913, approximately 46,580 a day, when the general fare was 6 for 25c.

One-Man Car Operating Results in Regina.

We are officially advised that the one-man cars which have been put in operation on the Regina, Sask., Municipal Ry., are remodelled single-end cars, with the exception of one single-truck double-end car in use on a shotr shuttle run. Apart from this shuttle car, the city's street railway department has remodelled in its own shop, 10 double-truck and 4 single-truck cars, and is giving a full service on three of the four lines. It was expected to have a sufficient number of additional cars remodelled by July 1 to give a complete one-man car service on all lines. As most of the Regina cars are of the same type as those on the Calgary, Alta., Municipal Ry., the McCauley system of remodelling the double-truck cars was adopted, but the single-truck cars are being turned end-for-end, thus taking advantage of the large rear vestibule for a front, or loading, vestibule. This has enabled the Regina cars to be provided with separate entrance and exit doors, and still operate them with hand brakes. The double-truck cars are fitted with air-brake equipment.

With the exception of the shuttle car, all cars are Y'd at the end of the lines, the cars backing on the curves in every case. To insure the pole taking the overhead frog in the right direction, there has been installed in each Y one spring frog designed and made up by the department's line foreman.

We are advised that the results in Regina from one-man operation have abundantly justified the change. Very few operating difficulties have been experienced. In fact, we are advised, some of the difficulties anticipated have failed to develop. It has been found that the car operators, on the whole, are favorably disposed to the one-man car, the commnet of one of them being that he had no idea it would be so simple.

Ontario Hydro-Electric Railway Investigation.—The commission appointed by the Ontario Government, and presided over by Mr. Justice Sutherland, held a number of sittings during June for the examination of witnesses, followed by addresses by counsel, and it is expected that the sittings will be concluded early in July and that the commission will then proceed to prepare its report. Considerably over 100 sittings have been held.

The La Salle, Que., town council has under consideration tenders for the operation of an autobus service.

Toronto Transportation Commission's Motor and Trailer Cars.

Canadian Railway and Marine World for June contained a preliminary description of the 100 motor cars and 60 trailer cars ordered by the Toronto Transportation Commission. Another order has been given since for 40 more motor cars, making the total orders, 140 motor cars and 60 trailer cars. The Canadian Car & Foundry Co., Montreal, which has the orders, has supplied us with a fuller description of the cars, as follows:—

The motor car underframing will consist of roll section throughout. The center sills will consist of 4 in. o.h. steel Z bars, running from end of car to intermediate cross bearers. Balance of center sills to be 3 and 4 in. channels, all securely riveted together and further stiffened by diagonal braces. Body bolster to be made up of open hearth steel plates 9 in. wide, trussed and further reinforced by cast steel center fillers. Side sills to consist of 5 x 3½ x ⅜ in. o.h. steel angles, running from body end sill to body end sill in one length, reinforced at bolsters by 4 in Z bar. Side sill on side of sliding door to be depressed to provide for the steps. Body end sill front vestibule to consist of 9 in. rolled steel channel. Body end sill front and rear, built up truss construction. Buffer end sill front and rear 5 x 3½ x ⅜ in. o.h. steel angle, securely riveted together to center sills and side sills, and further stiffened by diagonal braces.

The cars are to be equipped with special rolled section anti climbers for both front and rear platforms. Side girders to be 3/32 in. o.h. steel patent levelled plates, securely riveted to side sill angle and T bar side posts, and further stiffened at top by a belt rail of double beaded bar. Letterboard plates to be 3/32 in. o.h. steel, patent levelled, riveted to a 3 x 2½ in. side plate angle, and reinforced at lower edge with special pressed steel drip moulding. Sash rests of pressed steel riveted to belt rail and side posts.

The cars will be fitted with double floor, first course running crosswise, second longitudinal, also with maple floor slats. The roof will be of plain arch design, supported by 1½ x 1½ in. o.h. steel angle carlines, securely riveted to side plate angle. Wood furrings will be bolted to the steel carlines for supporting the roof. Roof boards to be 7/16 in. thick by 2¼ in. face, tongued and grooved, and covered with no. 8 cotton duck, stretched, and fastened to roof by upholsterers' cut tacks. Hood framing to be continuation of body roof. Joint of hood roofing to be made directly over body bulkheads facilitating easy repairs.

Each end of the car will be enclosed with a permanent vestibule, with five window openings in the circular part of the rear vestibule and three in the circular part of front vestibule. Windows in cars to be in two sections, lower part to raise except one window in front vestibule and two in rear vestibule, which will be arranged to drop. All windows to be fitted with latest improved sash fixtures.

Front entrance door to be provided with one folding step running entire width of opening and operated in conjunction with doors. Center sliding doors to be provided with stationary steps, all enclosed in body of car. Doors to be operated by National Pneumatic Co.'s latest door and step devices.

Cars to be equipped with radial draw bar of the latest design, to be fitted on rear end of motor car only and front of trailer. The front platform to be equipped with an emergency draw bar.

The interior of car to be finished in birch, stained cherry finish. Mouldings used throughout car to be of a plain and sanitary design. Head lining to be agasote and to be in four sections. Joints of head lining to be covered with wood mouldings, which will also form an attachment for the lamps. Space is also to be provided for a standard advertising card above windows, entire length of the car body on both sides.

Car to be provided with a motorman's cab, separating the motorman entirely from the passengers. Car to be equipped with 14 cross seats, located at rear end of car. Front end of car to be equipped with longitudinal seats. All seats to be of slats and sanitary design.

Car to be equipped with route and destination sign at front of car, as well as at side sliding doors. Car to be fitted with hand brakes, in motorman's cab, and to be equipped with H. & B. lifeguards and fenders. Sanding arrangement to be air type, complete in every respect, with valve and traps. Side windows to have window guards located on outside the entire length. Motorman, conductor and passenger signals to be the latest improved system. Cars to be also equipped with ventilators, head lights, automatic door signals, gongs, trolley catchers, fully equipped with stanchions, illuminated by 15 36-watt tungsten lamps, all in separate circuits. Heating system to be forced air. Air brakes, Westinghouse semi-automatic.

Trucks to be C. C. & F. design, cast steel side frame, suitable for inside hung motors, including cast steel truck and body center plates and equipped with brass wearing ring between friction surface. Wheel base 5 ft. 10 in. Trucks to be equipped with roller side bearings. 30 in. diameter cast iron chilled wheels. Springs to be combination semi-elliptic and helical coil springs. One set of springs between side frames and journal box and one set of coil springs between the semi-elliptic spring and bolster, which will provide for easy riding when the car is carrying a light load. Axles, standard A.E.R.A. o.h. steel, 3¾ x 7 in. journals.

The trailer cars will be very similar in construction to the motor cars. They are to have 15 cross seats in rear end; front end of car to be equipped with longitudinal seats. The trailers will be mounted on 4-wheel trucks of C. C. & F. design, with 22 in. diameter wheels. This will provide very convenient floor height and comfortable stops.

All door openings will be provided with white enamel stanchions, which will serve as handles, making the entrance and exit safe and easy to negotiate.

Giant Motor Omnibus.—The London, Eng., General Omnibus Co. has ordered 200 omnibusses of its S. type, 15 of which are already in service. They are 2 ft. longer than the latest K. type and have seating capacity for 57, or 11 more than the K. type, owing chiefly to a long seat in the inside at the front, on which passengers sit with their backs to the driver. The average London tramcar seats 74 people.

The Winnipeg Electric Railway's Franchise, Fares, Etc.

The Winnipeg City Council's public safety committee, which is considering the street railway situation in the city, had before it on June 1 a letter from the company's Vice President, A. W. McLimont, stating that pending the outcome of the negotiations the company was prepared to put into effect the following fares:—Cash, 7c. week days, 5c. Sundays. White tickets, 4 for 25c., good all times and Sundays. Red tickets, 9 for 50c., good week days 6 to 8 a.m. and 5 to 6.30 p.m. Green tickets (children), 8 for 25c., good every day all times. Or as an alternative: Cash, 7c. week days, 5c. Sundays. White tickets, 4 for 25c., good all times and Sundays. Red tickets, 5 for 25c., good week days 6 to 8 a.m., and Sundays. Green tickets, 8 for 25c., good every day all times. He also asked the consideration of the service at cost plan.

After consideration the committee instructed the special sub-committee, which is to carry on negotiations with the company, to deal only with certain questions, and not to discuss the service at cost proposals. The committee's recommendations were presented to the City Council June 6, as follows, and were approved:—"That it be authorized to discuss with the company and to include in its negotiations: Taking over the street railway at present or in 1927; general question of future relations of the city and the company for the remaining period of the franchise; making of a new agreement relating to the fares to be charged, as well as the time and manner of the determination of the existing franchise; forthwith determining the present existing franchise and the making of an agreement for an entirely new franchise."

One-Man Cars in Massachusetts.

A bill introduced in the Massachusetts State Legislature recently, in the interests of the street carmen's unions, backed by the American Federation of Labor, to prohibit the operation of one-man cars on electric railways, has been withdrawn. The labor interests centered their case on the alleged danger to the public, and the railway companies, while refuting this, showed the legitimate economy of the principles of one-man operation, and demonstrated conclusively that had it not been for one-man cars many more miles of railway track would have been added to the already large abandonments in that state. Several managers showed that the passage of any anti one-man car bill would result in the immediate suspension of service on many lines.

In regard to the operation of one-man cars in the state, the Massachusetts Department of Public Utilities requires only that some well-constructed device be installed accessible to passengers which will permit anyone inside the car to apply the brakes and unlock the doors in an emergency.

The Montreal Tramways Commission and the Montreal Administrative Commission have been approached relative to the establishment of a line of motor busses from the foot of Beaudry St. to the St. Helen Island ferry on Victoria Pier.

Answers to Questions on Electric Railway Topics.

Snow Sweeping.—(a) In using standard self adjustable snow sweeper is it customary to release the wheel that controls the brooms entirely, thereby allowing entire weight of brooms to ride on the splints? (b) Or is it the best practice to so adjust the brooms that the splints will just touch the paving? (c) Which practice will show best economy both as to rattan saved and results accomplished?

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry.—Brooms wear away unnecessarily fast if allowed to rest with full weight on pavement, besides which canes are bent so as to be less efficient in lifting snow. Distance from pavement will depend upon whether snow is wet or dry, and operator should lower broom until it sweeps clean, and no further. When snow is wet or gummy, it is a good plan with a double broom sweeper to lower the front broom to about 2 or 3 in. from pavement to take the loose snow, leaving the rear broom to complete the job.

W. H. Darracott, Chief Clerk to Manager, Winnipeg Electric Ry.—(b) It is our practice to so adjust the brooms that the splints will just touch the paving. (c) This practice is more economical as to rattan, and the results attained are more satisfactory.

Rolling Stock Maintenance.—What is the average number of employes per car engaged in general repairs, inspection and maintenance of rolling stock? Please state capacity of shop for handling cars, general type of equipment handled, character of service and frequency of overhauling.

W. H. Darracott, Chief Clerk to Manager, Winnipeg Electric Ry.—There are approximately 200 employes divided between three car barns and car shops. They are used for maintenance work on 340 passenger cars and 18 utility cars. Cars are inspected on a 500 mile basis, and are overhauled yearly. Shops and car barns are capable of taking in 40 cars for overhauling, and for inspection purposes practically every car on the system could be taken in.

Receipts and Deliveries by Dray.—To what extent do companies receive and deliver material and supplies by dray? Please state extent of this service and character of business handled.

H. E. Weyman, Manager, Levis County Ry.—We did approximately $24,000 a year in local express and freight business, employing six teams and one electric express and freight car. The electric car makes two round trips a day in summer and one in winter. The teams are used to transport freight across the ferry and as a feeder to the express car.

W. H. Darracott, Chief Clerk to Manager, Winnipeg Electric Ry.—The extent of deliveries by dray is approximately 20% of our material received, principally representing shipments by freight, the balance of our receipts, 80%, is auto truck delivery, principally from local distributing warehouses. It would pay if the railway companies cut out dray deliveries, 90% would then be auto truck service and 10% dray, this 10% being mostly bar iron and pipe, which appear to be always dray delivery.

Shop Jurisdiction.—Should a frog and switch shop operated by a street railway company be under engineering department (track division), or mechanical department? Please state reasons for answer.

W. F. Graves, Chief Engineer, Montreal Tramways Co.—Frog and switch shops should be operated by track department, in special buildings, with special equipment. This class of work is a specialty in itself, and if put in the company's general repair, will become general in supervision and routine, to which the work done was wholly foreign and, as a rule in the larger companies, there is sufficient work of this type to keep the shop in operation at all times.

W. H. Darracott, Chief Clerk to Manager, Winnipeg Electric Ry.—Our opinion is that thefrog and switch shop should be under the supervision of track department. This work is distinctly one concerning track matters and should have the supervision of a foreman experienced in all around track work, who understands the requirements of the system.

Use of Air Brakes.—When using K35 controllers quadruple equipment and air brakes, how are motormen instructed to make the quickest and most reliable stops to avoid accidents?

A. Gaboury, Superintendent, Monttreal Tramways Co.—Motormen are instructed that the quickest and the most reliable stop to avoid an accident can be made with the brakes. The moment danger becomes apparent push brake handle to the emergency position and leave it there until car is stopped; if reverse is needed, one notch of power only must be applied. Sand to be used at same time.

Motor Repairs.—How many man-hours are requiredto remove armatures from box frame motors, including time of taking motor from under car, and What method of removal is used?

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co. — Our practice is to remove box frame motors complete from cars at car barns and to ship same to general repair shops for repairs. This practice has resulted in the average mileage between removals on all box frame motors being in the vicinity of 70,000 miles. This figure, I think, is satisfactory. Average time for removing and replacing motor, including shunting, is less than two hours. Average time for removing armature from frame and replacing, about thirty minutes. Motor frame is placed on bench raised about 12 in. from floor, in horizontal position, axis of armature being in line with beam of gib crane; .8 foot of 3½ in. pipe is slipped over pinion end of armature shaft. Pipe is supplied with band and hook for attachment to crane. One man at outer end of pipe then removes armature quickly without any difficulty.

School Children's Fares.—What experience have member companies had with the abuse of school children's tickets, by reason of their being procured by students in colleges, trade schools, law schools, etc.; what form of ticket is used; what is the system of checking their issue to prevent their falling into the hands of those who are not entitled to them?

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry. — Our school children's ticket was subject to a great deal of abuse until we adopted a school certificate. These certificates are issued, in various numbers, to the principals of public and high schools in the city and surrounding districts, who certify the age of the bearer and that the child is a regular attendant at a school, and they in turn issue them to all pupils attending their schools, 12 years of age and over, desiring to use school tickets. To these pupils school tickets are only good on school days between 8 a.m. and 5 p.m., whereas for children under 12 years of age the school ticket is accepted as a full fare at all times. The school tickets are sold 10 for 25c.

Fare Collection in Zone Areas.—What method of fare collection have you found most satisfactory on city cars operating through three 5c. fare zones, or through three zones of any other unit fare; what type of car is used?

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry. — Two-fare zones are the most that we have to contend with on any of our city lines. When a passenger boards a car at a point in the city, desiring to go into the second zone, or municipality, he deposits his fare in the box. On reaching the city limits the car remains at a standstill while the conductor goes through the car with his fare box (which is of the Coleman portable type), and collects an additional fare. We have both single and double end cars in use, and they are all of the p.a.y.e type.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—

	Mar. 1921	Mar. 1920	9 mons. to Mar. 31, '21	9 mons. to Mar. 31, '20
Gross	$816,452	$761,182	$7,186,953	$6,557,837
Exp.	590,030	519,487	5,253,838	4,602,143
Net	219,422	241,695	1,933,115	1,955,694

Cape Breton Electric Co.—

	Mar. 1921	Mar. 1920	3 mons. ended Mar. 31, '21	3 mons. ended Mar.31, '20
Gross	$51,034	$44,751	$159,522	$138,947
Expenses	50,322	44,141	155,380	127,670
Net	712	610	4,142	11,277

Edmonton Radial Ry.—A press report states that the Edmonton, Alta., public utilities showed a net surplus of $14,989 for April, against a deficit of $491 for April, 1920, making a total surplus for thet four months ending April 30 of $95,569. The Edmonton Radial Ry. is reported to have shown a surplus for April of $3,406, against a deficit of $4,434 for April, 1920.

A press report gives the following figures of the railway's earnings for the week ended May 28:—

	1921.	1920.
Earnings	$12,449	$12,135
Passengers carried	205,073	206,933
Wages paid	$6,503	$8,051
No. of employes	204	251

Oshawa Ry. Co.—Following are the directors for this year: J. E. Dalrymple, President; H. W. Cooper, Manager; J. H. Valleau, Secretary and Treasurer; J. A. Yates, J. M. Sparling. The General Auditor is J. M. Rosevear.

Porcupine Rand Belt Electric Ry. Co. A special general meeting of shareholders was called to be held in Toronto, June 4, to receive the final report of the liquidator, J. H. Tighe, to consider the organization of a purchasing company, and to receive tenders for a capital stock of $50,000 with all assets. (Jan., pg. 36.)

Regina Municipal Ry.—A press report gives the following figures for May:—

	1921.	1920.
Revenue	$25,951.15	$23,424.05
Passengers carried	421,806	488,830

Toronto Ry.—Gross earnings for May, $667,056.28; city percentage, $133,411.25, compared with $664,438.42 gross earnings, nad $132,891.69 city percentage, for May, 1920. The amount owing to the city for percentages is $1,318,000, plus interest.

The annual and special meetings of shareholders called to be held in February, and adjourned from time to time to June 24, were then further adjourned to Aug. 19, on account of the agreement for the sale of the power plants and radial railway properties not being completed. It is reported that one of the reasons of the delay in completing the agreement is due to vendors having asked that the Ontario Government guarantee some $17,000,000 of the bonds to be taken in payment. Following a conference between the parties interested, it was reported that all danger of any hitch in the purchase going through had been removed.

Toronto Ry., Toronto & York Radial Ry. and allied companies.—

	Mar. 1921	Mar. 1920	3 mons. to March 31, 1921	3 mons. to March 31, 1920
Gross	$1,318,273	$1,255,668	$3,821,246	$3,499,871
Expenses	883,103	794,212	2,568,927	2,299,684
Net	435,170	461,456	1,252,319	1,200,187

Winnipeg Electric Ry. and allied companies.—

	Apr. 1921	Apr. 1920	4 mos. to Apr. 30, 1921	4 mos. to Apr. 30, 1920
Gross	$462,378	$431,685	$1,923,941	$1,832,310
Expenses	349,955	338,964	1,396,425	1,385,434
Net	112,423	92,721	527,516	446,876

The surplus, after allowing for fixed charges, for Apr. 1921, was $52,310.

Death of W. W. Wylie.

W. W. Wylie, who was for over 20 years General Manager, Ottawa Car Manufacturing Co., died in Otawa, June 24, aged 62, having received a paralytic stroke a week previously. He was born at Valparaiso, Chile, May 17, 1860, of Scottish parents, and came to Canada, about 40 years ago. He engaged in carriage and wagon building, and in that capacity was brought into contact with T. Ahearn and W. Y. Soper, soon after they had taken hold of the Ottawa Electric Ry., for whom he built the first snow plough. He was subsequently given orders for car bodies, which he turned out satisfactorily. The result was the establishment of the Ottawa Car Manufacturing Co., in 1890, on the site of the Wylie carriage and wagon works plant. He was the first manager of the plant and held that position until 1912, when he retired from active work.

Toronto Railway Arbitration. — The Ontario Legislature, in order to remove doubts as to the meaning of a paragraph relating to "the award, conditions, tender and bylaw" in the agreement between the Toronto City Council and the Toronto Ry. Co., has passed an act declaring that the value of the company's real and personal property to be taken over by the city shall be determined by three arbitrators, as provided in the Municipal Act, secs. 335 and 336. Sir Adam Beck has been appointed by the city council, and Sir Thomas White by the company, and Hume Cronyn, M.P., of London, Ont., has been chosen by them as the third arbitrator.

Electric Railway Projects, Construction, Betterments, Etc.

Calgary Municipal Ry.—A new intersection for crossing at Second St. has been procured from Montreal at a cost of $6,500. (Nov., pg. 616.)

Chatham, Wallaceburg & Lake Erie Ry.—The Chatham, Ont., City Council is reported to have decided, May 31, that the company's tracks on King St., Chatham, be taken up, and that an asphalt covering be placed over the brick roadway. The Retail Merchants' Association has objected to the tracks being removed, and is reported to be asking for an injunction to prevent the council's decision being carried out.

Edmonton Radial Ry.—In connection with a proposed re-routing of cars, the City Commissioner suggests that a piere of line be built at an estimated cost of $75,000 to connect the Namayo and 101st Street tracks. (Feb., pg. 92.)

Grand River Ry.—Owing to a lack of a two-thirds majority, the Galt, Ont., city Council failed to pass, on June 6, a bylaw granting the company the privilege of operating an industrial spur. The company desires a five-year franchise, but the hydro-electric railway interests oppose anything but a year's franchise. The matter is being considered by the local manufacturers and the railway company with a view to reaching a solution of the difficulty. (June, pg. 322.)

Hamilton St. Ry.—We are officially advised that about half a mile of double track on York St., Hamilton, Ont., will be relaid with 82-lb. girder rails in concrete. An order has been placed in the United Steel for 150 tons of steel rails for this purpose. (June, pg. 522.)

Hydro-Electric Ry.—Essex Division.—A press report states that the Windsor, Ont., City Council has authorized the expenditure of $900,000 for improvements of the street railway.

London & Port Stanley Ry.—A press report states that a piece of land has been acquired for the addition to the London, Ont., shops; and that a paint shop is to be added to the car barns on Philip St., London.

The construction of an additional track in St. Thomas, is reported to be completed, making the line a double track one through that city. (June, pg. 322.)

Montreal Tramways Co.—We are officially advised that the company's programme of trackwork for this year provides for track renewals on 12 routes, a total of 8 miles of single track at an approximate cost of $500,000 and the renewal of 20 intersections at a cost of $300,000. On account of municipal requirements as to repaving, change of gradients, etc., tracks will have to be renewed, or relaid, on 20 streets within the city limits, totalling 19 miles of single track, at an approximate cost of $1,000,000.

A press report states that a new line has been completed by the company from the end of the track at Abuntsic westward to Bordeaux, and that it was expected to be opened for traffic during June. The question of the construction of a line up Mount Royal is reported to be not yet definitely settled. It is also stated that the Montreal Administrative Commission has no intention of urging the Montreal Tramways Commission order for the building of the line, and the chairman of the latter commission is stated to have said there is a good deal of work to be done in other parts of the city before the mountain line can be undertaken. (June, pg. 322.)

New Brunswick Power Co.—The St. John, N.B., city council proposes to pave Brussells St. at a cost of $121,457, of which the track section, to be paid by the New Brunswick Power Co., is estimated at $45,000. The company is reported to have advised the council, May 27, that it was unable to finance the work, and asked the city to raise the money on the company's note for two years at 6%. The council is considering the financing of the construction of the concrete base for the track at an estimated cost of $27,000, on the one hand, or the paving of the sides of the street, leaving the track section as it is.

We are officially advised that the company contemplates the expenditure of about $150,000 on trackwork during this year. (June, pg. 322.)

Sherbrooke Ry. & Power Co.—We are officially advised that the company proposes to renew about a mile of track on account of new paving, on King St. E., Aberdeen St. and Dufferin St., Sherbrooke, Que. (Dec., 1920, pg. 672.)

Electric Railway Notes.

Toronto City Council has authorized the raising of $10,000,000 on account of the purchase and rehabilitation of the Toronto Ry.

The Fort William Municipal Ry. and the Port Arthur Civic Ry. managements are reported to have practically agreed to operate the local lines in each city with one-man cars. A joint meeting of the two bodies was held June 15, to discuss one-man car operation on the line connecting the two cities.

The Edmonton, Alta., Utilities Committee is reported to have recommended a general change in the re-routing of Edmonton Radial Ry. cars, which, it is claimed, will give greater convenience to passengers and effect a saving in operation. The rearrangement was coupled with a proposal to reduce the fare to 5c., and as the City Commissioner wished to have some further facts to lay before the council, the discussion of the matter was postponed.

The New Brunswick Power Co. has, we are officially advised, decided to operate one-man cars as far as practicable on the St. John Ry., and it was expected to put them in operation by June 15. The man in charge is to be paid 5c. an hour extra. Pending a reduction in the price of new cars, the company's present car equipment will be converted for one-man car operation. The change to one-man operation will result in the dropping of about 50 men.

British Columbia Electric Ry. Franchise.—The terms of the proposed agreement between the company and the city of Vancouver, for a new franchise agreement, are still under discussion as to certain details. The propositions are also being considered by the other mainland municipalities, with a view to bringing the other franchises into line, and so having the whole of the company's lines on the mainland operated under practically similar agreements, terminating at the same time; though, of course, the fares would be somewhat higher in the surrounding municipalities. The commutation fare from the suburban zone would be 7½c. maximum.

The Toronto Transportation Commission's Work.

Equipment Orders.—As stated in Canadian Railway and Marine World for May, the Commission ordered 100 motor cars, and 40 trailer cars, from Canadian Car & Foundry Co., Montreal, taking at the same time an option on 50 more motor cars, which it has ordered since, making the total 150 motor cars, and 40 trailer cars. Other orders have been given Consolidated Steel Corporation, New York, Toronto and Montreal, for 4,800 tons grooved girder steel rails, some of A.E.R.A. standard, and the others A.R.A. series A, 122 lb. per yard, the total cost being approximately $350,000, also to Canadian Steel Foundries, Montreal and Toronto, for a number of solid manganese intersections, at an approximate cost of $55,000.

English Expert Engaged.—H. E. Blain, C.B.E., Assistant Managing Director of Metropolitan District Ry., London Electric Ry., City & South London Ry., Central London Ry. and London General Omnibus Co., and also a director of the Wimbledon & Sutton Ry., London, Eng., spent some time in Toronto recently, having been engaged to give the Commission general advice on the city's transportation problems.

Appropriation for $7,000,000.—The Commission applied to the city council recently for $7,000,000, the application being made in a letter from the General Manager, as follows:—

"The Commission, since its organization last autumn, has been engaged upon a careful survey of the city's transportation problems, in order that it might carry out the duties entrusted to it in the most efficient and economical manner. While such survey is not complete, it has become manifest that the time has now come to proceed with the work necessary for the unification of the systems, if the plan for the amelioration of the city's transportation facilities is to proceed satisfactorily when the Toronto Ry. Co.'s property is taken over next autumn. The Commission therefore begs respectfully to make requisition on the city council for $7,000,000, in order to carry out the duties imposed on it by the statute by which it is constituted. These funds are required in order to commence the following works: (1) The connection of the existing lines now operated by the Toronto Ry. Co. with those of the civic street railway system. (2) The provision of the first installment of motor cars and trailers for the unified system. (3) The plant and materials necessary for the rehabilitation of existing street railway system and the laying of connecting lines and extensions. (4) Special work, overhead equipment, and materials generally, including labor. (5) Car barn and shop facilities for the Commission's work. (6) Preparation of designs for new plant and equipment and general organization work, including surveys, and general development work. The whole of the funds covered by this application will not be required immediately, and it is suggested that these be provided from time to time as may be arranged with the city's Finance Commissioner."

Cost of Pavement Widenings, etc.—Following a conference between the Commission and the city board of control, the Commission's General Manager submitted the following proposals to the board of control recently:—

"1. Cost of roadway widenings, reconstruction of sidewalks and other works necessitated by such widenings. (a) Where a street on which a new line is to be laid is unpaved, the work as outlined (in brief) above to be carried out and charged as far as possible as a local improvement in the ordinary way. The Commission to pay the capital cost of the tracks, foundations and paving within the track allowance, less a sum (to be defrayed by the city) equal to the cost of a pavement (and foundation for the same) on the track allowance, of the same type and construction as is to be laid on the roadway outside the track allowance. (b) Where a street on which a new line is to be laid is already paved, the capital cost of the above work necessary to be carried out, to be defrayed by the city. The commission in this case to defray the whole of the capital cost of the work of laying the tracks, foundations and paving within the track allowance.

"2. Division of the capital cost of paving the track allowance as between the city and the commission. In the case of new lines on existing streets (other than those defined in clause 1), or in the case of rehabilitation of existing lines on any streets (including the widening of the 'devil strip' and the remodelling of curves), the Commission is to pay the capital cost of the tracks, foundations and paving within the track allowance, less a sum (to be defrayed by the city) equal to the cost of a pavement (and foundations for the same) on the track allowance, of the same type and construction as that laid on the portion of the roadway outside the track allowance.

"3. The cost of maintenance of the existing pavements on the track allowance, pending rehabilitation, to be divided between the city and the Commission on the same basis as provisionally agreed between the Works Commissioner and the Commission's General Manager in respect of maintenance of new and rehabilitated pavements on track allowance, viz.:

"The Commission to defray the whole cost of repairs arising out of repair or inspection of the rails or bonds by the Commission. The Commission to defray 25% of the maintenance cost, the balance to be defrayed by the city.

"Pending the settlement of the foregoing, the Commission is unable to proceed with its plans for co-ordinating the existing systems and ameliorating existing conditions after Sept. 1 next."

The proposals, as stated above, were approved by the board of control and city council.

Electric Railway Freight and Passenger Rates.

Chatham, Wallaceburg & Lake Erie Ry.—The Board of Railway Commissioners passed order 31,128, June 14, approving the company's Standard Passenger Tariff C.R.C. 45.

Cornwall St. Ry., Light & Power Co.—Cornwall, Ont., ratepayers are to vote on a bylaw to extend the Stormont Electric Light & Power Co.'s franchise for 10 years from 1923, when the present franchise will expire. This company is controlled by the Sun Life Assurance Co., which also owns the Cornwall St. Ry., Light & Power Co., the electric railway tracks of which are reported not to be in good order, but the company has offered to put them in order, provided the Stormont Co.'s franchise be extended, and that the railway franchise be so amended to allow of fares being raised from 5c. to whatever the fare may be in Toronto, if the Cornwall Town Council is able legally to permit it to be done.

The Detroit United Ry. is reported to have put in operation a 5c. fare, with 1c. for transfers, on its Detroit city lines.

Edmonton Radial Ry.—On the recommendation of C. J. Yorath, City Commissioner, and R. Colwell, Superintendent, of the Edmonton, Alta., City Council's utilities committee, May 21, passed a report favoring a return to a 5c. fare, without transfers. The matter was to have come up at a council meeting on May 23, but was withdrawn from consideration, the City Commissioner desiring to have more specific information to submit.

Grand River Ry.—The Board of Railway Commissioners has passed the following orders:—31,116, June 10, re company's application for approval of Supplement 1 to Standard Freight Tariff C.R.C. 57, and Supplement 1 to Standard Passenger Tariff C.R.C. 14. The company is authorized to publish and file a standard freight tariff, showing an increase in freight rates, on the same basis as those authorized under the provisions of general order 308, Sept. 9, 1920. The application for increased passenger fares is refused.

31,118, June 16, approving the company's Standard Mileage Freight Tariff C.R.C. 57.

International Ry.-Niagara Gorge Rd. On May 1, a joint passenger traffic tariff on these lines increased the one-way fare between Buffalo and Lewiston, N.Y., by 13c., and the round trip fare by 11c. The Buffalo-Youngstown, N.Y., single fare was increased by 8c., and the round trip fare by 5c.

Lake Erie & Northern Ry.—The Board of Railway Commissioners has passed the following orders:—31,115, June 10, re company's application for approval of Supplement 1 to Standard Freight Tariff C.R.C. 165, and Supplement 1 to Standard Passenger Tariff C.R.C. 23. The company is authorized to publish and file a standard freight tariff showing an increase in freight rates on the same basis as those authorized under the provision of general order 308, Sept. 9, 1920. The application for increased passenger fares is refused.

31,117, June 16, approving the company's Supplement 1 to Standard Mileage Freight Tariff C.R.C. 165, the same being on the basis of rates authorized by order 31,115, June 10.

Montreal & Southern Counties Ry.—W. B. Powell, General Manager, is reported to have stated recently that the present fares of 3.45c. a mile will not be reduced on the coming into force of the reduced fares re steam railways June 1. The 20% increase granted steam railways in Sept., 1920, was not participated in by the M. & S.C. Ry., and it is likely that the rates on that line will remain the same as on the steam lines for some time to come.

Winnipeg Electric Ry.—See under "The Winnipeg Electric Ry.'s Franchise, Fares, etc.." on another page of this issue.

Marine Department

General Shipbuilding Matters Throughout Canada.

Alberta and Arctic Transportation Co., Ltd., Edmonton, Alta., is reported to have secured a site at McMurray for a shipyard, and intends building and repairing boats. The manager is stated to be W.J. West.

Alberta Motor Boat Co., Edmonton, Alta.—The Hudson's Bay Co.'s house boat H.B.C., built by this company, was expected to sail early in June with a Government party for Dogrib and the Slave Lake, The boat is 50 ft. long, 11 ft. beam, with a draft of 12 in. Her approximate gross weight is 3 tons, and she is considered a novelty for transportation on northern waters. She has been built of Alberta spruce, and, having no machinery, will betowed by the H. B. Co.'s gasoline tug Nechemus, which is equipped with 60 h.p. Buffalo engines. With the exception of a small deck in the bows, the hull is occupied by a long cabin, with berths, a table running through the center, which, when not required, is elevated to the roof. The sides of the cabin are normally open, but are fitted with wooden shutters to close it completely as required. The galley, etc., are located at one end, and a lifeboat, and other items are stowed on the roof.

The company is also building a number of small boats and power canoes, equipped with 6 h.p. Waterman engines, for service on the Arctic coast.

It is also building a launch for Imperial Oil Ltd., for operation on Great Slave Lake, and in the vicinity of the Fort Norman oil fields. This boat will be 25 ft. long with 8 ft. beam, and will be equipped with a Scripps engine, electric starter, electric search light, etc.

The Alberta & Great Waterways Ry. is having a launch built for its officials' use on the Clearwater and Athabasca Rivers. This boat will be 25 ft. long, with tunnel for propeller shaft and rudder, and will be equipped with a 60 h.p. Scripps engine.

J. A. Balcom & Co., Magaretville, N.S. The wooden steamship Ruby L. II, launched by this company recently, has been taken to West St. John, N.B., where the machinery is being installed by Union Foundry Co. When completed she will take the place of the Ruby L., which is operated on the Bay route by the Margaretville Steamship Co.

Beauchemin & Co., Sorel, Que. — The ferry steamship Duchess of York, owned by the King Edward Park Co., Montreal, has been overhauled and fitted with new paddle wheels and steering gears at this company's plant. The company has also installed new steering gear in the s.s. Boucherville, operating the ferry service between Montreal and Boucherville, Que.

B.C. Marine Engineers and Shipbuilders Ltd., Vancouver, B.C.—The auxiliary powered schooner Lady Kindersley, built by this company for the Hudon's Bay Co., underwent her preliminary trials June 6, making two runs past Point Atkinson, when she registered 8½ knots, and it was expected that when the engines eased up she will reach 9½ knots with ease.

Canadian Vickers Ltd., Montreal.—The s.s. Idefjord, built recently for Norwegian American Line, underwent her trial trip in the St. Lawrence recently as far as Sorel, for a thorough test of her machinery. During the trip down and back she maintained an average speed of 13 knots. After being taken over by her owners, she loaded cargo for Norway.

Canadian Government Steamship Dollard.—A Montreal paper, which professes to be an authority on shipping, published the following recently: "The Kingston Shipbuilding Co. has been awarded the contract for the new Government steamer Dollard, to cost about $160,000." Enquiry of the Marine Department has elicited the information that there is nothing in the report. That Department already has steamship Dollard, which was built at Kingston in 1913, and which is at present working out of Halifax, N.S.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Collingwood Shipbuilding Co., Collingwood, Ont. See also Dominion Shipbuilding & Repair Co.

Collingwood Shipbuilding Co., Kingston, Ont. The work of overhauling the Ontario Car Ferry Co.'s car ferry, Ontario No. 2, preparatory to her summer service, has been practically completed at this plant, and work was commenced recently on similar operations on the car ferry Ontario No. 1.

Copeland and Wright, Sidney, B.C., launched the motor tugboat Tim at the end of May, for the Timberland Development Co., Ladysmith, B.C. She is 36 ft. long by 9 ft. beam, equipped with Canadian Fairbanks-Morse engine, for a speed of 7 knots.

Dominion Shipbuilding & Repair Co., Toronto.—The liquidator, Osler Wade, Toronto, is offering this company's plant and equipment for sale by tender. The plant and buildings are stated to represent an investment of $1,574,149, and include office buildings, workshops, yard equipment and power house. The yard equipment includes 5 permanent shipways and 3 electric gantry cranes. The land occupied is held on a 42-year lease from the Toronto Harbor Commissioners, and consists of 13 acres with a water front of 1,868 ft. The annual rental is $22,100 for the first 21 years, and for the remaining portion is to be determined on the value of the property at July 1, 1940. Tenders will be opened by the Official Referee, Aug. 31.

Fraser, Brace Ltd., Montreal has built a steel ferry boat, named Amy, for the Laurentide Co., Grand Mere, Que. She was shipped by rail to Grand Mere, where she will be used in transferring passengers, automobiles, etc., across the St. Maurice River.

A deputation of Collingwood Shipbuilding Co.'s employes, engaged on the completion of the two steel cargo steamships for Canadian Government Merchant Marine, at the Dominion Shipbuilding & Repair Co.'s yards at Toronto, waited on the acting Prime Minister and the Minister of Marine recently, to ask that the Dominion Government continue work on two ships, the keels of which had been laid prior to the company's bankruptcy. The deputation claimed that it would be impossible for the men now at work at the yards to obtain employment when the yards were closed, and pointed out that about 75% of the 700 employed are returned soldiers, and also asked the Government to consider the question of maintaining the yards permanently. The two keels mentioned were for ships on order for private interests, and are in no way associated with Dominion Government orders for Canadian Government Merchant Marine.

Halifax Shipyards, Ltd., Halifax, N.S. Following a survey of damage sustained by the s.s. Impoco, owned by Imperial Oil, Ltd., at Halifax, after being released from Blonde Rock, where she stranded Apr. 6, tenders were called for by the underwriters for repairs and overhauling. A press report states that 9 tenders were sent in, 2 being by Canadian companies, viz., Fraser, Brace & Co., Montreal, and Halifax Shipyards, Ltd. Tenders are reported to have ranged from rather less than $25,000 to $395,000, the lowest being submitted by Halifax Shipyards, Ltd.

Harbor Marine Co., Victoria, B.C., which is a subsidiary of the Victoria Machinery Depot Co., and which was formed to carry out Marine Department contracts 29 and 30, for the construction of the tseel cargo steamships Canadian Winner and Canadian Traveller, for Canadian Government Merchant Marine, is defendant, with the Victoria Machinery Depot Co., and C. J. V. Spratt, President of both companies, in an action brought by J. S. Clark, marine architect, in the Supreme Court of British Columbia, for breach of agreement. He claims to be entitled to 5% of the gross profits of the contract, with a salary of $500 a month for several months, and

commissions due under a contract. In his evidence, plaintiff stated that he had prepared an estimate for the purpose of showing the distribution of $190 a d.w. ton, first offered by the Government for the ships, and later increased to $198 a d.w. ton, and that he assured the company that the offer of $190 a ton was worth accepting, and if it was intended to go into the shipbuilding business, then was the time, as no Government would ever make the same offer again. He stated that from July to December, 1918, his services had been voluntary, and he had received no monetary consideration, nor thanks. Prior to his services with the company, he had been engaged by the Imperial Munitions Board on ship construction and had prepared plans for the construction of ships for that board. The estimate as prepared by him, for the two ships, Canadian Winner and Canadian Traveller, according to the report, showed that a profit of $600,000 could be made on each ship. While the case was proceeding, reference was made to a car barge being built by the company for the C.P.R., and plaintiff is reported to have stated that his estimate for the construction of the barge was $160,000, and he understood that the whole of the overhead for that, and the whole of the cost of the barge, had been placed against the two Canadian Government Merchant Marine ships.

C. J. V. Spratt, President, Victoria Machinery Depot Co. and Harbor Marine Co., denied the plaintiff's allegation that the machinery supplied by the former company to the latter was scrap; it was mainly new, with three punches which were shop worn. It was difficult to obtain new machinery at the time, and some tools had been rented from the V. M. D. Co. at $300 a month, and others at an additional rental, to be returned in good condition, or paid for. He claimed that plaintiff wanted money advances on his own statements, which he was advised were incorrect, being thousands of dollars out, according to the company's books. He declined to attempt to figure on actual costs, owing to the fact that the company had to keep the ships in repair for six months after acceptance by the Government, and some of the bills from John Inglis Co., in connection with the machinery, were still in dispute. He stated that he secured a promise of an order from the Minister of Marine in Nov. 1918, and then went to New York to meet officials of the Foundation Co., with the view of selling the Harbor Marine Co.'s assets and the contracts. He later signed the contracts with the Government and became obligated to build the ships. He told the Minister of Marine that he had a shipbuilding plant, and the Minister was satisfied. He engaged the plaintiff as Chief Engineer of Ship Construction, and not as Naval Architect, at $225 a month. Plaintiff demanded payment of $20,000 after the launching of the Canadian Winner, and again on the launching of the Canadian Traveller, and was finlaly discharged after it had been explained to him that the money could not be paid at that stage. The proposed deal with the Foundation Co. fell through, and at a meeting of the V. M. D. Co.'s directors, Jan. 4, 1919, it was decided that the company would not build the ships, and he (Spratt) stated that he would carry out the contracts. After this he made the plaintiff an offer of $400 a month, with 5% of the profits on the two ships, with plaintiff sharing the responsibility, and after some discussion it was finally agreed that his salary would be $500 a month and 5% of the profits on the two ships, and the agreement was made without the use of the term "gross profits" having been noted. He (Spratt) exchanged the contracts for a block of stock in the Harbor Marine Co., Ltd., and became its President, plaintiff being one of the directors. The site chosen for the plant, on the inner harbor, Songhees Indian Reserve was leased from the Dominion Government on a monthly basis, and the company was a distinct and separate company from the Victoria Machinery Depot Co. The notes from the Dominion Government, in payment of the work as it progressed, were given to the Victoria Machinery Depot Co., and endorsed to the Harbor Marine Co., by him as President, V. M. D. Co. The agreement called for the payment to plaintiff of 2½% at the launching of the Canadian Winner, but it was claimed that this was more than offset by delays in construction, etc., which reduced profits and delayed Government paymenss. It was planned to launch the ships ready to steam, but this was not possible, and the Victoria Machinery Depot Co. had done what boiler adjustments and installations had been found to be necessary, and had done it more cheaply than any Vancouver or Seattle tender received. He contended that plaintiff had been engaged as "a common employe, and there had, at no time, been any subterfuge about his employment."

Steel Cargo Steamship Glenafton, Glen Transportation Co.

McMurray, Alta. — A considerable amount of small shipbuilding is in progress here. The Hudson's Bay Co. is reported to be building a 75 ft. boat, in addition to a number of scows. The Northern Trading Co. is stated to be building a large number of scows, and the steamboat North Pioneer is well on the way towards completion by A. J. Bucking, while a number of similar craft are in various stages of construction.

National Shipbuilding Corporation, Three Rivers Shipyards Ltd. Division.— The oil tank steamship Capitaine Demaine, approximately 6,500 d.w. tons, was launched at this yard, June 8. This ship, which was partially built when the building company went into bankruptcy, is being completed by the owners, La Societe Naphtes Transports, Marseilles, France, and the engines are being built by Canadian Allis-Chalmers Ltd., Toronto, and auxiliary machinery by Canadian Vickers Ltd. The ship is to be classified 100A1, for carrying petroleum in bulk.

Nova Scotia Steel & Coal Co., New Glasgow, N.S., is building a steel yacht, to be named Sea King, which was ordered last year for exploring purposes,

for Baron Bliss, Bahamas, British West Indies. She will be 137 ft. between perpendiculars, with a moulded depth of 28½ ft., and will be equipped with two 250 h.p. Vickers-Peters semi-Diesel oil engines. All the auxiliaries will be electrically driven, including the anchor 42½ ft., depth moulded 21 ft. Her gross tonnage is 1,866.31, and she has an estimated deadweight carrying capacity of 3,000 tons.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—The steel freight steamship Glenafton, an illustration of which is given herewith, was built by this company for the Glen Transportation Co., of Midland, Ont., and was delivered April 30. She is designed for both lake and ocean service, the length over all being 259 ft., length between perpendiculars 251 ft. 11½ in., breadth moulded windlass and capstan. She was expected to be launched during May, but we were advised June 4 that launching was delayed owing to the coal strike in Great Britain, and that a definite date for the launching could not be stated.

Sydney Foundry & Machine Works, Sydney, N.S.—The marine railway which this company is building, as mentioned in previous issues, will have a lifting capacity of 1,200 d.w. tons. It will be a standard railway drydock and will measure 200 ft. over the keel blocks, and 50 ft. wide, and will give 10 ft. of water forward and 16 ft. aft at mean high tide. It will be of timber construction on a pile foundation and will be operated by two 2⅛ in. chains and a powerful hoisting machine capable of docking a full load in about 30 min. The work is being done by Crandall Engineering Co., East Boston, Mass., the machinery and iron work being made by Sydney Foundry & Machine Works.

Toronto Drydock Co., Toronto, built the steam tug G. R. Gray for the Spanish River Pulp & Paper Co., Sault Ste. Marie, Ont., recently, and she sailed from Toronto, towards the end of May, in charge of Capt. T. L. Ganley. Her dimensions are: length over all 151 ft., beam 24 ft., depth moulded 14 ft. She is equipped with modern engines and boilers, and has a wireless telegraph installation. She will be used for towing pulpwood to the owning company's mills and has been equipped with a steam towing machine and windlasses.

The Niagara, St. Catharines & Toronto Navigation Co.'s s.s. Northumberland was overhauled at this company's yard during the winter and several alterations made. Heretofore the boat deck has not been a passenger deck and the necessary changes were made to convert it into a passenger deck, thus providing deck space required for the lake business. Four state rooms at the forward end of the old dining room have been removed and the dining room has been turned into a room with hardwood floor for dancing. The forward end of the cabin has been moved aft about 10 ft., in order to increase the forward deck space. New plumbing has been installed throughout, decks have been recanvassed, new galley and dining rooms provided for the crew, and the ship and machinery have been given a general overhauling. The improvements made have increased her license by over 100%. Part of these changes were made by the Toronto Drydock Co. and the balance by the owning company's own men.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—It is reported that the Dominion Government has decided to take over and complete the three remaining barquentines, of the four which this company agreed to build at the Cholberg shipyard, under special Dominion Government aid. The agreement entered into between the Government and the company provided for the construction of four barquentines, each with a cargo capacity of 2,400 d.w. tons, or 1,500,000 ft. b.m. of lumber, at an estimated cost of $250,000 each, towards which the Government was to advance $700,000 as a loan under special terms. The ships were to be completed within 12 months of the commencement of construction. The chief object in providing this aid was to relieve the unemployment situation in Victoria, owing to the disturbance of the labor market due to military demobilization. After considerable difficulties, one of these ships, named S. F. Tolmie, was finished, and it is stated that she cost approximately $85,000 more than the estimated price. A second ship, to be named Sir Henry Drayton, is partially built, the keel having been laid May 15, 1920, and the launching was expected to take place in August of this year. The other two ships were expected to be launched in the latter part of this year, the keels having been laid June 4, 1920, and in Feb. 1921. The company got into financial difficulties early in the year, and a meeting of shareholders was held March 1, to consider the position, a committee of five being appointed to confer with Government representatives.

Yarrows Ltd., Victoria, B.C., did the following repair work during May: H.M.C.S. Patriot, docked for survey; C.P.R. s.s. Princess Victoria, 1,943 gross tons, docked for cleaning, painting and repairs; Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince George, 3,372 tons, repairs to steering gear and engine room repairs; and s.s. Prince Rupert, 3,379 tons, reconditioning work completed after wreck at Swanson Bay last autumn; C.G.S. Madge, 155 tons, docked for cleaning, painting and repairs; C.G.S. Restless, 76 tons, repairs; Lobitos Oil Fields' s.s. El Lobo, 4,800 tons, docked for cleaning, painting and repairs; Kuskowin Fishing & Transportation Co.'s schooner Ruby, 345 tons, docked for cleaning, painting and repairs to bow damage; Sir John Jackson (Canada) Ltd., derrick scow, docked for cleaning and painting; Producers' Rock & Gravel Co.'s scow No. 17 docked for cleaning, painting and repairs; yacht Truant, owned by W. Adams, docked for cleaning and painting.

Some small pipe repair work was carried out early in June on the Harrison Line's s.s. Spectator. Canadian Government Merchant Marine s.s. Canadian Inventor was docked early in the month for some repairs caused by striking a submerged rock in Active Pass. The Quadra Steamship Co.'s s.s. Quadra, operating in the ore trade between Britannia Beach, B.C., and Tacoma, Wash., was also docked during June for repairs.

The Vancouver Harbor Commissioners are reported to have announced that the proposed coal bunkers, at Burrard Inlet, will not be built this year, owing to lack of money, but that in all probability the work will be undertaken early in 1922. In the meantime, plans are being prepared, and negotiations will be carried on for the selection of a site.

Pacific Ocean Freight Rates.

A recent Montreal press dispatch stated as follows:—"To stimulate the movement of cargoes from Pacific coast ports to Australia and New Zealand, the General Steamship Corporation, and the Oceanic Steamship Co., with carriers plying out of San Francisco, and the Canadian Government Merchant Marine, and Canadian - Australian Line, operating from Victoria and Vancouver, B.C., have agreed upon sweeping reductions in freight rates, which will be placed in effect immediately. The tariff on canned salmon is reduced to $20, box shooks from $15 to $10 a ton, portable houses from $18 to $15 a ton. The lumber rate, which was reduced recently, will remain at $20 a thousand feet. The new tariffs are effective from all Pacific Coast ports to Auckland and Wellington, N.Z., and to Sydney and Melbourne, Australia."

We are officially advised that the Canadian Government Merchant Marine's present rates from Vancouver to Australia and New Zealand are as follows: Canned salmon, $18 a ton; box shooks, $10 a ton; portable houses, $15 a ton; lumber $20 per 1,000 superficial feet.

Canadian and Norwegian Shipping Arrangements.—A delegation of Norwegina shipowners, consisting of E. W. Engleser, Managing Director J. Ludwig Mowinckels Rederei, Bergen; L. Hanson and G. von Erpecom, accompanied by Oliver Hatch, of Japp, Hatch Co., London and Liverpool, Eng., are touring the various routes of Canada Steamship Lines Ltd., with officials of that company. The delegation represents the Norwegian interests involved in an agreement completed recently with Canada Steamship Lines, for a combined passenger and freight steamship service between Canada and Scandinavian ports, under the name of the Intercontinental Shipping Co., the incorporation of which was announced in a recent issue. The agencies in Great Britain will be in charge of Japp, Hatch Co., and the operation of the line will be on a similar basis to that obtaining with La Cie. Canadienne Transatlantique, in which Canada Steamship Lines half a half interest.

Suspicious Shipping Losses.—On account of the extraordinarily numerous claims on Lloyd's underwriters for losses of Greek ships, the Greek Government has been urged to investigate the losses. It is stated that claims for ships owned by Greeks, which have foundered, or otherwise become total losses, since the decline in shipping, amounts to a very large sum and that within a few weeks, claims totaling over £3,000,000 were presented. A London, Eng., report states that in certain cases, criminal proceedings are pending. At least two of the Greek steamships reported as total losses recently, were built in Vancouver, B.C.

U.S. Steamships for Canadian Silver Ore Trade.—With reference to a press report, mentioned in our last issue, to the effect that U.S. ships will be allowed to carry silver lead ore from Mayo Landing, Yukon, owing to shortage of Canadian bottoms to handle the increased output of the silver works at Ceno Hill, we have been officially advised that special permission has been given for the use of two U.S. steamships in carrying ore from Mayo to St. Michaels, provided that no Canadian ships can be obtained for this service.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Launching of Steamships. We have been advised of the launching of the following steel cargo steamship for Canadian Government Merchant Marine, in addition to those mentioned in previous issues.

June 8, s.s. Canadian Logger, Marine Department contract 54, builder's yard no. 10, approximately 3,890 d.w. tons, Midland Shipbuilding Co., Midland, Ont.

Montreal Sailings. — The following dates have been announced:—

Liverpool service.—Canadian Victor, July 8; Canadian Ranger, July 22; Canadian Seigneur, Aug. 5; Canadian Commander, Aug. 19.

London service.—Canadian Trapper, July 6; Canadian Rancher, July 20; Canadian Raider, Aug. 3; Canadian Trapper, Aug. 17; Canadian Rancher, Aug. 31.

Glasgow service.—Canadian Navigator, July 8; Canadian Runner, July 22; Canadian Carrier, Aug. 5; Canadian Navigator, Aug. 19.

Cardiff and Swansea service.—Canadian Harvester, July 23; Canadian Hunter, Aug. 12.

India service.—Canadian Pioneer, July 15; B. I.S.N. steamship, Aug. 15.

Australia service.—Canadian Mariner, July 23; Canadian Planter, Aug. 23.

Rio Santos, Montevideo and Buenos Aires service.—Canadian Miller, July 20; Canadian Volunteer, Aug. 20.

Barbados, Trinidad and Demerara service.—Canadian Logger, July 8; Canadian Coaster, July 22; Canadian Beaver, Aug. 5; Canadian Gunner, Aug. 19.

Nassau, Kingston and Belize service.—Canadian Forester, July 5; Canadian Fisher, July 26; Canadian Forester, Aug. 16.

Havana service.—Canadian Miner, July 12; Canadian Adventurer, July 26.

Charlottetown, P.E.I. and Newfoundland service.—Canadian Sapper, July 8, July 29, Aug. 19.

Vancouver Sailings. The following dates have been announced:

Australia and New Zealand service—Canadian Importer, July 25, Sydney, Melbourne, Auckland; Canadian Scottish, Aug. 15, Auckland, Sydney, Melbourne; Canadian Winner, Oct. 14, Sydney, Melbourne, Auckland.

Oriental service.—Canadian Exporter, July 27, Kobe, Yokohama, Shanghai, Takubar.

Indian service.—Canadian Transporter, Aug. 10, Calcutta.

Employes' War Risks and Pensions.— In response to a request that about 20 employes of Canadian Government Merchant Marine, who were prisoners during the war. be given pension benefits, the Prime Minister, in refusing the request, stated in the House of Commons, June 2, that while agreeing that C. G. M. M. officers and men did their duty well, the same applied equally to other classes of officers and servants, and it was necessary to draw a line somewhere. Those who served in the military and naval forces served, not only themselves, but their country, and they were accordingly given gratuities, insurance and pension benefits, but the men in the mercantile marine made a bargain with their employers, and it was to be surmised that the risk had been duly taken into consideration.

Operating Results.—The Marine Department gave out the following statement in Ottawa June 11:—"Notwithstanding the continued depression in shipping, the Canadian Government Merchant Marine ships are succeeding in finding useful and profitable occupation. Since Jan. 1 there have been 52 ships in service. The returns from the operation of these from Jan. 1 to April 30 have been completed, and contrary to the general expectation, they show a substantial profit after deducting operating costs. When it is considered that millions of tons of shipping are lying idle in both the United Kingdom and in the United States, this result may well be regarded as satisfactory. During the period referred to, voyages were made to the United Kingdom, South America, Australia, West Indies, Newfoundland, India and European ports. All of these services have yielded a profit to the ships operating thereon, with the single exception of that to the West Indies, where a comparatively small loss has been made. Canadian Government Merchant Marine officials intimate that the outlook for the immediate future is fairly promising."

It would be interesting to know whether the "substantial profit" mentioned is really a profit, or whether it is simply the excess of earnings over operating expenses, without allowing for interest on investment and for depreciation.

Collingwood Shipbuilding Co.—See Dominion Shipbuilding & Repair Co.

Steel Cargo Steamship Canadian Harvester, approximately 3,890 d.w. tons, Canadian Government Merchant Marine.

J. Coughlan & Sons, Vancouver, B.C.— The steel cargo steamships Canadian Transporter and Canadian Freighter, Marine Department contracts 62 and 63, builders' yard nos. 20 and 21, each approximately 8,390 d.w. tons, which are being built for Canadian Government Merchant Marine, are reported to be progressing satisfactorily. The keels were laid Jan. 6. Both hulls have been fully plated, and rivetting is proceeding rapidly. The engines are reported to have been placed in the Canadian Transporter, and several other items of machinery, auxiliary and otherwise, have been installed in both ships. The engines for the Canadian Transporter were built in Great Britain, and those for the Canadian Freighter in Canada. No dates have been fixed for the launchings, but it is expected that the Canadian Transporter will be launched during August.

Davie Shipbuilding & Repair Co., Lauzon, Que., is building a steel cargo steamship, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, the keel of which was laid May 14, 1920. Our last advice was that she would probably be launched about the end of June.

Dominion Shipbuilding & Repair Co., Toronto, which went into liquidation, July 31, 1920, had under construction for Canadian Government Merchant Marine, two single screw steel cargo steamships, Canadian Pathfinder and Canadian Engineer, Marine Department contracts 48 and 49, builder's yard nos. 10 and 11, each approximately 3,500 d.w. tons, the water bottoms of both ships being about 75% complete, and the hulls about 60% framed. As stated in previous issues, the Collingwood Shipbuilding Co. was given a contract by the Marine Department to complete the ships at the Toronto yard on a cost plus basis. The Canadian Pathfinder was launched May 12 and we were advised June 18 that she would probably not be delivered before July. The Canadian Engineer was launched June 30.

Halifax Shipyards Ltd., Halifax, N.S., is building two steel cargo steamships for Canadian Government Merchant Marine, viz., Canadian Cruiser and Canadian Constructor, Marine Department contracts 38 and 39, builder's yard nos. 3 and 4, respectively, each approximately 10,500 d.w. tons, the keels of which were laid Oct. 2, 1919 and Oct. 6, 1919. We were advised June 10 that the Canadian Cruiser's hull would be ready for launching on June 25, but that the boilers and engines, which are being built by Tidewater Shipbuilders Ltd., at Three Rivers, Que., would not be ready for shipment before June 20, and as considerable difficulty was being experienced in arranging for the shipment of the boilers to Halifax, it was then impossible to set a date for the launching.

Midland Shipbuilding Co., Midland, Ont., launched the steel cargo steamship Canadian Logger, Marine Department contract 54, builder's yard no. 10, approximately 3,890 d.w. tons, for Cana-

dian Government Merchant Marine, on June 8, the christening being performed by the Machioness of Hartington, daughter-in-law of the Duke of Devonshire, Governor General, who was also present, with other members of his family. The keel of this ship was laid June 9, 1920, the delay in launching having been caused by non-delivery of the engines.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—When this company went into bankruptcy in 1919, it was building for Canadian Government Merchant Marine, two steel cargo steamships, Canadian Scottish and Canadian Thrasher, Marine Department contracts 42 and 43, builder's yard nos. 1 and 2, respectively, each approximately 8,390 d.w. tons, the keels of which were laid Sept. 27, 1919 and Oct. 20, 1919, as stated previously in Canadian Railway and Marine World. When work on the ships was suspended by the Prince Rupert company, the Canadian Scottish was about 90% completed, and the Canadian Thrasher about 60%. They are being completed, at Prince Rupert, by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., on a cost plus basis, as stated previously in Canadian Railway and Marine World, the work being supervised by H. A. Butt, Overseer for the Marine Department. The Canadian Scottish was launched May 12, and is expected to be ready for delivery about the end of August. The Canadian Thrasher is expected to be launched about the middle of August.

Officers of Steamships.—In addition to appointments mentioned in previous issues, the following appointments of masters and chief engineers have been made:—Canadian Adventurer, Capt. A. J. Gilbert, master, vice Capt. H. S. Hills, resigned; Canadian Coaster, J. J. Francis, chief engineer; Canadian Commander, J. M. Roche, chief engineer; Canadian Harvester, Capt. V. R. N. Porter, master, vice Capt. J. Slater, transferred to Canadian Logger, C. Thompson, chief engineer; Canadian Leader, Jas. Campbell, chief engineer; Canadian Logger, Capt. J. Slater, master, heretofore master, Canadian Harvester; Canadian Mariner, Capt. G. B. Leonard, master, heretofore master Canadian Squatter, vice Capt. A. L. Starratt; Canadian Obesrver, Capt. A. O. Cooper, master, vice Capt. W. G. Tudor, transferred to s.s. Sheba; Canadian Pathfinder, Capt. W. B. Arnit, master; Canadian Sealer, Capt. A. E. LeBlanc, master, vice Capt. J. A. Hiltz; Canadian Squatter, Capt. D. H. McLean, master, vice Capt. G. B. Leonard, transferred to Canadian Mariner; Sheba, Capt. W. G. Tudor, master, heretofore master, Canadian Observer, vice Capt. D. Bluett.

Docking at U.S. Pacific Ports. — Arrangements are reported to have been made for the docking of Canadian Government Merchant Marine ships at San Francisco, San Pedro and other southern ports, in connection with the C.G.M.M. recently inaugurated Pacific coast service. It is stated that Dodwell & Co.'s dock will be used in each case, at any rate temporarily.

Romance of the C.G.M.M.—An officer of the Canadian Government Merchant Marine had difficulty in remembering the names of the 25 ships of the 8100 to 8300 tons type, until he hit upon this little "Story of the Merchant Marine":—"A PIONEER, who had been a PLANTER and a PROSPECTOR, as well as a TRAVELLER and LEADER, employed a HIGHLANDER, who was an INVENTOR, and who had been previously a MILLER, to work with him as a MARINER, and with himself as COMMANDER they set sail in a FREIGHTER to seek their fortune. Being himself something of an EXPLORER, and the other a RANGER, they quickly proved the VICTOR and CONQUEROR in the race for wealth. The old man was made a SEIGNEUR, and as a TRANSPORTER became a wealthy EXPORTER and IMPORTER, and the old salt designed a THRASHER which he called the CHALLENGER, which proved to be a WINNER, and after having been a SKIRMISHER all his life settled down to a life of ease and spinning yarns, and being SCOTTISH, believe me, he was some SPINNER." The names in capitals are names of the 25 ships of the class referred to.

The s.s. Canadian Inventor struck a ledge in Active Pass, B.C., June 4, while bound from Genoa Bay to Vancouver, and broke her forefoot. She proceeded to Esquimalt, where she was docked for examination. The section of the forefoot near the keel and a few plates were renewed by Yarrows Ltd., and she proceeded to Vancouver June 14. It is stated that the accident was caused by failure of the steering machinery.

Halifax Pilotage Regulations Amendment.—An order in council has been passed repealing Halifax, N.S., pilotage district bylaw 3, which provided that ships propelled wholly or in part by steam, registered in Canada, and engaged exclusively in fishing, shall not be obliged to pay pilotage dues unless a pilot be employed; and confirming a new bylaw providing that such ships, propelled wholly or in part by steam or other mechanical power, or propelled wholly by sails, when of not more than 250 tons register, shall not be required to pay pilotage dues unless a pilot be employed.

Low Price for Ships.—An English press report states that what appears to be a new low price level for shipping was reached at Liverpool recently, when the s.s. Matra, 2,476 tons net, was sold for £5 6d ($26) a ton. She was built in 1905 and classed 100 A1 at Lloyd's.

Government Supervision of Trans-Atlantic Steamships.

J. E. Armstrong, Lambton East, Ont., asked, in the House of Commons, recently:—"What action, if any, has the Government taken towards accepting the recommendations in the final report of the Royal Commission on the Natural Resources, Trade and Legislation of certain portions of His Majesty's Dominions presented to both Houses of Parliament by command of His Majesty in March, 1917, showing that it is not desirable that the operations of the steamship companies carrying passengers and freight between the Dominion of Canada and the United Kingdom should remain longer without some measure of Government supervision? Does the Government intend to give effect to this legislation? What action, if any, has the Government taken to assist the Imperial Government in bringing about Government control of ocean carriers doing business (or from time to time doing business) between ports in the United Kingdom and ports in Canada?" Sir Geo. E. Foster replied:—"The recommendations referred to have been considered by the Government and the subject matter discussed with other overseas premiers and the Premier of Great Britain. An Imperial shipping committee was appointed by the British Government in June, 1920, to enquire into and report on all matters connected with ocean freights and facilities, and on all matters connected with the development and improvement of sea communications between the different parts of the Empire. On this committee Canada and other overseas dominions are represented. This committee has been in session, and a preliminary report has been made on shipowners' liabilities under bills of lading and matters pertaining thereto. This will doubtless be followed by reports on other phases of the subject being investigated by the above named committee. After this investigation is finished, and the reports made, what action, if any, is to be taken by the Government will have to be determined, after the reception and consideration of these reports of the committee."

Grain Shipped from Fort William and Port Arthur During 1920

The following table, prepared by the Board of Grain Commissioners, shows the total quantities of each kind of grain shipped from Fort William and Port Arther during the 1920 season of navigation, and the ports at which it was unloaded. In addition to the figures given, 3,252,397 lb. of mixed grains were unloaded at Midland, Ont.; 5,884,353 lb. of screenings and 3,028-1746 tons of screenings at Buffalo, N.Y.; 3,238-1780 tons of screenings at Chicago, Ill., and 40,036-0610 tons of screenings at Duluth-Superior.

To Canadian ports	Wheat. Bus.	Oats. Bus.	Barley Bus.	Flaxseed Bus.	Rye Bus.
Goderich	6,648,015-50	2,994,945-31	762,149-46	292,163-32	131,371-05
Midland	8,373,284-50	1,902,949-09	560,815-23	.....	597,849-52
Montreal	466,169-10	995,263-23	1,172,625-22	91,458-48	53,585-02
Port Colborne	14,949,045-00	120,095-12	943,747-20	.....	.....
Port McNicoll	16,636,301-50	2,609,025-07	1,605,984-41	165,676-38	118,804-54
Tiffin	8,710,230-10	1,766,473-12	715,797-23	37,845-00	149,240-42
Total to Canadian ports	55,683,046-50	10,388,752-26	5,761,120-31	587,144-06	1,050,851-43
To U.S. ports					
Buffalo	49,121,014-30	3,562,056-30	645,391-45	470,009-43	931,866-43
Chicago	1,600,485-00	418,213-08	144,803-04	36,797.28	.....
Cleveland	796,800-00	.....	.....	.....	.....
Detroit	411,440-00	.....	.....	.....	.....
Duluth-Superior	3,678,634-50	.....	40,612-19	673,720-52	121,421-27
Fairport	110,000-00	.....	.....	.....	.....
Milwaukee	350,544-20	.....	.....	.....	.....
Sandusky	100,000-00	.....	.....	.....	.....
Toledo	1,578,496-20	.....	.....	.....	90,769-37
Total to U.S. ports	57,746,415-00	3,980,269-04	830,807-20	1,180,528-11	1,144,057-51
Grand Totals	113,429,461-50	14,369,021-30	6,591,928-03	1,767,672-17	2,194,909-38

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck: 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8.408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d.. p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21. 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4.540	217.	985,180	S.d., p.. b. and f'c's'le	"	11	Nov. 15. 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9. 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5.100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31. 1919	Dec. 11. 1919	Jan. 17, 1920
10	Juiy 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3.964	205.	812.620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7. 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3.975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30. 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10. 1919	Oct. 4. 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20. 1919	Dec. 2. 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10. 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20. 1919	Aug. 14. 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1. 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9. 1919	June 24. 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4.992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28. 1919	May 7. 1920	Aug. 10. 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9. 1918	May 5, 1919	Juiy 18. 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31. 1919	Sept. 8. 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3.406	210.	715,207.50	Lake, s.d., p., b. and f'c's'ie	"	10	Mar. 31, 1919	Oct. 9. 1919	Nov. 18. 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'ie	"	10	Feb. 24. 1919	Sept. 4. 1920	Nov. 27. 1920
22	Sept. 13. 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'ie	"	10	Mar. 15. 1919	Dec. 18. 1920	Feb. 24. 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18. 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'ie	"	11	Aug. 26. 1918	Apr. 19. 1919	May 23. 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'ie	"	11	Nov. 30. 1918	May 7. 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8.390	188.	1,577,320	2.d., p., b and f'c's'ie	"	11	Dec. 2. 1918	Aug. 16. 1919	Sept. 24. 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'ie	"	11	Apr. 23. 1919	Nov. 8. 1919	Dec. 6. 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10. 1919	Nov. 22. 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8.390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Juiy 14. 1919	June 29, 1920	Nov. 29. 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1.661,220	2.d., p., b and f'c's'ie	"	11	Aug. 9. 1919	Sept. 29, 1920	Apr. 9. 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10. 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuiiding Co.	43	4,350	215.	935.250	2.d., p., b. and f'c's'le	"	11	Aug. 29. 1919	May 8. 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4.350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29. 1919	June 26, 1920	Oct. 15. 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8.381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6. 1919	Feb. 5. 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1.659,240	2.d., p., b and f'c's'le	"	11	Aug. 8. 1919	Dec. 27. 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'ie	"	11	Aug. 19, 1919	Jan. 24, 1920	July 17. 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653.300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24. 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,078,750	3.d, p., and f'c's'le	"	12	Oct. 2. 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2.078,750	3.d, p., and f'c's'le	"	12	Oct. 6. 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p.. b. and f'c's'le	"	8½	Mar. 27. 1919	Oct. 8. 1919	Dec. 20. 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2.778	210.	583.380	S.d.. p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8. 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27. 1919	May 12, 1921	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1.661.220	2.d.. p.. b and f'c's'ie	"	11	Oct. 20. 1919	.....	.....
44	Jan. 23. 1919	Canadian Otter	British American Shipbuiiding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29. 1919	Apr. 13. 1920	Aug. 18. 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'ie	"	11	July 14. 1919	Juiy 26. 1920	Nov. 12. 1920
46	Sept. 11. 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3. 1919	Dec. 27. 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	"	66	*3.981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12. 1919	May 8. 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630.000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	May 12. 1921	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake. s.d.. p., b. and f'c's'le	"	11	Nov. 8. 1919	June 30. 1921	.....
50	Sept. 18. 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426.300	2.d. p.. b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22. 1920	Aug. 25. 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8.390	170.	1,426.300	2.d. p., b. and f'c's'ie	"	11	Jan. 17, 1920	Juiy 27. 1920	Sept. 30. 1920
52	Sept. 18. 1919	Canadian Commander	" " "	79	8.390	170.	1,426.300	2.d. p., b. and f'c's'ie	"	11	June 2. 1920	Oct. 30. 1920	Apr. 26. 1921
53	Sept. 18, 1919	Canadian Leader	" " "	80	8.390	170.	1.426.300	2.d. p., b. and f'c's'ie	"	11	June 29, 1920	Nov. 27. 1920	May 6. 1921
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuiiding Co.	10	3.890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9. 1920	June 8. 1921	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbidg. & Dry Dock Co.	103	8.390	167.50	1,405.325	2.d. p.. b. and f'c's'ie	Lloyd's	11	Mar. 30, 1920	Oct. 14. 1920	Dec. 15, 1920
56	Mar. 18. 1920	Canadian Skirmisher	" " "	104	8.390	167.50	1,405,325	2.d. p.. b. and f'c's'ie	"	11	Oct. 14, 1920	Mar. 17. 1921	May 16, 1921
57	Mar. 13, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	8,890	182.50	709.925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5. 1920	Oct. 19. 1920	Nov. 17, 1920
58	Mar. 13. 1920	Canadian Coaster	Collingwood Shipbidg Co., Kingston	16	8.890	185.50	709.925	2.d., p., b. and f'c's'ie	"	11	May 6. 1920	Mar. 24. 1921	Msy 5, 1921
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2.800	190.	532.000	2.d., p., b. and f'c's'le	Lloyd's	8½	Msy 4. 1920	Nov. 9. 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuiiding & Repairing Co.	476	8,390	167.50	1.405.325	2.d. p., b. and f'c's'le	"	11	May 14. 1920	.....	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	8,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Msr. 30, 1920	Nov. 20. 1920	May 17, 1921
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8.390	167.50	1,405,325	2.d p., b. and f'c's'ie	"	11	Jan. 6. 1921	.....	.....
63	April 7. 1920	Canadian Freighter	"	21	8,390	167.50	1,405.325	2.d p.. b. and f'c's'le	"	11	Jan. 6. 1921	.....	.....
							$79,296.80						
							$72.818.078.19						

Reconditioning the Steamship Prince Rupert.

By. C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C.

British Columbia has for some time past demonstrated her ability to build steel freighters in competition, as to cost, with eastern yards, and equal in workmanship and design to any similar ships built anywhere. She has now shown that she possesses the necessary skilled and experienced workmen to do the finer kinds of work required in finishing a high class passenger ship with the latest refinements.

The refitting of the s.s. Prince Rupert was an undertaking of a major character, calling for artistic taste and a high class of workmanship. That it was successfully carried out, within practically the guaranteed number of days, is not only a credit to the energy and enterprise of the yard undertaking the contract, but also to the shipbuilding interests of the province, in having workmen in sufficient numbers and with experience to carry out such an undertaking. At noon on May 7, just 119 running days after her arrival at Yarrows Limited, yard at Esquimalt, the job was practically completed. The owners then took charge and the ship's officers began preparations for the voyage to Vancouver, where her furniture and equipment was to be placed aboard, preparatory to reentering service with her sister ship the Prince George. It remained only for the contractors to complete the installation of some special electric fitttings waiting at Vancouver, and some fine polishing of certain parts of the hardwood interiors, that could be done best after the large number of men employed on her had been got rid of.

It can be readily imagined what the ship's condition was after being submerged for nearly three months in salt water, and directly in line of the discharge of waste products of a large industrial plant, in which large quantities of acids were used. Suffice it to say that the entire woodwork, including passenger accommodation, freight hold, and cold storage chambers, as well as all laid decks, had to be completely torn out, so that the bare steel was exposed. This was carefully wire brushed, or scaled, as conditions warranted, and all surfaces well coated with red lead before reconstruction could begin. To secure the necessary finer hardwoods, veneers and special fittings, not only were the markets of Canada, Great Britain, and the United States called upon, but the telegraph, cable and wireless, and the express and fastest freight services were used to prevent any delay which could possibly be avoided.

The hull damage was more extensive than was at first thought. Thirteen plates were renewed, and several others were faired in place, with the attendant work necessary on frames, floors, fore and aft stringer bars, breast hooks, collision and number 2 water tight bulkheads, tank margin plates, etc., as the result of the ship's contact with the rocky beach. In addition, resulting from pressure due to her submersion, the tops of tanks 5 and 6 were seriously damaged, being set down from 6 to 24 in. The main deck plating and beams, on the starboard side, in the way of the machinery spaces, were considerably set down, and engine, boiler, fan room and dynamo air shaft casings were badly buckled and had to be slacked up, faired, and refastened as before. One entire side of the starboard after fuel oil tank was badly damaged, requiring removal and replacement, a difficult and expensive job on account of the cramped space in which the work had to be carried on.

The engines and boilers required a vast amount of work. All cylinders, steam chests, pumps, evaporators, filters, etc., were opened up, thoroughly cleaned, and put in perfect working order, with such renewals as were found necessary. Crankshafts were lifted, main bearings renewed, thrust blocks taken down and overhauled, propeller shaft bearings renewed, and shafting re-lined. Both intermediate tail shafts were damaged, requiring renewal, and the damaged propellers were removed and new ones fitted in their place. Condensers were opened up, all tubes tested and defective ones replaced by new. The refrigerating machinery was completely overhauled and new parts installed where needed. The electric light plant was taken down, armatures and fields rewound, engines thoroughly overhauled, and all put in first class condition. Boilers were opened up and scaled, the strained seams were electrically welded and new tubes supplied as needed, and they were finally subjected to the rigid tests required by classification and Dominion Government surveyors. All steam pipes were taken out, annealed, tested and replaced, or renewed where necessary. Feed water pipes were cleaned and renewed where found defective. When all was completed the boilers were entirely recoated with heavy insulation, and covered with galvanized iron sheathing. All auxiliary machinery, such as steering engine, windlass, capstans and winches, was repaired or rebuilt as was necessary. A complete change was made in the steering control apparatus. The telemotor system was taken out and direct steering gear control fitted with roller and ball bearings for easy manipulation, was installed.

All this, however, was straight repair work, such as any well equipped yard is accustomed to. The carpenter and joiner work, with the numerous other trades required in refitting the ship, was another matter. Carefully selected and thoroughly seasoned materials were required. Deck planking of edge sawn fir, perfectly clear stock for door and panel framing, and the finest quality of laminated materials for panelling in both soft and hard woods had to be obtained, and was only utilized after the most rigid inspection piece by piece by the owners' and contractors' inspectors. Some of the heavy and solid hardwood fittings, not too badly damaged, were carefully kiln dried, and thoroughly reconditioned, and after careful inspection, if found perfect, were to be used again. However, almost the entire woodwork of the ship had to be renewed. The extensive cold storage chambers of both cargo and ship's stores, were rebuilt, the insulating material being compressed granulated work and mineral wool.

The principal passenger accommodation is on the shelter and shade decks. All fore and aft and thwartship bulkheads in the staterooms on both decks, much of which is composed of fine panelling, were replaced in accordance with the original design. The first class observation room, forward on the shade deck, originally done in sycamore, has been changed to a white maple with bird's eye maple panelling. This room is enclosed by 18 large sheets of very heavy plate glass, which required particular care in the designing of the panelling to conform with the divisions necessitated by the glass openings. The treatment is of a conventional design with moulded pilasters dividing into grouped panellings, decorated with wood carved garlands touched with burnished gold. The trunk of the boat deck is carried forward throughout practically its entire length, and is highly decorative, both as to deckhead and transom, adding a loftiness to the appearance of the room and making it light and airy. The blank panels of the transoms are decorated with gilded garlands of hand carved wood. The first class smoking room at the after end of this same house is a room somewhat similar in size and shape, lighted with expansive plate glass openings, and is done in polished quarter sawn oak; the panellings being so arranged that the grain of the wood has been brought out to the best effect. This room has a rubber tiled floor. The second class smoking room at the forward end of the shelter deck cabin is done in plain mahogany panels, and has heavy plate glass windows. A purser's office has been built in just aft of the bulkhead, separating the first and second class quarters on this deck. It is planned so that the staff can attend simultaneously to both classes of traffic in their respective quarters. It is fitted with dull black wrought iron grills at the fore and aft openings and with mahogany counters, desks, and cabinets. Provision is made so that telephone connection may be made by cable with the local exchanges at the various ports of call when the ship is berthed at her dock. In addition to the standard passenger accommodation, there are also on this deck four cabins with private baths. Two of them are done in Indian mahogany; one in antique quarter sawn oak and one in bird's eye maple. The bathrooms in connection with them contain showers as well as tubs, providing hot and cold salt and fresh water. The floors are finished with porcelain tiles with delf blue decorations with a base to the wainscotting, which is finished in enamel tiled effect; the upper parts of the walls and ceilings are panelled and finished in dull white. These four cabins have been given special treatment and are fitted with brass bedsteads, with box springs and hair mattresses with white box pleated piquet vallances; the bed and port curtains of the two mahogany rooms being of rose colored wool damask, decorated with French gimp, with floor coverings to correspond with the general color scheme of the rooms. The two rooms, which are done in oak and maple, are similarly treated as far as the bedding is concerned, except that the floor covering is of ingrained blue Wilton carpet. They have blue wool damask hangings, and are supplied with shot silk eiderdown comforters to correspond with the general color scheme.

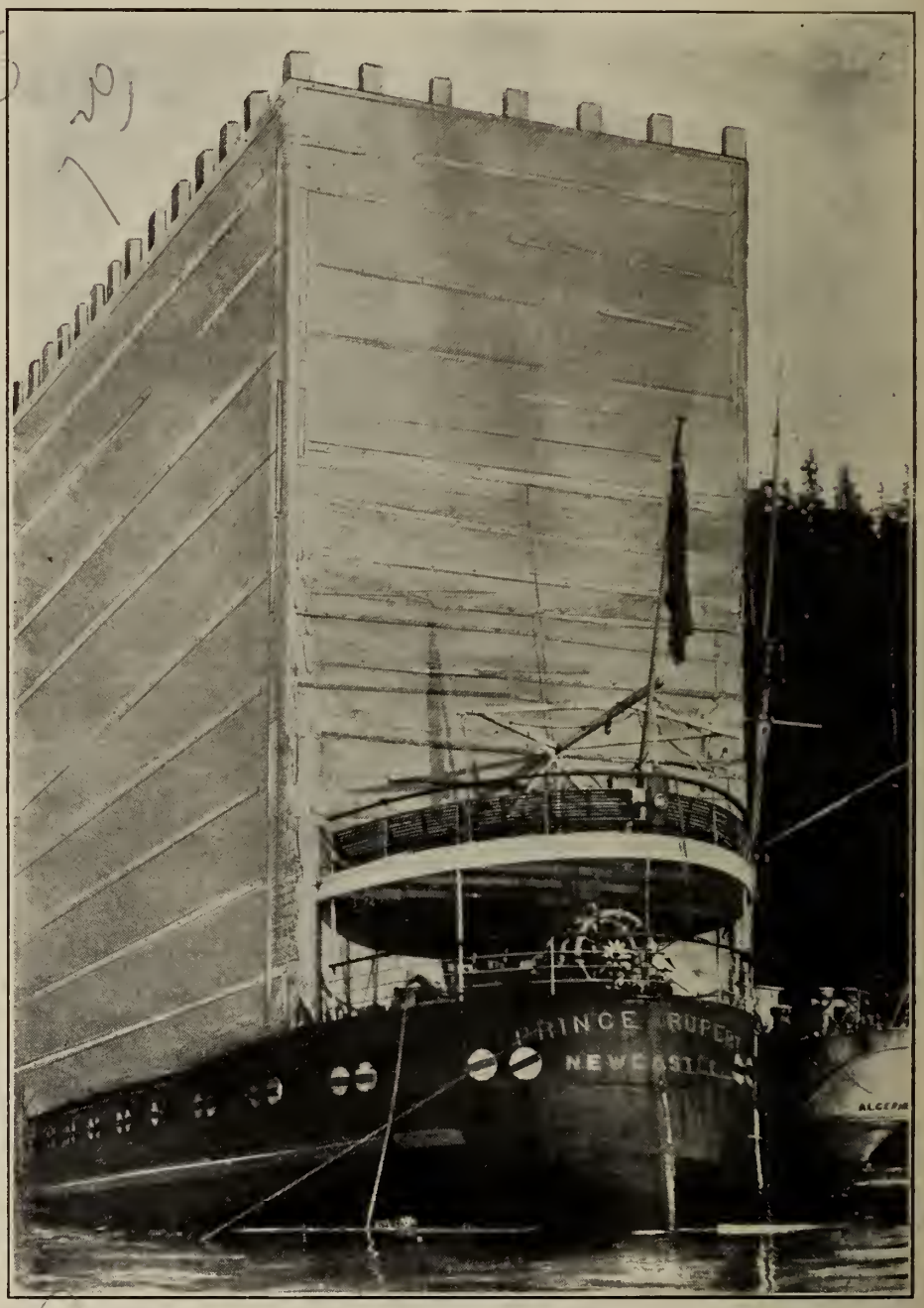
The chief steward's office, near the companion way leading down to the dining saloon on the main deck, is done in mahogany, and fitted with the usual

desks and other equipment. Near this also is a bureau or news stall, encased in a grill. The after part of the shelter deck cabin forms the music room, the treatment of which is quite different to that of the other parts, being in broad panels, highly polished and finished in white enamel, ending in an expanse in which several large size plate glass windows are located, giving ample views. A grand piano, built to withstand the variations of temperatures and climates to be found only on board ship, is installed here. This room is furnished with wicker chairs and lounge seats. The main color schemes in the furnishing of these two principal cabins are rose in the shelter deck, and green in the shade deck. Specially designed carpeting, in which the company's house flag is embodied, is laid on the floors of both cabins and staterooms. The upholstering on the shelter deck, for both fixed and movable seats, is of a tapestry with a floral design, touched lightly here and there with a rose tinted effect to harmonize with the general color scheme of the rest of the furnishings. Portieres dividing it from the music room are of double faced rose colored velour, decorated with handworked Italian gimp in green and gold, with holding ties of the same material. The draperies in the music room are of silk brocade, with rose colored pattern on a cream ground. The carpeting of the observation room on the shade deck above is of green shades and of the same design and pattern as in the rose colored carpet below; with upholstery in tapestry of floral design in green tones to match. The hangings are of pea green silk, and wool casement cloth, lined with cream colored poplin, trimmed with cream colored French gimp. All berth and port curtains in the staterooms throughout the ship are of tinted shadow cloth with ties to correspond.

The dining saloon, on the after part of the main deck, is reached from the shelter deck cabin by a mahogany stair with a bannister of hand made iron work, ornamented with gilded maple leaves. A circular vestibule, also in mahogany, and fitted with an art glass screen, forms the entrance to the dining saloon proper. This room has been rebuilt to its original outline, and is done completely in mahogany; the lower portions of it retain the wood's original color, highly polished, while the upper parts of the walls are finished in white enamel with gold ornamentation. The ceiling is finished in 5 ply laminated board, divided into panels by moulded deck beams and intricate designs in relief which lend themselves to the finish of the electric light fixtures. The sides of the room are fashioned into alcoves fitted with 5 chair tables for families or small parties. The upholstery is of cherry red calf skin, especially tanned and colored. The port curtains are of light cream colored poplin, hemstitched on all edges with an especially designed stencil. The deck is of untreated edge sawn fir, holystoned, with runners of red Wilton carpet having the house flag worked into the design. The electric lighting is by 2-light ceiling clusters enclosed in large cut glass globes with burnished silver fixtures. The room is fully equipped with the company's standard pattern of electro plated hollow and flat ware, china, cut glass and linen, all bearing the company's crest. The ship's galley, pantry and serving rooms, bakery and scullery, immediately forward of the dining saloon on the main deck, have been entirely done over. They are fitted out with a very large galley range, fixed stock kettle, electric dish washer, twin broilers, steam vegetable cooker, egg cookers, tea and coffee urns, etc. While very compact, this department has been most conveniently arranged so that the quickest kind of service can be rendered.

Forward of this, in the starboard and port waists are the engineers' rooms, done in mahogany; engineers' bath and mess room, also petty officers and crews mess rooms, lavatories, etc. The pilothouse, chart room, and deck officers' quarters on the boat deck are done in Honduras mahogany, finished in a chaste design. The crew's quarters have been entirely rebuilt and are exceedingly comfortable, clean and roomy for a ship of the size of the Prince Rupert, considering the number of the crew she has to carry.

The electric wiring has been entirely renewed. All external trunk lines have been laid in metal conduits, and the interior lines are run in lead covered tubing, the loop system being employed in making connections at the various outlets. An entirely new set of wall fixtures have been supplied in the shade deck cabin rooms, and the whole lighting arrangement has been renewed. The shades are of decorative ground glass effect in the staterooms, while in the corridors, observation room, smoke room and dining saloon they are of heavy cut glass.



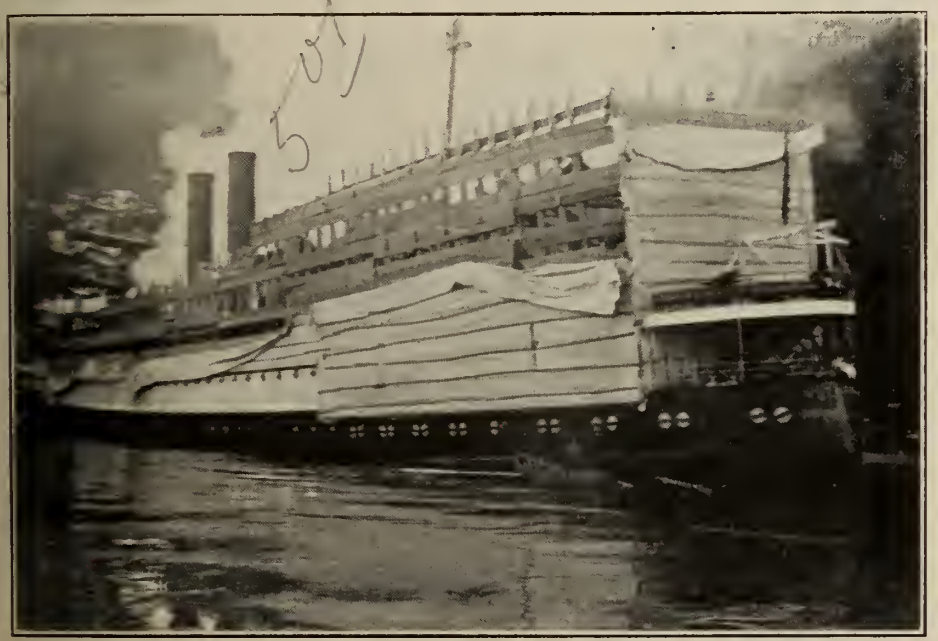
Raising the s.s. Prince Rupert at Swanson Bay, B.C. Stern view, showing 70 ft. cofferdam.

The entire water systems of the ship, including hot and cold water to all staterooms and passenger accommodation, baths, lavatories, drinking water fountains, etc., have been entirely renewed. The sewerage system has also been completely overhauled, or renewed, as necessary. The difficulties of these latter features of the work will be realized when it is known that there are many miles of piping and wiring on a ship of the class of the Prince Rupert. Electric bells are installed in all portions of the ship for both passengers' and officers' use.

The s.s. Prince Rupert left Esquimalt May 9, and re-entered service May 21, when she left Vancouver southbound. The s.s. Prince George, which had been in service continuously for practically a year, was given a brief overhaul towards the end of May and early in June, after which she made a special trip with the Vancouver Board of Trade, and on June 14 re-entered service on the regular run between Victoria, Seattle, Vancouver and the north.

The Cofferdam Used to Raise the s.s. Prince Rupert at Swanson Bay.

Canadian Railway and Marine World for January and February contained two articles by C. H. Nicholson, General Manager, Grand Trunk Pacific Coast Steamship Co., describing the methods used in raising the s.s. Prince Rupert, which sank at Swanson Bay, B.C., on Sept. 29, 1920. We were not then able to obtain any photographs showing the operations, but we have now received some from the Pacific Coast Salvage Co., Victoria, B.C., which raised the ship. The accompanying illustrations show the cofferdam used, the following references to which are reproduced from our previous articles mentioned above.



Raising the s.s. Prince Rupert at Swanson Bay, B.C. Showing cofferdam partly dismantled.

From Canadian Railway and Marine World, January:—"The construction of the cofferdam has been a very tedious and slow job, as it was all under the water. Six of the most expert divers on the Pacific coast have been constantly engaged in the work, under the supervision of the most experienced and skilful wreckers in this part of the world. The cofferdam is built on the ship, not around it; in other words, the sides of the ship are built up to such an extent as to place them above the water level at low tide. Owing to the slope of the bottom on which the ship rests, a height of 56 ft. above the shade deck line is necessary at the stern, which tapers away to practically nothing forward. The uprights of this cofferdam are 8 x 10's of the necessary lengths, some 68 and 70 ft. long. These are bolted to the ship's side and planked up on the outside with 2 x 12's, all cracks and crevices being covered over with heavy canvas. To sustain the tremendous pressure which it will be subjected to, some heavy cross and sway braces have been fitted, measuring 12 x 12 and of a length to carry from one side to the other of the cofferdam at frequent intervals to give it the necessary strength."

From Canadian Railway and Marine World, February:—"There were over 125,000 ft. of timber in the cofferdam, which, with the enormous weight of the canvas, iron fastenings and other attachments necessary to its construction and strength, would approximately add nearly 200 tons additional weight to the ship, and all above her shade deck."

Dominion Government Ship Arctic.

A press report announced recently that the C.G.S. Arctic was being equipped at Quebec, Que., for a prolonged trip to the Arctic regions, while another report stated that she was to be sent to the Mackenzie River basin, in connection with the development of oil properties in the Fort Norman area. We are officially advised that it was the Government's intention to send the ship northward to carry on certain Government administrative work, but that that has been abandoned. In response to a question in the House of Commons recently, the Prime Minister stated that the proposed trip had been cancelled for the present. He said that it was a very expensive matter to send an expedition to Ellesmere Land, and it was not believed that there was sufficient justification for such an undertaking, merely on the score of present or prospective oil or other development there. The idea of the trip was mainly, if not wholly, to see that Canada's territorial interests were not imperilled by any other country, and this reason does not appear to be so pressing as was at first considered. If it was considered later that the matter was urgent, steps would be taken to protect the country's interests.

The Montreal-New York Transport Co., Montreal, has appointed the States Marine & Commercial Co., 17 Battery Place, New York, as its agent.

Operation of the Sault Ste. Marie Canals.

A summary of traffic which passed through the Canadian and U.S. canals at Sault Ste. Marie, during 1920, was given in a previous issue. The following additional details of the operation of the canals are abstracted from the report of the U.S. Corps of Engineers, under whose direction the U.S. canals are operated.

The traffic through the Canadian canal was 3% of the total freight, 9% of the total registered tonnage, and 63% of the total passengers carried, the amounts being: 2,480,684 tons of freight, 5,138,791 register tons, and 43,452 passengers. Compared with 1919, there was a decrease of 1,657,275 tons of freight, 1,346,308 register tons, and an increase of 2,296 passengers. The Canadian canal was open for 244 days.

The traffic through the U.S. canals was 97% of the total freight, 91% of the total register tonnage, and 37% of the total passengers carried, the amounts being 76,801,812 tons of freight, 53,055,292 register tons, and 24,999 passengers. Compared with the figures for 1919, there was an increase of 12,704,229 tons of freight, 9,451,301 register tons, and 9,163 passengers. The U.S. canal records show that ships spent, necessarily, 17,947 hr. and 19 min. in the canal, an average of 1 hr. 15 min., which included time waiting for lockage and passage through locks and canal, the latter being 1 3-5 miles long. Other delays at the canal, including the taking on of supplies, waiting for daylight or favorable weather, amounted to 3,309 hr. 10 min. Ships were delayed 9 hr. 16 min. on account of operating the railway swing bridge, and trains were delayed 87 hr. 28 min. by passing ships temporarily preventing the closing of the drawbridges. During the period of operation, the swing bridge over the canal leading to the Poe lock was closed 1,244 hr. 10 min., and the bascule bridge over the north canal leading to the third and fourth locks was closed 1,171 hr. 23 min. During this time, 3,370 locomotives, 6,371 passenger and 36,055 freight cars crossed the bridge. The U.S. canals were open for 252 days.

The total freight passing through all canals was 79,282,496 tons; ships, 58,194,083 register tons; total mile tons, 64,702,375,119; total value of freight carried, $1,119,774,214; amount paid for freight, $85,741,850; total registered ships using canals, 678; total unregistered ship passages, 206; value of registered ships, $239,883,750; total passengers, 68,451; average distance freight was carried, 816.1 miles; average cost per ton, freight $1.08; average cost per mile per ton, 1.33 mills; average value per ton freight, $14.12; average vessel passages per day, all canals, 75, and for the Canadian canal, 16.

Alien Immigration to the United States.—The law restricting immigration of aliens into the U.S. became effective June 3, and caused considerable complaint from steamship companies, chiefly owing to the short notice given them of the putting into effect of the act, and to what is stated to be the unworkable methods of carrying out its provisions. The numbers of aliens to be admitted are restricted, whether booked through U.S. ports, or for U.S. destinations through Canadian ports.

Atlantic and Pacific Ocean.

The C.P.R. s.s. Pretorian was repaired and overhauled at Govan, Scotland, during May.

The s.s. Manchester Division completed a voyage from Manchester, Eng., to Sydney, N.S., recently in slightly over eight days, which is considered a fast trip for a ship of her type.

The Red Star Line (International Mercantile Marine Co.) is reported to have decided to establish a passenger and freight steamship service between Canadian ports and Antwerp, in addition to a similar service to Mexican ports.

The Hamburg-American Line's s.s. Bayern, which was expected to be ready for service between Hamburg and New York during June, is the first German passenger steamship since the war to take up that service. She is about 12,000 tons, and carries steerage passengers exclusively.

The C.P.R. s.s. Princess Alice made a special trip on the Alaska route, leaving Vancouver June 8, to relieve the congestion of early summer travel to the north. She was not scheduled to take up that route until June 17, but the bookings had been so heavy that it was decided to put her into the service earlier.

The Sprague Line s.s. Wathena loaded grain, flour and general cargo at Montreal, June 1, for Denmark. It is stated that should sufficient business offer, a regular freight service will be maintained by the line, which is owned in Boston, Mass., between Montreal and Baltic ports. The Robt. Reford Co. is the Montreal agent.

The C.P.R. s.s. Empress of Scotland, formerly the German s.s. Kaiserin Auguste Victoria, was expected to make her first sailing, under her present ownership, on July 29, from Liverpool, Eng., for Quebec, after which she will run on a fortnightly schedule between the two ports for the remainder of the St. Lawrence navigation season.

The Anchor Line's s.s. Cameronia, which is sailing in the Cunard Line's service between Liverpool, Halifax and New York, made her maiden trip during May. She was launched at Glasgow, Scotland, in Dec. 1919, and has the following chief dimensions: length 571½ ft., breadth 70 ft., depth 42¾ ft.; tonnage, 16,700 gross, 23,500 displacement when loaded.

The s.s. Bismarck, owned formerly in Germany, and bought recently by the White Star Line (Internatonal Mercantile Marine Co.) from the British Government, is a 56,000-ton ship and is now practically completed at the Blohm & Voss yard at Hamburg, Germany. She has been renamed Majestic. It is reported that the company paid about £1,000,000 for her.

The C.P.R. is reported to have sold to a foreign syndicate the s.s. Sardinian, one of the ships which it took over on the acquisition of the Allan line. She was built at Greenock, Scotland, in 1875, and in her day was the finest steamship on the St. Lawrence route. She has been laid up for over a year. Her dimensions are: length 400 ft., breadth 42.3 ft., depth 34.6 ft.; tonnage, 4,349 gross, 2,788 net, and she is screw driven by engine of 229 h.p.

The former German s.s. Imperator, which was bought recently by the Cunard Line from the British Government, has been renamed Berengaria. It is reported that the price was £850,000. She is of 52,022 gross tons, and was built by the Vulcan Iron Works, Hamburg, Germany, in 1912. The Cunard Line's s.s. Lusitania, which was sunk during the war, was 30,000 tons gross, and was built in 1907, at a cost of approximately £2,000,000.

The Glasgow dockers' strike having been called off, arrangements are in progress for a complete resumption of sailings between Glasgow and Canadian ports. A press report states that the dock workers returned to work unconditionally. The Anchor-Donaldson Line's steamships Cassandra and Saturnia are again on the Montreal route, and it is stated that many cancelled bookings are now being renewed, as many who wish to go to Scotland prefer Glasgow as the port of debarkation instead of Liverpool.

The C.P.R. will, it is reported from the Pacific coast, sell the s.s. Empress of Japan, when the s.s. Empress of China, formerly Prinz Friedrich Wilhelm, is ready for the service on the Pacific route, which will probably be in August. A San Francisco dispatch states that U.S. interests are negotiating for her, for operation between San Francisco and British Columbia ports. The s.s. Empress of Japan was built at Barrow-in-Furness, Eng., in 1890, and is about 5,700 tons gross, with an average speed of 14 knots.

The White Star Line has announced that, owing to the delay in deliveries of steamships from British shipbuilding yards, on account of strikes, it is probable that the steamships Doric and Regina will not be available for the current St. Lawrence navigation season. The Ellerman Line's s.s. City of London is reported to have been chartered by the company for service between Liverpool and Montreal. She has accommodation for two classes of passengers, and was scheduled to make her first sailing out of Montreal June 29.

The Donaldson Line s.s. Gracia was launched at Greenock, Scotland, early in May. Her dimensions are: length 414 ft., breadth 54 ft., depth from upper deck 33 ft. 5 in. She has a deadweight carrying capacity of 8,600 tons. She is of the poop, bridge and forecastle type, with double bottom for carrying oil fuel or water ballast. The propelling machinery consists of Brown-Curtis geared turbines, 3,250 shaft h.p. Steam is supplied by four single ended boilers, each 15¾ by 11½ ft., arranged for either coal or oil burning, with forced draft, smoke tube superheaters, etc.

The Dominion Shipping Co., Vancouver, B.C., has been appointed agent for the Yamashita Kissen Kaisha, which is inaugurating a freight steamship service between Japan and Puget Sound ports, making calls at Vancouver as trade offers. F. C. Garde, formerly of the Foreign Freight Department, C.P.R., is Manager for the agent company, which also represents the Congress Intercoastal Service, making sailings every three weeks between Vancouver and New York, and the Pacific-Argentine-Brazil line, operating between Vancouver and east coast ports of South America.

A somewhat peculiar case came before a Montreal court, June 7, when 29 members of the crew of the British s.s. Hyacinthus, whose 12 months contracts for

Ships Registered in Canada During March, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. N.h.p.	Owner or Managing Owner
141653	C. D. 98	Yarmouth, N.S.	Montreal . . 1917	84.0	19.2	10.0	138	62	24 Sc.	Hugh Cann & Son, Yarmouth, N.S.
150349	Canadian Traveller*	Montreal . .	Victoria, B.C. 1921	399.9	52.2	28.5	5455	3361	266 Sc.	Minister of Marine, Ottawa, Ont.
150350	Royaume	Montreal . .	Buffalo, N.Y. 1880 Clayton, N.Y. 1905	89.7	18.0	5.2	82	46	14 Sc.	A. Lecompte, Valleyfield, Que.

*Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length.	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
150401	Daisy Marguerite	Lunenburg, N.S.	3chr.	Mahone Bay, N.S. 1920	123.6	26.6	10.5	162	162	M. M. Gardner, M.O., Lunenburg, N.S.
141699	Jean Smith	"	"	Shelburne, N.S. 1920	122.7	26.4	10.6	168	108	" " "
141645	Maxwell C.	Liverpool, N.B.	"	Little Brook, N.S. 1920	125.7	27.6	11.0	235	200	T. M. Rawding, Liverpool, N.S.
141498	Peter McIntyre	St. John, N.B.	"	Moss Glen, N.B. 1920	162.3	35.0	12.8	536	487	P. McIntyre, St. John, N.B.
141617	S. F. Tolmie	Victoria, B.C.	Bktn.	Victoria, B.C. 1921	235.8	45.2	19.9	1612	1497	Victoria (B.C.) Shipowners, Ltd., Victoria, B.C.

service with the ship expired while in Montreal, demanded to be paid off there, and given free passage home with pay, to which they would have been entitled if paid off in a foreign port, under the terms of their contracts. The master offered to sign them on for a return trip to Rotterdam, but this was refused. The judge decided that Montreal is not a foreign port, and therefore a free passage home, with pay, could not be demanded under their contract.

The Johnson Line's motorship Canada, which took a cargo of sugar to Vancouver recently, is stated to be the finest of the large motorships which have passed through the Panama Canal. She is a sister ship of the Buenos Aires, which carried wheat from Vancouver to London, via the Panama Canal, a few months ago. She was built at Gotaverken, Sweden, and is 440 ft. long, with 56 ft. beam, and on a loaded draft of 26 ft., carries 9,200 tons of cargo. The crew's quarters are commodious, and there is accommodation for a limited number of passengers. The propelling machinery consists of twin engines of 1,550 h.p. each, and the tanks placed in the double bottom, hold 1,600 tons of oil fuel, of which about 10½ tons a day is consumed.

The Royal Mail Steam Packet Co., in conjunction with the Holland-America Line, is operating a joint steamship service between London, Hamburg, Rotterdam, Antwerp and Pacific coast ports, via the Panama canal. A monthly schedule is being maintained and will be increased to fortnightly sailings as soon as some new ships are delivered. The four ships now operating on the route are the Eemdijk, Moorderdijk, Kinderdijk and Moerdijk. The R.M.S.P. Co. and the Holland-America Line have a number of motor ships being built at Glasgow, Scotland, for this service. The first two for delivery will be named Lochgoil and Lochkatrine. The ships will be 9,150 tons register and will have about 2,500 tons of refrigerator space for fruit, fish, eggs, etc.

The C.P.R. s.s. Empress of Scotland, formerly the German s.s. Kaiserin Auguste Victoria, which, as stated in our last issue, will be operated in the company's Atlantic service, is a twin screw steamship of 24,581 gross tons, and was built at Stettin, Germany, in 1905, for the Hamburg-American Line. The s.s. Empress of China, formerly the German s.s. Prinz Friedrich Wilhelm, which is to be operated on the Pacific route, is 17,082 gross tons, and was built at Geestemunde, Germany, in 1907, for the Norddeutscher Lloyd Co. The statement made by a British marine journal that the larger ship would be placed in the Pacific service, and the smaller in the Atlantic service, as the St. Lawrence route is not suited to ships of so great tonnage, is incorrect, as our official advice is as above stated, and as mentioned in our last issue.

The Cunard Line's s.s. Laconia, 21,000 tons, which was launched at Wallsend on Tyne, Eng., recently, is the fourth ship launched for this company this year. There will be accommodation for 2,500 passengers, with garden lounges for saloon passengers, verandah cafe for second class passengers and up to date accommodation for third class passengers. Her dimensions are: length 600 ft., breadth 73.6 ft., depth 45 ft. She will be equipped with Brown-Curtis turbines, driving twin screws through double reduction gearing, with a shaft h.p. of 13,500, at an average speed of 16 knots. The auxiliary machinery will be driven by electro-hydraulic power. She will be fitted with a gyroscopic compass. The company now has 22 ocean going steamships, with a total tonnage of 228,468, and by the end of 1922 expects to have a further 12 steamships of 214,200 tons.

Col. H. Concanon, Managing Director, White Star Line, Liverpool, Eng., was in Montreal at the end of May, and made a trip of the harbor. He expressed pleasure with the facilities provided, which enable ships to make a quick turn round. He stated that it is expected that the company's s.s. Regina, 16,600 tons, will be in operation to Montreal next spring, to be followed by the s.s. Doric later in the year. The s.s. Regina was launched at Belfast, Ireland, just prior to the war, and was utilized as a war transport, in a partially completed state. When finished as a passenger steamship she will accommodate 600 cabin and 2,300 third class passengers. She is 600 ft. long by 68 ft. beam. The s.s. Doric is a similar ship, about 16,000 tons, and the company has also under construction for the Montreal route, the steamships Laurentic, 17,400 tons, and the Rimouski, 9,332 tons.

In connection with the fitting out of the motor ships which are carrying grain from Vancouver to Great Britain, a complaint was made recently as to the cost of carrying out the work, which was done by B.C. Marine Engineers & Shipbuilders Ltd., Vancouver. At a meeting of the local Board of Trade's Foreign Trade Bureau, a charge was made by S. McClay, one of the Vancouver Harbor Commissioners, that the cost of $4,200 for work on the motor ship Buenos Aires, was excessive, and that it could have been done for $2,280. Innes Hopkins, Managing Director, B.C. Engineers & Shipbuilders, in defending the charge, stated that there was necessarily much overtime work to be done, and the heavy labor charge resulted from this, and he also referred to the strict regulations of the port, and that these were not published at the time the work was undertaken. C. Gardner Johnson, agent for the line, at whose instance the enquiry was undertaken, suggested that the controversy be dropped, as he felt that he could assure the company that a charge of over $4,000 would not be made against any further ships taking wheat at Vancouver.

The s.s. Hebron, owned by La Traverse de Lachine, Ltee., Lachine, Que., has had her name changed to Port Rolland.

Maritime Provinces and Newfoundland.

The U.S. fishing schooner Esperanto, which won the international fishing schooner race last year, foundered off Sable Island towards the end of May, the crew being saved.

The United States Shipping Board's s.s. Charlot struck an iceberg, June 8, about 200 miles off the Newfoundland coast, causing considerable damage to her bows.

The United States Shipping Board's s.s. Maiden Creek put into St. John's, Nfld., June 12, with disabled machinery, and a short water supply. She was en route from Mobile, Ala., to Liverpool and Manchester, Eng.

The attempts to float the s.s. City of Colombo, which stranded about 16 miles west of Digby, N.S., March 20, have been abandoned. Practically the whole of the cargo has been saved and taken to St. John, N.B.

The Canadian National Rys. car ferry Prince Edward Island was returned to her route between Cape Tormentine, N.B., and Borden, P.E.I., at the end of May, after having been overhauled at Halifax, N.S.

The French s.s. Pro Patria, which went ashore at Cranberry Head, when en route from Halifax to St. Pierre, Miquelon, during May, was refloated and made North Sydney under her own steam, and without any apparent damage.

The s.s. Lady of Gaspe, owned by Nova Scotia Steamships Ltd., which was in collision with the British s.s. Holtby off the Cape Breton coast, in May, was reported on arrival at Halifax, en route from St. John's, Nfld., to Boston, Mass., to have escaped with very slight damage.

The British s.s. Seapool, bound from Montreal for British ports, struck an iceberg about 300 miles off the Newfoundland coast, June 7. She arrived at St. John's, Nfld., June 9, and was docked by the Reid Newfoundland Co. for repairs to her stem, which was badly damaged below the water line.

The Boston & Yarmouth Steamship Co.'s s.s. Prince Arthur arrived at Yarmouth, N.S., June 8, after having been laid up at Boston, Mass., for cleaning and repairing in readiness for the tourist traffic. Her sister ship, Prince George, has also been overhauled, and both ships have had two suites each added on their main decks.

The s.s. St. Julien, one of the trawler type of steamships built by Polson Iron Works, Toronto, during the war, for the Dominion Government, is being over-

Ships Added to and Deducted From the Canadian Register During March, 1921.

	Steam. —Tonnage—			Sailing —Tonnage—		
Added.	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	6	5,657	3,468	6	2,770	2,511
Purchased from foreigners	4	238	143	....	.....	.....
Registered anew	1	126	91	....	.....	.....
Other ships	....	.....	.....	1	90	90
Totals	11	6,021	3,702	7	2,860	2,601
Deducted.						
Wrecked or otherwise lost	7	674	507	10	772	700
Broken up or unfit for use	15	178	122	21	1,047	957
Sold to foreigners	....	.....	.....	3	177	138
Transferred to British Possessions	1	36	33	....	.....	.....
Registered anew	....	.....	.....	1	126	98
Totals	23	886	662	35	2,122	1,893

hauled at Halifax, N.S., and it is reported that there is a probability that she will be equipped as a light ship, for service on the Sambro Ledges, while the regular ship is on duty at Anticosti.

The Newfoundland s.s. Carmen was destroyed by a boiler explosion off Netherton, St. George's Bay, Nfld. June 6. She was used on Government special service at Port Union last year. It is stated that she sprang a leak about an hour before the explosion, and the crew had to take to the boats without being able to draw the fires, landing safely at Netherton.

The Newfoundland Government has granted $25,000 to build a breakwater at Twillingate, and it is expected that construction will commence at once and that it may be finished before the winter. No definite site has been selected, but it was intended to build the breakwater at Harbor Rock, and a meeting has been held in the neighborhood to protest against the selection of this site.

The attempts to float the British s.s. City of Colombo, which was wrecked about 16 miles west of Digby, N.S., in the Bay of Fundy, March 20, have been abandoned. The cargo has been salvaged. At the wreck commissioner's enquiry into the loss of the ship, details of which were given in our last issue, the certificate of the master, Capt. J. J. Robertson, was suspended for three months.

It is reported that the harbor rates on cargo at St. John, N.B., may be increased shortly, unless traffic conditions improve. The Harbor Commissioners Act allows an additional 5c. a ton on general cargo, and it is stated that the present rate may be advanced to 6c. a ton, which, it is claimed, will then be 1c. a ton less than at Montreal. It is also stated that the harbor revenue may be further increased by reducing the free storage time from 10 to 2 days.

At a meeting of the St. John, N.B., common council committee, June 16, it was moved that whereas the council had decided to submit to the electors the question of the sale of the harbor rights and privileges for $2,000,000, the City Engineer be directed to proceed to examine into and report on the condition of all harbor property owned by the city, and give an approximate estimate of the cost of whatever repairs, alterations and extensions may be necessary to make the present structures capable of affording such accommodation as may reasonably meet the increasing demands of the future. The resolution was defeated, being supported by the mover only.

Province of Quebec.

The small ferry steamboat John, operated between Port Fortune and Carillon, Que., sank at her wharf, at Port Fortune, towards the end of May.

The Clarke Steamship Co.'s s.s. North Shore has been placed in service from Quebec to the Gaspe coast. She is a recent arrival from England, having been built at North Shields, is about 900 tons gross, and is screw driven.

The Sincennes - McNaughton Line, Montreal, has had its steam tugs Fredmac and Virginia converted from coal burners to oil burners. These tugs, which are among the largest in the company's fleet, were built at Sorel in 1919, and are said to be the only oil burning tugs in Montreal harbor.

Quebec reports state that owing to so few ships arriving there so far this year, and practically no goods being shipped to or from the city by the river, considerable hardship is being experienced by longshoremen, who are leaving the neighborhood to take other work. It is stated that trouble may occur, owing to shortage of men, when business revives there.

A fire broke out in shed 13 at Quebec, June 9, and carried to the s.s. North Shore, operated by Clarke Bros. to Gaspe ports, damaging her to the extent of about $75,000, which, it is stated, is covered by insurance. She was brought out from England a few weeks ago, just in time for the reopening of St. Lawrence navigation. It is announced that repairs will be undertaken at once, and it is expected to have her on the route again shortly. In the meantime, arrangements will be made for the use of another ship to take up the Gaspe service.

The U.S. Government steamships Colonel Card, Colonel Peel, General Pond and Colonel Rochester, which wintered at Quebec, were expected to sai thence during June for New York. It is stated that Capt. T. M. Street, of the U.S. army, who is in charge of the ships, has registered a warning as to the difficulties and dangers attending the transfer of the ships, as they were built for river transport only, and in his opinion, there is a danger in running them down the coast. It is also reported that Canadian masters were selected to take the ships to their home port. The four ships were built at Minneapolis, Minn., in 1920, and passed through the canals before the winter set in, having had a particularly rough passage through Lake Erie, eventually being caught by ice at Quebec. About the time they were expected to leave Quebec, four other ships were due there for the U.S. Government from Bay City, Mich.

The Kirkwood Steamship Co. resumed its service between Montreal and Quebec, at the end of May, with the s.s. Matak. It has been announced that this ship will give a service of two trips a week for the earlier part of the summer, and that later another steamship will be added, permitting four trips a week to be given. Last year the s.s. Matak was operated in the Great Lakes service, as were also the company's steamships Lake Ontario and Mary Frances Whalen. The steam yacht Speedy II, which the company bought from the Dominion Government recently, is reported to have been sold to the International Paper Co., New York, and it is stated that she will be used by the President and officials of that company, between Three Rivers, the north and south shores of the St. Lawrence, Gaspe, Labrador and New York.

The French Government, which had five full powered wooden steamships built by Three Rivers Shipyards Ltd., Three Rivers, Que., named respectively Bouzonville, Bouxwiller, Brumath, Cattenon and Cernay, has sold one, s.s. Brumath, to Capt. Jos. Rioux, Gaspe County, Que., for $36,750, for operation between Montreal and the Gaspe coast, calling at Quebec and ports along the south shore of the St. Lawrence. These ships have been placed in the first class Bureau Veritas, and were ordered by the French Government in conformity with its shipbuilding war programme, but owing to the fact that a number of ships of a similar type are laid up at various French ports on account of the navigation situation generally, it was considered advisable to offer these for sale, instead of taking them across the Atlantic. It is said that when the order was originally placed for the building of these ships, through the Anderson Co. of New York and the National Shipbuilding Corporation of Wilmington, Del., which controlled Three Rivers Shipyards Ltd., the contract price was $322,500 each.

Ontario and the Great Lakes.

H. S. and F. S. Cronk have been licensed by the Ontario Government to operate a ferry service on the Bay of Quinte.

It is reported that a company is being organized to build an automobile ferry boat to operate between Sarnia and Port Huron, to handle the large motor tourist traffic across the St. Marys River.

The Railways and Canals Department received tenders, June 16, for the construction of the Hamlet Bridge substructure, and contingent dredging in the Trent Canal.

The Detroit & Cleveland Navigation

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during May, 1921:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B. M. 65	18,497	18.562
Flour	"	Barrels 299,790	590,540	890,330
Wheat	"	Bushels 1,584,475	11,024,994	12,609,469
Grain, other than wheat	"	Bushels 3,187,573	9,244,019	12,431,592
Copper	"	Short tons 705	2,510	3,215
Iron Ore	"	Short tons 4,200	2,647,833	2,652,033
Pig Iron	"	Short tons	.....	.....
Stone	"	Short tons 1,425	1,300	2,725
General Merchandise	"	Short tons 3,585	3,320	6,905
Passengers	"	Number 712	38	750
Coal, soft	Westbound	Short tons 11,580	2,291,789	2,303,369
Coal, hard	"	Short tons 3,898	210,878	214,776
Iron Ore	"	Short tons	.....	.....
Manufactured Iron and Steel	"	Short tons 32	3,627	3,659
Salt	"	Short tons 349	7,369	7,718
Oil	"	Short tons	63,261	63,261
Stone	"	Short tons	74,669	74,669
General Merchandise	"	Short tons 30,747	49,037	79,784
Passengers	"	Number 563	24	587
Summary		Number 388	1,127	1,515
Vessel Passages		Net 354,989	3,443,587	3,798,576
Registered Tonnage		Short tons 149,430	3,258,397	3,407,827
Freight—Eastbound		Short tons 46,606	2,700,630	2,747,236
Westbound		Short tons 196,036	5,959,027	6,155,063
Total Freight				

Co. has announced a reduction of 15% on all classes of freight, "to stimulate buiness on the lakes and to aid in lowering prices generally."

The name of the s.s. Samuel Marshall, owned formerly by Central Canada Coal Co., Brockville, Ont., and now owned by Steel Co. of Canada, Montreal, has been changed to Brantford.

The s.s. Jed, owned by J. F. Sowards, Kingston, while passing through the Cornwall canal, June 15, collided with and carried out the upper gate of lock 15. It is stated that the engineer mistook the master's signal. Navigation was resumed in about 12 hours after the mishap.

The schooner Ed. McWilliams, owned formerly by the Lyons Fuel & Supply Co., Sault Ste. Marie, Ont., has been sold to Keenan Bros., Ltd., Owen Sound, for operation in the lumber trade on Lake Huron. She was built at Bay City, Mich., in 1893 and has the following dimensions: length 200 ft., breadth 34 ft., depth 14 ft.; tonnage, 664 registered.

The Muskoka Lakes Navigation & Hotel Co., Gravenhurst, Ont., has appointed the following officers of its steamships for the current year:

Ahmic	W. Bradshaw	E. Barnes
Cherokee	J. Henry	T. D. McHugh
Islander	A. P. Larsen	W. Lambert
Medora	E. McAlpine	A. H. Fryer
Oriole	G. Stevens	T. J. Heydon
Sagamo	G. Bailey	S. Beatty
	R. W. Lee	

Canada Steamship Lines' s.s. W. Grant Morden sailed from Port Arthur, May 29, for Port McNicoll with the largest single grain cargo ever taken out from the head of the lakes, consisting of 720,000 bush. of oats, and 45,000 bush. of barley. The previous record for the largest single grain cargo was 760,000 bush. of oats, and was held by the same ship.

Captain John Wharry, Owen Sound, is reported to have bought the auxiliary powered sailing ship Waycrest, in Toronto, for freight trade between Owen Sound, Manitoulin Island and Georgian Bay ports. She is a comparatively small ship, equipped with steam auxiliary power, and for some time has been used in the neighborhood of Toronto by the Navy League as a training ship for boys.

The name of the steam tug Henrietta Stewart, formerly owned by Canadian Stewart Co., Toronto, and now by the Dominion Public Works Department, has been changed to Spadina. The tug was built at Collingwood, Ont., in 1915, and was originally named Harvey H. She is screw driven by engine of 6 h.p., and has the following dimensions: length 56 ft., breadth 14.5 ft., depth 6.9 ft.; tonnage, 53 gross, 32 net.

The U.S. House of Representatives has passed a bill having for its object the lengthening of the navigation season on the Great Lakes, and it has been sent to the Senate. It provides for the opening of the navigable season on May 1, instead of May 15 as hitherto, and the closing on Oct. 15 instead of Sept. 15. It also provides that ships in operation less than 16 out of each 24 hours be permitted to place their oilers and water tenders on a two shift basis, while ships making daily runs of less than 12 hours would work their firemen also two instead of three shifts.

A bylaw is to be submitted to Port Arthur taxpayers shortly, concerning the proposed construction by the Palatine Mining & Development Co., of four ore docks with a capacity of approximately 500,000 tons, each dock to be 100 ft. wide and about 1,000 ft. long. They are to be of concrete and steel, on an elevation, including trestles, of 80 ft. The foundations will be of concrete and the hoppers and main sections of steel, of the same type as the ore docks at Duluth and Two Harbors, Minn. The company proposes to buy 200 acres on the Strathcona property, near Bare Point, for $10,000, including water lot rights.

Manitoba, Saskatchewan and Alberta.

Chas. Millar, Toronto, President Alberta and Arctic Transportation Co., arrived in Edmonton, Alta., about the middle of June, and went north on the company's s.s. D. A. Thomas, on a trip of inspection over the company's routes.

One of the latest boats built at Vancouver, B.C., for the Hudson's Bay Co.'s shallow water service on the Peace River, between Hudson Hope and Vermilion Chutes, in northern Alberta, is designed with a tunnel built into the body, with sufficient room for the operation of the propeller and twin rudders.

The Hudson's Bay Co.'s steamboat McMurray sailed from McMurray, Alta., June 13, downtream, carrying a large quantity of freight for the company's stations in the north. The freight will be transferred at Smith portage to one of the company's Mackenzie River steamboats. The steamboat Liard River will connect at Fort Simpson, taking freight for Fort Nelson and Fort Liard. This construction gives ample protection for propeller and rudders, when the boat is running in very shallow waters, and allows it to be run with a minimum draft of 9 in. and a maximum of 20 in. In operation, when the propeller commences to turn, it fills the tunnel with water, and with the full area of the propeller immersed, a maximum propulsive force is obtained.

British Columbia and Pacific Coast.

The Sannie Transportation Co. is operating a ferry service between Bowen Island and Whytecliff during the summer in conjunction with the Union Steamship Co. service between Bowen Island and Vancouver.

The Coast Steamship Co., Vancouver, issued a writ recently against the C.P.R. for damage to its s.s. Clansman, which sank at the C.P.R. pier H, Nov. 8, 1920. It is alleged that the damage was caused by the C.P.R.'s negligence.

The C.P.R. s.s. Princess Charlotte was withdrawn from service at the end of May to undergo some engine repairs by Yarrows Ltd. Her place on the Gulf route was taken by the s.s. Princess Adelaide, until she was replaced in service early in June.

Navigation on the Yukon River was formally opened May 19, by the arrival of the s.s. Nasutlin at Hootalinqua, from Lake Labarge. This was followed by the sailing of the s.s. Canadian for Dawson and Mayo, and the s.s. Thistle from Lake Labarge direct to Mayo. The steamships Alaska and Tanana, which wintered at Tolivana, sailed for Neaun.

The Hudson's Bay Co. is reported to have decided to enter the Siberian trade, and it is stated that the company's s.s. Casco has sailed from Vancouver, B.C., for Siberia, carrying two launches and two barges for river service, to enable traders to conduct operations inland, where fur trading posts will be established.

A return of the coastwise and offshore passenger steamship business out of Vancouver during the first three months of this year, covers approximately 60,000 persons, of whom about 3,000 were for Oriental ports, the balance being for British Columbia, U.S. and Alaska. Approximately 130,000 tons of freight and over 30,000,000 ft. of lumber and logs were exported.

The Canadian Robert Dollar Steamship Co., Vancouver, which bought five German sailing ships some time ago at Santa Rosalia, Mexico, is reported to have received an offer of $1,000 each for them. This low price is stated to be due to the lack of demand for sailing ships engaged in the off shore lumber trade, and also to the fact that a heavy expenditure would be necessary to recondition the ships.

The filling and dredging at the Ballantyre pier, Vancouver, was reported recently to be about 80% completed, the filling projecting about 1,000 ft. into Burrard Inlet. The total filling, according to the contract, is about 1,400 ft. Immediately on the completion of the filling, the contractors for which are Grant & MacDonald, Vancouver, the erection of the superstructure will be commenced by the Northern Construction Co. and J. W. Stewart. About 1,500 tons of steel were reported on the ground recently, and the steel forms are all ready for the concrete pillars.

The White Pass & Yukon Ry. Co.'s s.s. Selkirk, which was wrecked on the Yukon River last year, just before the river froze up, was released by the breaking of ice in the spring, carried down the river by the current, and deposited in a slough, where, it is stated, the salvage of the machinery, etc., can be easily carried out. It is stated that, in addition to the salving of the machinery, the hull, which has suffered comparatively little damage, can be repaired and replaced in service. An interesting story is told in connection with the wreck of this boat and the company's s.s. Washburn in the Yukon last year. A well known deep sea diver having heard of the sinking of the two boats, went to the company's office in the hope of obtaining the contract for raising them, and explained that he had had considerable experience of deep sea work and the raising of ships, and that he had all the tackle necessary, provided the ships were not in an unreasonable depth of water. It is said that when told that they lay in about 18 in. of water, he disappeared without waiting for any further explanation.

The following masters and chief engineers have been appointed to the C.P.R. British Columbia Coast Service steamships:—

Charmer	O. H. P. Rogers	W. Harris
Dola	W. J. Verge	A. H. Crocker
Island Princess	C. S. Sainty	W. Woolcock
Nanoose	T. Manson	A. Dow
Princess Adelaide	R. A. Hunter	J. M. Greenshields
Princess Alice	A. Slater	J. Petticrew
Princess Charlotte	T. O. Griffin	J. A. Heritage
Princess Ena	T. Cliffe	W. Neilson
Princess Maquinna	E. Gillan	A. Alexander
Princess Mary	T. Rippon	R. Moffatt
Princess Patricia	W. L. Gilchrist	W. S. Anderson
Princess Royal	S. H. Ormiston	J. E. Hill
Princess Victoria	R. B. Bennett	W. E. H. Oliver
Qualicum	J. B. Singleton	J. Purdy
Tees	W. J. Boyce	A. Gordon

Canada Steamship Lines Annual Meeting.

The Canada Steamship Lines Ltd. consolidated balance sheet and operating account for the calendar year 1920 were published in Canadian Railway and Marine World for June. The President, J. W. Norcross, in moving the adoption of the same at the annual meeting in Montreal, May 23, said:—"The directors beg to submit their seventh annual report, the statement for the year ended Dec. 31, 1920, having already been mailed to shareholders. The statement shows net earnings of $4,028,274.21, and a net profit of $1,932,772.33, after deducting all fixed charges, including depreciation, and providing ample reserve for all possible liabilities. While the statement shows a substantial increase in revenue, the operating expenses also show a large increase, so that the net revenue is less than for 1919. The high cost of fuel, provisions and wages have been to a large extent responsible for this difference. However, considering the demoralization of commerce generally which commenced about the middle of 1920, your directors feel confident that you will under the circumstances consider the result satisfactory. The balance sheet, operating and surplus accounts submitted, compiled by the company's Controller, and certified to by Marwick, Mitchell & Co., your Auditors, will convey to you in a concise manner the result of your company's operations for the year under review and its present financial condition.

"No doubt it will be of interest to shareholders to know that the advance bookings upon all the company's lines of transportation, and also the reservations already made for the coming season at the company's hotels, are very satisfactory, whereas, on the other hand, coal, provisions, and general operating costs have been reduced. Your directors, therefore, look forward with confidence to a profitable result of this year's operations. Arrangements have recently been concluded with Norwegian shipowners by which their ships, in conjunction with the ocean ships of the company, will be operated by it between Canada, England and France. Ocean freights are showing material improvement, which it is anticipated will continue, and the company's management has no fear of the results of these operations.

"The company's fleet, its docks and other properties, have been maintained in the highest state of efficiency, and many betterments and improvements have been added thereto. The directors, in view of the existing abnormal conditions, and the company's current cash conditions, have deemed it prudent to suspend for the present, payment of the dividend upon the common stock. The directors feel that their action in conserving the company's resources under the circumstances was a proper one."

The President asked if there was anything further in the way of explanation or information required, as he would be pleased to answer any or all questions shareholders felt disposed to ask. J. N. Joseph stated that he was a holder of 10 preferred shares, and asked the President his opinion as to the company's future. The President stated that he had every confidence in it, and that indications pointed to a steady improvement in the company's affairs. He himself, being a large shareholder, had every faith in the company's future. He added that if at any time any shareholder desired information regarding the company's affairs, they would find him always available and glad to confer with them at any time, and invited them to come to the office whenever they felt so disposed.

The election of directors and of the London, Eng., advisory committee, was then proceeded with, after it had been decided to increase the committee's membership from seven to nine. The board and committee for the current year are as follows:—

Directors—Commander Sir Trevor Dawson, Honorary President; J.W. Norcross, President, M. J. Haney, and R. M. Wolvin, Vice-Presidents, F. S. Isard, Managing Director; Edmund Bristol, M.P., W. E. Burke, Hon. Frank Carrel, Hon. J. P. B. Casgrain, Tancrede Bienvenu, D. B. Hanna, Dr. W. L. McDougald, H. B. Smith, G. B. Smithers, J. P. Steedman, J. E. Dalrymple.

London Advisory Committee—Commander Sir Trevor Dawson, Chairman, Sir Vincent Caillard, Sir Francis Barker, J. W. Norcross, W. Grant Morden, C. G. Bryan, F. S. Isard, Sir Frederick Orr-Lewis, Viscount Long of Wraxall.

Marine Public Works Contracts Awarded.

The Dominion Public Works Department has awarded the following contracts:—

Summerville, N.S., repairs to public wharf, Nagle & Hiltz, Lawrencetown, N.S., Feb. 22, unit of prices.

Esquimalt, B.C., construction of drydock, P. Lyall & Sons Construction Co., Montreal, Feb. 17, schedule of prices.

South Gabriola Island, B.C., construction of wharf, D. O. Shook, Vancouver, B.C., March 16, unit prices.

Halifax, N.S., docking, repairing, renewal and painting of steam tug Helena, Halifax Shipyards Ltd., Halifax, N.S., Apr. 6, $25,200.

Hamilton, Ont., superstructure of Strauss trunnion bascule bridge at Burlington channel, Hamilton Bridge Works, Hamilton, Ont., Apr. 8, $22,896.

McLaren's Landing, Ont., construction of timber pile wharf, J. S. Leitch, Toronto, Apr. 11, unit prices.

Port Colborne, Ont., repairs to superstructure of western breakwater, Port Arthur Construction Co., Toronto, May 7, unit prices.

The Merchants Exchange, Vancouver, B.C., a recently formed organization for the promotion of the port's shipping and commerce in general, has opened offices in the Metropolitan Building there. The trustees elected at the recent inaugural meeting are: Capt. E. Beetham, J. J. Coughlan, Capt. S. Cullington, A. Melville Dollar, A. Hendry, G. V. Holt, Capt. B. L. Johnston, T. W. B. Loudon, R. McKee, F. Millard, G. D. Phillips and A. H. Stevenson. W. R. Dockrill is President, J. C. Irons, Vice President, and J. H. Hamilton and C. P. Coles are Secretary and Treasurer respectively.

The majority of South American railways, in which British capital is largely interested, show favorable operating results for 1920, the dividend rates being mostly 7, 8 and 9%.

Amendment to Canada Shipping Act to Prevent Harbor Pollution.

The Canada Shipping Act, R.S.C. 1906, chap. 113, provided, in secs. 854 and 855, as follows:—

"854. The Governor in council may make rules and regulations for the government of any public harbor or port in Canada, but, in the case of the ports of Quebec, Montreal, Three Rivers, Toronto, Halifax, Pictou, and the port of St. John, N.B., such rules and regulations as are inconsistent with any rule or regulation of any of these ports shall not be made, until application therefor from the local authorities in charge of the port has been received by the Governor in council.

"855. The Governor in council may, by any such regulation, impose, (a) a penalty, not exceeding in any case $100, for any violation of the same; and (b) in the case of a continuing violation, a further penalty not exceeding, in any case, $10 for every 12 hours during which such violation continues."

A bill introduced at the House of Commons' recent session, by Hon. A. K. Maclean, Halifax, N.S., and which was passed, repealed sec. 855 and substituted the following therefore:—

"855. The Governor in Council may, by any such regulation, impose a penalty not exceeding in any case $1,000 for any violation of the same. If any such violation continues for more than 24 hours every additional 24 hours during which it continues shall be deemed to be a separate and additional violation of such regulation."

Chats Falls Navigation Co., Ltd., as mentioned in our last issue, has submitted an offer of 40c. on the dollar to its creditors, through W. A. Cole, Ottawa, authorized trustee under the Bankruptcy Act. This has been accepted by the larger creditors, and an application has been made for the court's approval. The company's assets consist of the steamboat Weldon, which was built at Aylmer, Que., in 1919. She is screw driven by engine of 24 h.p., and has the following dimensions: length 88.4 ft., breadth 19 ft., depth 6.9 ft.; tonnage, 197 gross, 65 net. She has been valued at $19,000, but it is not expected that she will realize that amount, if sold. She was operated at a loss last year, on Lake Dechenes and the Ottawa River, making two trips a day. The company has leased the boat for the summer, and it is said that the party to whom she has been leased will operate her on Lake Dechenes and the Upper Ottawa River in the passenger excursion trade.

Closing of Atlantic Coast Radiotelegraph Stations.—The Marine Department has issued a notice calling the attention of merchant ships fitted with radiotelegraph apparatus to the closing of the following radiotelegraphic stations: Point Amour, Rich Point, Cape Ray, Heath Point, Pictou and Three Rivers. In view of the increased efficiency of modern radiotelegraphic apparatus, these stations are no longer considered necessary to maintain the service in the zones which they were formerly designed to cover. The remaining existing stations in these zones are so equipped as to provide the service efficiently. All the foregoing stations were closed May 1, except that at Point Amour, which will be closed on or about Sept. 1.

Mainly About Marine People.

Hon. C. C. Ballantyne, M.P., Minister of Marine and Fisheries, and of the Naval Service, sailed from Quebec, on June 21, on the s.s. Empress of France, for England, accompanied by Mrs. Ballantyne, their three sons, and his private secretary, G. Hiedman, expecting to be absent several months.

Tancrede Bienvenue, who has been elected a director of Canada Steamship Lines Ltd., is Vice President and General Manager of the Provincial Bank of Canada, and is also associated with the Lake of the Woods Milling Co., La Societe d'Administration Generale, Credit Foncier Franco-Canadien, Montreal Water & Power Co., Crown Trust Co., La Sauvegarde Life Assurance, Guardian Assurance, Scottish Union and National Assurance companies.

Hon. J. A. Calder, Minister of Immigration and Colonization, is acting Minister of Marine and Fisheries, and of the Naval Service, during Hon. C. C. Ballantyne's absence in Europe.

N. A. Currie, steamship inspector, boilers and machinery, Halifax, N.S., has been promoted to senior steamship inspector.

Admiral Sir Charles Kingsmill was presented with an engraved silver flagon and tray, June 16, by Canadian naval officers serving on Canadian and Imperial ships, senior civil officers of the Naval Service Department, the Royal Naval College and the Naval Dockyards, on his retirement from the position of Director of the Canadian Naval Service. The flagon is a replica of one taken from one of the captured ships of the Spanish Armada. The presentation was made by Hon. C. C. Ballantyne, Minister of Marine and Fisheries and of the Naval Service.

Capt. E. H. Martin, C.M.G., who was for a time in charge of the naval dockyard at Halifax, N.S., and later at Esquimalt, B.C., died at Yokohama, Japan, recently. His Canadian service was during the war only.

W. L. McDougald, who has been elected a director of Canada Steamship Lines Ltd., is President, Ogdensburg Coal & Towing Co. and Century Coal Co., Montreal, in both of which companies Canada Steamship Lines is largely interested. He is also a director of the Dominion Steel Corporation, and the newly formed British Empire Steel Corporation.

Capt. J. McGrath, an old lake captain, and for several years in Richelieu & Ontario Navigation Co.'s service, died at Montreal, June 5, aged 77. He entered navigation service at 14 years of age and was in R. & O.N. Co.'s service for 35 years. After his retirement from active service he served for some time as a nautical assessor on various wreck commissioners' enquiries.

W. Grant Morden, M.P., Deputy Chairman, London Advisory Committee, Canada Steamship Lines, addressed the London, Eng., Rotary Club recently on Canada's Inland Waterways.

C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., underwent an operation in the General Hospital, Vancouver, B.C., June 1. He was not expected to resume his duties for about a month.

Capt. G. T. Pickford, master of the Head Line s.s. Kenbane Head, died at Newport News, Va., at the end of May. He was well known on the St. Lawrence route, having been master of several of the Head Line's steamships operating to Montreal, and during the war was in command of the s.s. Carrigan Head, which was used as a decoy ship for enemy submarines.

H. G. Robinson, steamship inspector, general, Vancouver, B.C., has been promoted to senior steamship inspector.

Sir Alfred Yarrow, head of Yarrow & Co., Ltd., Glasgow, Scotland, and Yarrows Ltd., Victoria, B.C., who is 79 years of age, visited Victoria in June.

H. B. Smith, President, Collingwood Shipbuilding Co., Halifax Shipyards Ltd., etc., Toronto, has been elected an honorary president of the Collingwood Golf Club.

Capt. John Watkins, master of the s.s. Durham, operated between Canada and New Zealand, under the management of the New Zealand Shipping Co., Montreal, died there recently.

United States Shipping Board Notes.

W. C. Teagle, President of the Standard Oil Co. of New Jersey, formerly President Imperial Oil Co., Toronto, is reported to have declined the chairmanship of the U.S. Shipping Board.

The U.S. Shipping Board's concrete ship Latham, which ran on the rocks at the entrance to Tampico Harbor last year, has been repaired at Galveston, Texas. According to reports, the damage to the hull did not consist of any direct puncture, but was in the nature of four parallel gouges from 4 to 6 ft. wide, the entire length of the ship, the concrete being held by the reinforcing steel, and in this condition she proceeded from Tampico to Galveston under her own steam and without convoy.

The agreement proposed by the U.S. Shipping Board, to be in operation for six months, and providing for the return of the marine engineers, now on strike, at a wage reduction of 15%, was rejected at a meeting of the Marine Engineers' Beneficial Association at New York, June 12, and a telegram was sent to the President of the National Marine Engineers' Association, to the effect that if he accepted the agreement, his resignation would be requested. The chief objection to the agreement appeared to be that it did not provide for the return of the engineers to their status as before the strike.

The U.S. Shipping Board is reported to have decided to enter actions against several charterers of its ships, for amounts due for demurrage, through the detention of the ships at port during the railway strike in the U.S. last year. It is stated that the charterers were unable to get coal to the seaboard on account of the strike. No provision for strikes appears to have been made in the charters. Some of the charterers claim that the Interstate Commerce Commission, a government regulatory body, made the charters void, by issuing orders to the railways preventing them from sending cars to the mines. The Shipping Board's claims are stated to approximate $3,000,000.

A Washington, D.C., press dispatch states that the U.S. Government's venture in transportation, by land and sea, will entail a total loss of nearly $5,000,000,000. The U.S. Shipping Board has been instructed to charge off as loss, the war costs which have been carried on the books, and to start afresh with its assets measured on a definite basis. The U.S. Shipping Board and the Emergency Fleet Corporation represent a combined investment of approximately $3,350,000,000, taking appropriations from the commencement of the Government shipbuilding programme, and to show for this, the Government has about 1,300 ships of nearly 11,000,000 d.w. tons. It has been stated that the sale of these ships will realize less than $1,000,000,000, one estimate giving $750,000,000 as the best figure obtainable.

Quebec Steamship Co. Incorporation Acts.

A bill to amend and consolidate the acts respecting the Quebec Steamship Co., and to repeal previous acts covering incorporation, etc., was introduced in the House of Commons May 6. The original company was incorporated by Act of Parliament in 1873, as the Quebec and Gulf Ports Steamship Co., which name was changed in 1880 to Quebec Steamship Co. The bill fixes capital stock at $10,000,000 in $100 shares and the head office at Montreal. It provides that the company shall be managed by not more than 9, and not less than 3, directors, and those in office at the passing of the act are to hold office until their successors are elected. The majority of directors shall at all times be resident in Canada and be British subjects by birth or naturalization. The Quebec Steamship Co., with office at Quebec, Que., came under the control of Canada Steamship Lines Ltd., on the formation of the latter company in 1913, by the acquirement of approximately 80% of its shares. The Canada Steamship Lines sold its interest in the company to Furness Withy & Co. early in 1920. The company formerly operated a steamship service from Quebec to the lower St. Lawrence and to New York, and from New York to the West Indies, but for some time the service has been confined to the New York-West Indies route.

Canada Steamship Lines Officials. — Canadian Railway and Marine World for June stated that Dr. W. L. McDougald, President, Century Coal Co., and Ogdensburg Coal & Towing Co., was reported to have been appointed Director of Operation, Canada Steamship Lines, to succeed H. W. Cowan, resigned. We are advised that the report referred to, which appeared in Montreal and other daily papers, was incorrect, and that Dr. McDougald was elected a director of Canada Steamship Lines at the recent annual meeting, but does not hold any other position in the company. T. R. Enderby, Operating Manager, has been given charge of the work formerly under Mr. Cowan's control, and we are advised that it is not the management's intention to fill the position of Director of Operation.

That Great Britain is rapidly regaining her export markets for railway equipment and supplies is shown by recent statistics of exports. The value of track material exported in Jan. and Feb. 1921 was almost $10,000,000, against only slightly over $4,000,000 in Jan. and Feb. 1920.

Canal Openings, Traffic, Etc., for April and May.

The Dominion Bureau of Statitics' Transportation Division has compiled the following summary of canal statistics for April:—

Sault Ste. Marie.—The Canadian canal was opened April 9, two weeks earlier than in 1920, and consequently there was an increase of traffic for the month. There were 104 ships through with a net tonnage of 104,328 tons, and cargoes totalling 50,405 tons. This was practically all grain down, and 5,095 tons of merchandise up. The grain shipments were barley, 2,258 tons; oats, 16,449 tons; rye, 1,226 tons; wheat, 25,375 tons. In April, 1920, the total cargoes through amounted to 29,128 tons.

Welland.—Opened April 15, four days earlier than in 1920, and 146 ships, with tonnage of 119,860, carrying 101,753 tons of cargoes passed through during the month. This was 86,609 tons more than last year. The increase being in grain and soft coal down. The totals were, barley, 9,420 tons; corn, 10,438 tons; oats, 22,939 tons; wheat, 18,908 tons; soft coal, 29,900 tons for 1921, against oats, 2,125 tons; wheat, 1,100 tons; soft coal, 2,300 tons, for April, 1920.

St. Lawrence.—Opened April 18, compared with May 1 in 1920. There were 235 ships, with net tonnage of 116,958 tons, carrying 81,848 tons of cargoes through the locks. The principal cargoes were, oats, 14,357 tons; wheat, 9,350 tons; hard coal, 9,532 tons; soft coal, 27,550 tons; all down.

Trent.—Opened April 1. Thirty-seven ships, with net tonnage of 1,630, carrying 93 tons of cargo, passed through the locks.

Ottawa.—Opened April 19, compared with May 1 in 1920. Forty-one ships, with net tonnage of 7,617, and cargoes totalling 4,632 tons, passed through during the month. This canal opened in 1920 on May 1.

Chambly. — Opened April 15, eight days earlier than in 1920. The total traffic was 75 ships of 8,993 tons, with cargoes of 6,150 tons.

Murray.—Opened April 14, two days earlier than in 1920. Eighteen ships, with tonnage of 3,656 tons and cargoes of 1,625 tons of stone westbound passed through.

St. Peters.—Closed Jan. 10 and opened again April 18. Twenty ships, with net tonnage of 1,181, and cargoes of 1,160, passed through during April.

Rideau.—Was not opened for traffic during April.

Statistics for May.

Sault Ste. Marie.—There was a decrease in traffic through the Canadian and U.S. locks from May 1920 of over 26%, or 2,263,894 tons. Wheat decreased over 880,000 bush., or 2,900 tons; iron ore decreased over 4,031,000 ton; soft coal increased over 1,771,000 tons, and merchandise, stone, oil, showed small increases. The chief commodities carried were flour, 89,000 tons; wheat, 12,609,000 bush.; other grain, 12,431,000 bush.; iron ore, 2,552,000 tons; soft coal, 2,303,000 tons; hard coal, 214,000 tons. About 3.1% of the total freight used the Canadian lock, against 6.2% in May 1920. The totals for the Canadian lock were, ships, 389; registered tonnage, 355,441, against 664 ships and 969,451 tons in May 1920; freight up 46,641 tons, down 149,060 tons, total 195,701 tons, against a total of 524,180 tons in May 1920.

Welland.—Traffic increased over 55% over May 1920, the big increase being in grains. Corn increased 112,337 tons; oats, 42,333 tons; wheat, 11,307 tons; and petroleum, 10,090 tons; 495 ships, having a total registered tonnage of 438,676 tons of cargo, used the canal. The chief commodities were corn, 117,077 tons; oats, 47,025 tons; wheat, 100,057 tons; petroleum, 18,892 tons; and soft coal, 92,101 tons.

St. Lawrence.—Traffic increased 166,632 tons over May 1920, the largest increase being in corn, viz., 115,708 tons; 988 ships, having a total registered tonnage of 592,797 tons, and cargoes totaling 515,591 tons, used the canal. The chief commodities were, corn, 117,437 tons; wheat, 95,543 tons; petroleum, 20,205 tons; hard coal, 43,663 tons; soft coal, 90,378 tons, and 30,142 tons.

Ottawa.—Ships, 191; registered tonnage, 32,686, a decrease of 8,885 tons; cargoes, including lumber, 5,404, and and, 13,770 tons; totalled 22,354 tons, a decrease of 13,774 tons from May 1920.

Rideau.—Ships, 232; registered tonnage, 16,547; cargoes, 17,974 tons, a decrease of 620 tons. Sand and gravel amounted to 15,027 tons.

Trent.—Ships, 325; registered tonnage, 9,522; passengers, 2,925; cargoes, 7,127 tons.

Chambly.—Ships, 214; registered tonnage, 24,510; cargoes, 37,371 tons, an increase of 1,763 tons. Hard coal amounted to 29,301 tons, an increase of 13,569 tons over May 1920.

Murray.—Ships, 59; registered tonnage, 13,027; cargoes, 11,805, a decrease of 6,290 tons from May 1920. The cargoes were principally crushed stone; 11,225 tons passed through during the month.

St. Peters.—Ships, 143; registered tonnage, 9,362; cargoes, 6,653 tons.

St. Andrews.—Ships, 31; registered tonnage, 1,137; passengers, 166; cargoes, 2 tons. This canal opened May 29.

Panama Canal Tolls.—The question of the right of the U.S. Government to grant exemption to tolls to U.S. ships passing through the Panama Canal, in a coast to coast trade, is causing considerable discussion and feeling throughout the U.S. The Hay-Pauncefote treaty between Great Britain and the U.S., under which the latter built the Panama Canal, provides that the canal shall be free and open to vessels of commerce, and of war, of all nations, on terms of entire equality, and that there shall be no discrimination against any such nation, or its citizens, or subjects, in respect of the conditions of charges of traffic or otherwise. It is contended that the U.S. should not be included in the term "all nations," at least as regards its coast to coast trade.

H.M.C.S. Aurora and the destroyer Patrician sailed from Victoria, B.C., for Halifax, N.S., via the Panama Canal. They were followed June 6, by the destroyer Patriot, which was delayed in sailing by some repairs necessitated by grounding at Nanaimo recently. She was expected to join the first two ships at San Diego, Cal.

Welland Canal Contract. — The Railways and Canals Department has given the Canadian Dredging Co., Midland, Ont., a contract for placing stone protection on the Welland Canal summit level between Thorold and Port Colborne.

Great Lakes Levels.

The U.S. Lake Survey reports the mean stages in feet above mean sea level, of the Great Lakes for May, as follows: Superior, 602.12; Michigan and Huron, 580.58; St. Clair, 575.62; Erie, 573.09; Ontario, 246.68.

Lake Superior was 0.43 ft. higher than April, 0.21 ft. lower than in May, 1920, 0.10 ft. above the average May stage of the last ten years, 0.93 ft. below the high stage of May, 1861, and 1.30 ft. above the low stage of May, 1911.

Lakes Michigan and Huron were 0.24 ft. higher than April, 0.16 ft. lower than in May, 1920, 0.02 ft. below the average May stage of the last ten years, 2.94 ft. below the high stage of May, 1886, and 1.02 ft. above the low stage of May, 1896. During the last 10 years the May level has averaged 0.3 ft. higher than the April level and 0.3 ft. lower than the June level.

Lake Erie was 0.30 ft. higher than April. 0.80 ft. higher than in May 1920, 0.39 ft. above the average May stage of the last 10 years, 1.33 ft. below the high stage of May, 1862, and 1.78 ft. above the low stage of May, 1895; during the last 10 years the May level has averaged 0.4 ft. higher than the April level and 0.2 ft. lower than the June level.

Lake Ontario was 0.30 ft. higher than April, 1.08 ft. higher than in May, 1920, 0.07 ft. above the average May stage of the last 10 years, 2.27 ft. below the high stage of May, 1870, and 1.72 ft. above the low stage of May, 1872. During the last 10 years the May level has averaged 0.3 ft. higher than the April level and 0.2 ft. lower than the June level.

DEPARTMENT OF RAILWAYS AND CANALS, CANADA.

WELLAND SHIP CANAL
Sections 1 and 2 Combined.

NOTICE TO CONTRACTORS.

SEALED tenders addressed to the undersigned and marked "Tender for Sections 1 and 2 Combined, Welland Ship Canal," will be received at this office until 12 o'clock noon, on Monday, July 25, 1921.

Plans, specifications and form of contract to be entered into can be seen on or after this date at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, and at the office of the Engineer in Charge, Welland Ship Canal, St. Catharines, Ontario.

Copies of plans and specifications may be obtained from the Department on the payment of the sum of fifty dollars. To bona fide tenderers this amount will be refunded upon the return of the above in good condition.

An accepted bank cheque on a chartered bank of Canada for the sum of $700,000 made payable to the order of the Minister of Railways and Canals, must accompany each tender, $400,000 of which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted.

The cheque thus sent in will be returned to the respective Contractors whose tenders are not accepted.

The cheque of the successful tenderer will be held as security, or part security, for the due fulfilment of the contract to be entered into.

The lowest or any tender not necessarily accepted.

By order,

J. W. PUGSLEY,
Secretary.

Department of Railways and Canals,
Ottawa, June 24, 1921.

Traffic Records Made at Sault Ste. Marie and Panama Canals.

Comparisons of certain traffic records made at the Panama Canal and the St. Marys Falls Canal, Sault Ste. Marie, Mich., indicate in several instances that facilities on the ocean for handling bulk freight are not yet as efficient as those on the Great Lakes, according to information furnished by L. C. Sabin, General Superintendent, St. Marys Falls Canal. Records of size and tonnage of ships and of coaling and discharging coal are cited, the figures from the Isthmus being taken from the Panama Canal Record.

The s.s. Friesland, with 15,138 short tons of wheat passed through the Panama Canal Nov. 8, 1920, the largest cargo of wheat that had been carried through the canal. The Friesland is 12,321 tons gross and 8,690 net tons, 520.7 ft. in length by 64.2 ft. beam, drawing 30.4 ft. in salt water at the time of transit. The s.s. W. Grant Morden, with a cargo of 15,149 short tons of wheat passed through the St. Marys Falls Canal, Oct. 9, 1919. The Morden is 8,973 gross tons, 6,086 net tons, and is 625 ft. long with 59 ft. beam, and was drawing 20 ft. 10 in. fresh water at time of passing.

The collier Ulysses, discharged 12,030 tons of coal in 14 hr. 25 min., Nov. 12-13, 1920, which is equivalent to 834 tons an hour, allowing 1 hr. for clean up, etc. This was cited as a new record at the Cristobal coaling plant. On the Great Lakes this rate has often been exceeded. In 1918 the G. G. Barnum discharged 10,610 net tons of soft coal in 10 hr. 30 min., or at the rate of 1,010 net tons an hour. In 1919 the Wm. A. McGonagle made a record of 1,149 tons an hour.

On Nov. 25, 1920, the Cristobal coaling plant established a new record in delivering 1,102 tons of coal to the s.s. Wiltshire in 1 hr. 35 min., or at the rate of 696 tons an hour, equivalent to 780 net tons an hour. This coal record is often exceeded on the Great Lakes. In 1920 the H. G. Dalton loaded 13,880 net tons in 10 hr. 30 min., or at the rate of 1,322 net tons an hour; in 1919 the J. Pierpont Morgan loaded 13,534 tons in 6 hr. 59 min., or at the rate of 1,933 tons an hour.

The U.S. Shipping Board's Emergency Fleet Corporation, according to a recent decision of the Appellate Division of the New York Supreme Court, in the case of the Ingersoll-Rand Co. against the corporation, may be sued like any other corporation, and does not enjoy the sovereign right of government. The court's judgment is that when Congress provided for the incorporation of the Emergency Fleet Corporation, under the District of Columbia laws and authorized the U.S. Shipping Board to subscribe for not less than half of the capital stock, on behalf of the U.S., it authorized the creation of an artificial person, capable of suing, and of being sued, as is any other corporation of the District of Columbia. The U.S. laid aside its soverign character, in which it could not be sued, and took that of a private citizen, a stockholder in the corporation, exercising itis power, as every other stockholder, by its vote in stockholder's

Superannuation of Pilots. — Senator Daniel asked the following questions in the Senate, recently:—What are the annual amounts of pay granted to retired or superannuated pilots in Montreal, Quebec, Sydney, Miramichi, Pictou, Halifax and St. John pilotage districts? What, if any, changes have been made in these rates during the last 7 years, giving amounts, dates and districts? Under what regulations are these annual amounts arrived at in the different pilotage districts? Sir James Lougheed gave the following answers:—1. Montreal, no pension paid by Government; Quebec, $300 a year to those entitled; Sydney, Miramichi, Pictou, Halifax and St. John, no pension paid by Government. 2. No changes. 3. By order in council, Dec. 5, 1906, in order to reduce the number of pilots in the pilotage district of Quebec. A pilot must retire at the age of 65 to obtain this pension.

The Georgian Bay Tourist Co., Ltd., the incorporation of which, under the Ontario Companies Act, with $100,000 authorized capital, and office at Midland, Ont., was mentioned in a previous issue, operates the s.s. City of Midland between Midland and Copperhead, connecting with G.T.R. trains at Midland, and calling at Honey Harbor, Minnecoganashene, Whalens, Go-Home, Wah-Wah, Taysee and Manitou. The s.s. City of Midland, formerly America, was bought from Canada Steamship Lines, and is in charge of Capt. G .W. Kinnee, master; J. E. Kane, engineer, and R. M. Johnston, second engineer. The company's officers are:—D. L. White, President; D. S. Pratt, Vice President and Managing Director; N. K. Wagg, Manager; Capt. E. F. Burke, Assistant Manager, and R. R. Wilson, Secretary-Treasurer.

The Honey Harbor Navigation Co., the incorporation of which, under the Ontario Companies Act, ..ith $40,000 authorized capital stock, and office at Midland, Ont., was announced in a recent issue, owns the s.s. City of Dover, the yacht Tenno and the motor launch Waterbus, and also operates Picnic Island, about 17 acres, for day picnic parties. Capt. Lagree is master of the City of Dover, and W. E. Roote is the chief engineer. The boats are operated between Midland and Penetanguishene, calling at Honey Harbor and Minnecoganashene. H. K. Wagg is President, and R.R. Wilson is Secretary-Treasurer.

The Gulf of St. Lawrence Shipping & Trading Co. Ltd., Quebec, Que., which last year operated steamship services on the St. Lawrence River and Gulf, between Montreal and Gulf and Newfoundland ports, is in bankruptcy, and tenders for its steamships Lady Evelyn, Champlain, Labrador and Guide were invited up to April 15. The company was incorporated in 1919, its officers being C. A. Barnard, K.C., Montreal, President; A. E. Doucet, Quebec, Vice President; H. P. Hamel, Quebec, Secretary-Treasurer; J. deS. Bosse, General Manager, and Capt. J. S. Bernier, Marine Superintendent.

Toronto Harbor Life Saving. — The Toronto Harbor Commissioners have issued their second annual report on the life saving and police patrol services. The life saving equipment, which was transferred from the Dominion Government to the Harbor Commissioners in 1919, was valued at about $20,000, and since then a life saving station has been built at the western channel, and auxiliary stations at the Humber River and Scarboro Beach. During 1920, 29 calls were received for first aid, 39 for ambulance, 103 for rescues, 16 for fires, and 89 miscellaneous; and 15 persons were drowned, including 2 suicides.

The White Star Line (Oceanic Steam Navigation Co.) report for 1920, shows a profit of £1,372,158, after providing for excess profits duty and contingent liabilities, and adding interest and dividends on investments, etc. With the balance of £104,512 brought forward from 1919, the total credit at profit and loss was £1,476,670, and after deducting debenture interest, depreciation, etc., there was an available balance of £780,-955, from which, dividends equivalent to 15%, absorbing £750,000, were paid, and £30,885 was carried forward to this year's accounts.

Motor Boat Nokomis.—The Dominion Public Works Department received tenders to June 22 for the purchase of the motor boat Nokomis. She has a cypress hull 1⅛ in. thick, with frame of white oak, and is fully equipped with Buffalo engine, medium type, 20 h.p., with 20 in. propeller, 1 spare propeller and a small dinghy. She is 36 ft. long overall, 8 ft. beam, with draft of 3 ft., and an average speed of 9 miles.

The Pacific Coast Association of Port Authorities will hold its annual conference in October at Vancouver, B.C. Plans are being made for the entertainment of visitors, and it is probable that a delegation will be present from the American Association of Port Authorities' annual convention, which will be held at Seattle, Wash., immediately before the Vancouver meeting.

The Atlantic Transportation Co., Ltd. has been incorporated under the Dominion Companies Act, with $100,000 authorized capital, and office at Montreal, to own and operate steam and other ships in all waters within or without Canada. H. A. Powell, W. H. Harrison, T. Nagle, H. Warwick, F. J. McDonald and J. R. Miller, St. John, N.B., are the incorporators.

Transit Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with $24,000 authorized capital, and office at Montreal, to carry on business as merchants and carriers by land and water, within and without Canada, and to apply for any Post Office, Government or other subsidies, and to own steam and other ships of every description.

Northern Freighters Ltd. has been incorporated under the British Columbia Companies Act, with $50,000 authorized capital, and office at Victoria, to carry on business as common carriers, shipping and forwarding agents, etc., and to own and operate ships of every description for passengers and freight.

Navigation Fatalities. — During the 3 months ended March 31, two navigation employes were killed in the course of their occupation; one, an engineer, fell into an open hatchway at Cornwall, Ont., and one, a stevedore, fell through a hatchway at St. John, N.B.

The Royal Mail Steam Packet Co. announces that, subject to audit, the accounts for 1920 will permit of a balance dividend of 4½%, less income tax, on the common stock, making, together with the interim dividend paid in Oct. 1920, 7% for the year.

Canadian List of Lights and Fog Signals on the Pacific and Atlantic coasts, corrected to April 1, have been published and may be obtained free on application to the Marine Department, Ottawa.

Lake Commerce Ltd., Toronto, which was formed a few years ago to own and operate the s.s. Valcartier, has surrendered its Ontario charter, having sold the ship.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

British Columbia.

Johnstone Strait.—Capt. A. Stohlberg, of the s.s. Ivanhoe, reports the existence of an uncharted shoal in the approach to Port Harvey, on the west side of the channel, about 5,100 ft. from Domville Point; depth 16 ft. This will be examined by the Hydrographic Survey as soon as possible.

Laredo Channel.—A. Dickson, master of the s.s. Camosun, reports the depth of an uncharted rock in midchannel halfway between Schooner Point and the south end of South Channel Islands, as 14 ft. and not 21 ft. as previously reported.

New Brunswick.

Bay of Fundy.—The Partridge Island radiotelegraph coast station will be closed July 1, and commercial traffic previously handled by this station will be dealt with by the St. John direction finding station, call sign VAR. The St. John direction finding station will maintain constant watch, and will handle commercial traffic on 600 meters. The direction finding bearings will, however, be dealt with on 800 meters as before, after communication has first been established on 600 meters.

Northumberland Strait.—The position of the front light of the channel range at the Richibucto harbor entrance has been changed to the north side of South Beach, 665 ft., 72 degrees, 30 minutes from back light.

Nova Scotia.

Cape Breton Island.—Four spar buoys, two red and two black, have been established to mark the bridge channel leading to the loading berth in McKinnon harbor, Bras d'Or Lakes.

Halifax.—Lightship 15 has been withdrawn from her station on Sambro outer bank, at the entrance to the harbor, and has been replaced by a gas and whistling buoy, painted black, showing an occulting white light.

Ontario.

Niagara River.—During work on the Chippewa power canal, the channel into the Welland River is on the west side of Hog Island, and for the present a fixed white light is exhibited on the north-east corner of the cofferdam, 900 ft. from Hog Island lighthouse.

Port Dover.—Two red wooden spar buoys have been established on the west and east ends of Fleming shoal, respectively, at the entrance to Port Dover, a black wooden spar buoy has been established at Sandhead shoal, at the west side of channel at entrance to Blind Bay, and a red wooden spar buoy has been established on the west side of the middle ground, opposite the Sandhead shoal buoy.

River St. Lawrence.—Without further notice, the fixed white light on Skelton Island, at the east end of Brockville Narrows, will be replaced by an occulting white light, automatically occulted at short intervals.

Quebec.

Gulf of St. Lawrence.—Lightship 15 has been placed off Heath Point for the summer. On the close of St. Lawrence navigation she will be replaced on the Sambro station, at the entrance to Halifax harbor, N.S.

Prince Edward Island.

St. Peter.—Owing to the shifting of the channel at the entrance to St. Peter harbor, the back range light on the north coast will be discontinued temporarily.

United States.

Alaska.—A red and black cylindrical gas and whistling buoy, showing a flashing white light every 3 sec., flash 9.3 sec. duration, and whistle sounded by the motion of the buoy on the waves, has been established on the north side of Helm Rock, Summer Strait, about 1¾ miles off Point Baker.

St. Mary River.—The fixed red light at the Frying Pan Island light station, on the island on the west side of Detour Passage, will be changed to a flashing red light, showing a flash of 0.5 sec. duration every 2 sec.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.— Capt. R. D. Simpson, Owen Sound, Ont.

Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Webster, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario —T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

The Lord Ormonde Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with 500 shares without nominal par value, provided that it shall carry on business with a capital of $2,500 and office at Montreal, to conduct a shipbuilding business, to act as ship agents, etc., and to own and operate steam and other ships of every description. The incorporators are: F. B. Common, F. G. Bush, H. W. Jackson, G. R. Drennan and W. P. Creagh, Montreal.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

Aug. 9-11.—American Railway Tool Foremen's Association, Chicago, Ill.; R. D. Fletcher, 1145 East Marquette Road, Chicago, Ill.

Aug. 16-18.—International Railroad Master Blacksmiths Association, Chicago, Ill.; W. J. Mayer, Michigan Central Rd., Detroit, Mich.

Aug. 24-26.—American Asosciation of Railroad Superintendents, Kansas City, Mo.; J. Rothschild, Union Station, St. Louis, Mo.

Sept. 12-14.—American Railroad Master Tinners, Coppersmiths and Pipefitters Association, Chicago, Ill.; C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

Sept. 12-15.—International Railway General Foremen's Association, Chicago, Ill.; W. Hall, 1061 West Wabasha Ave., Winona, Minn.

Sept. 20-22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry., Sterling, Ill.

Oct. 4-6.—Maintenance of Way Master Painters' Association, Buffalo N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Oct. 18-20.—American Railway Bridge and Building Association, New York, N.Y.; C. A. Lichty, Chicago & North Western Ry., Austin Station, Chicago, Ill.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Davis-Bournonville Co., Jersey City, N.J., has issued a catalogue of acetylene generators, welding and cutting torches, pressure regulators, portable outfits, and welding supplies.

Dominion Iron & Steel Co., Sydney, N.S., has sold about 3,000 of reinforced teel bars, to the Northern Construction Co. and Major General J. W. Stewart, for the Ballantyne pier in Vancouver harbor.

Independent Pneumatic Tool Co., Chicago, Ill., has issued circular 36, respecting its Thor portable electric drill stand.

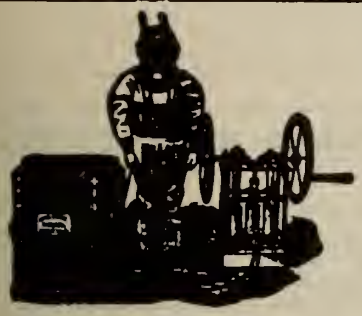
Independent Pneumatic Tool Co., Chicago.—Ralph S. Cooper, Vice President and General Sales Manager, has returned to Chisago, after spending eight months in Europe, establishing agencies and branch offices, and has been appointed General Manager, in addition to his other duties.

Gold Car Heating & Lighting Co. has removed its offices and warehouses to Bush Terminal, 220 36th St., Brooklyn, N.Y., where it has secured much larger quarters and greater facilities for handling orders.

Orton & Steinbrenner Co., Chicago, Ill., has issued catalogue 20, "Seven and Twelve Ton Crawling Tread and Road Wheel Locomotive Cranes."

Chicoutimi Transportation Co. Ltd. has been incorporated under the Quebec Companies Act with $5,000 authorized capital and office at Chicoutimi, to own and operate vehicles and ships, for transportation of passengers and freight in the province, to carry on a general express and transportation business, and to establish lines of ships on St. John and Kenogami Lakes, and Saguenay and St. Lawrence Rivers. The incorporators are: J. A. Tremblay, E. Jarvin, P. Tremblay, Chicoutimi, Que., and A. Royer, Quebec, Que.

Rithet Consolidated Ltd. is reported to have been formed at Victoria, B.C., to amalgamate what are known locally as the Rithet interests, consisting of the wholesale importing, shipping and insurance firm of R. P. Rithet & Co. Ltd., the Victoria Wharf & Warehouse Co. Ltd., and the Rithet Proprietary Co. Ltd.



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Manufacturer of

Diving Apparatus

For Sale or Hire

Brass Founder and Coppersmith

13-15 Concord St., Montreal.

The Dominion Trading & Transportation Co. Ltd., incorporated recently in Alberta and registered in British Columbia, with authorized capital of $250,000, and office at Edmonton, Alta., is offering an issue of 25,000 shares for development of gravel claims and leases, on the west side of Peace River, about 20 miles up stream from the canyon at Hudson Hope, which it is claimed contain gold and platinum.

EXTENSION OF TIME FOR OPENING TENDERS.

CANADIAN NATIONAL RAILWAYS.

EASTERN LINES.

ONTARIO DISTRICT.

Notice is hereby given that the time for opening tenders for work on the Stream Diversion, Orient Bay, Lake Nipigon, has been extended from twelve o'clock noon, June 20th, to twelve o'clock noon (Standard Time) Wednesday, July 6th, 1921.

Any party who has tendered or who intends tendering is requested to write the Chief Engineer of the Canadian National Railways, Eastern Lines, Room 407 Old Union Station, Toronto, Ontario, for revised "Instructions to Intending Bidders" and revised "Form of Tender" and to use these in submitting his tender.

All tenders already received will be held unopened until the time above set for the opening of tenders and each tender so received that meets the requirements of the revised instructions, will be considered unless superseded by a new tender from the same party or parties or unless withdrawn by a letter addressed to the undersigned and received prior to the time above set for the opening of tenders.

All tenders must be addressed to the undersigned and accompanied by a certified cheque on a chartered bank for the sum of $5,000.00, made payable to the Treasurer, Canadian National Railways, but in any case where a tender is superseded by a new tender and the tenderer so directs, the deposit cheque of $5,000.00 enclosed with the original tender will be held and applied in respect of any new tender that may be submitted, otherwise a certified bank cheque for the sum and payable as above designated must accompany the new tender.

The lowest or any tender not necessarily accepted.

W. A. KINGSLAND,
General Manager,
Canadian National Rys.,
Eastern Lines,
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Malleable Castings **High Grade Material First Class Service**

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The Star Brass Works

Largest Exclusive Trolley Wheel Makers in the World.

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352 Donald St., Winnipeg

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Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

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IN ALL PARTS OF THE COUNTRY

Over 4000 steel storage tanks.
Over 2000 wood tanks.
Over 500 tanks, with agitators, jackets, etc.
Over 1800 rectangular steel tanks.
Over 1500 glass enameled tanks.
Over 1250 steel pressure tanks.
Over 15 tanks and towers.

New and Used Tanks
Chemical Equipment.
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Largest dealers in tanks

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30 Church St., New York

For Sale

CONTRACTORS' FLOATING PLANT FOR SALE.

STEEL HOPPER BARGE (ocean going), 145 ft. x 27 ft. 6 in. x 10 ft. 6 in. Compound engines 14 in. and 32 in. x 21 in. stroke, 300 I.H.P. Capacity of hopper well about 300 cub. yards, bottom discharging doors.

STEAM TUG, wooden hull, 72 ft. 2 in. x 17 ft. 2 in. x 8 ft. 5 in. Compound engines, 9 in. and 18 in. x 12 in. stroke, 90 I.H.P.

FLAT DERRICK SCOW, 90 ft. x 33 ft. 3 in. x 8 ft. 9 in.. with 8¼ in. x 10 in. three-drum hoist and 5 in. x 6 in. slewing engine, lifting power 15 tons.

For further particulars apply to Sir John Jackson (Canada), Limited, Victoria, B.C.

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Canadian manufacturers of the Celebrated Wheel Truing Brake Shoe. Best Wheel Grinders in the World.

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Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

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Subscriptions are based on the service furnished and are available only by reputable wholesale jobbing, and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. Correspondence invited.

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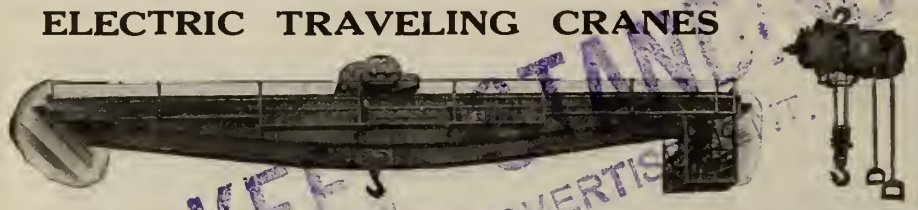

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ELECTRIC AND AIR HOISTS

DOMINION TOWING & WRECKING CO., LIMITED

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Lighter Strathbuoy—Capacity, 700 tons.

Equipped for all kinds of Towing, Wrecking, Etc.
Sand and Gravel supplied for Concrete Work, Rock and Soil Filling for Cribwork.

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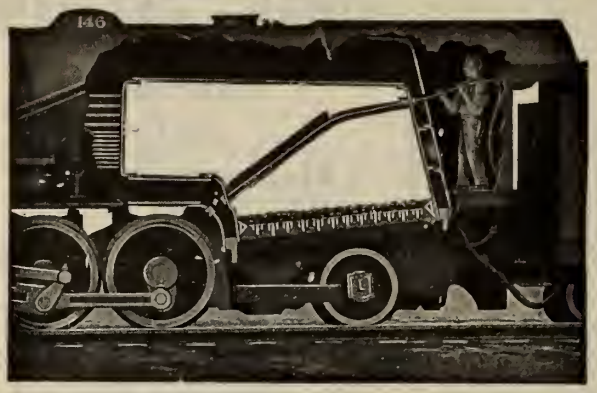
Lagonda Arch Tube Cleaner



Lagonda Cleaner Removing Scale from Arch Tubes.

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Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

The Lagonda Arch Tube Cleaner will remove these scale deposits easily and quickly. They are built for all sizes of tubes and can be driven by either water, air or steam. Send for Catalogue W-1 describing the construction and operation of these Cleaners.

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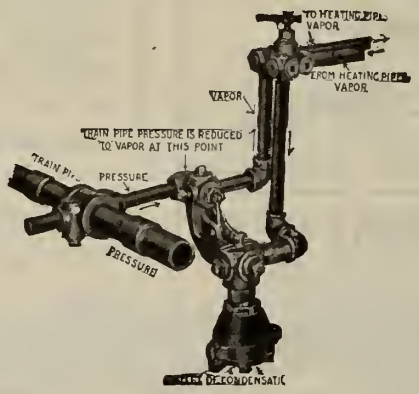

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Pipe Coverings for all classes of service
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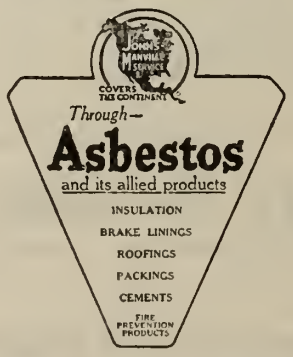

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KILL
LAST AD.

Industries in the United States Eagerly Seek the Canadian Markets

The sharp decline in values in the United States and the stringency of the money market, caused U.S. business houses to look across their northern border for an outlet for many products.

And they do not look in vain; for, in Canada, they find an active demand, and no lack of ready capital to finance all purchases.

This is particularly true of the purchases made by Canadian railway and marine interests. For Canadian railways—both government-owned and privately-owned — are purchasing more freely than U.S. railways, and the majority of Canadian ships are owned either by the government or the railways.

And what do Canadian railway and marine interests not buy? From steam boilers to lace curtains; from jib cranes to strawberry jam; from knee boots to eye salve, one can scarcely name a single article of commerce that is not bought, in quantities, by either or both these dominant factors in Canadian national life.

Especially does Canada seek the most modern devices for increasing efficiency of its railways as applied to shops, locomotive houses, locomotives, passenger and freight cars, and the finest types of conveniences for its new or proposed terminals.

And, on the marine side, Canada needs each year, millions of dollars' worth of equipment and supplies for its newly-launched merchant ships.

Truly a stupendous market!

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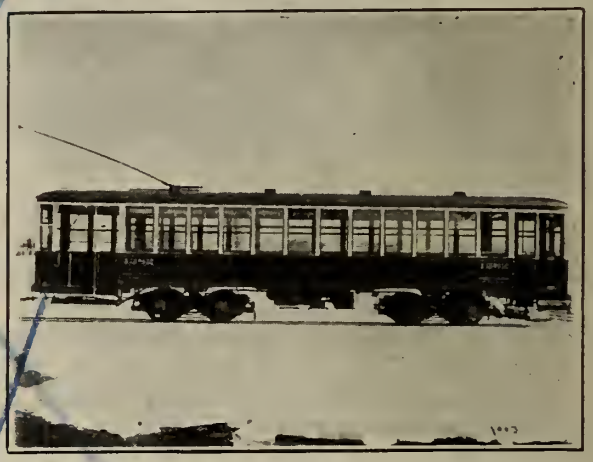
Ottawa Car Manufacturing Co., Limited

301 Slater Street, Ottawa, Ont.

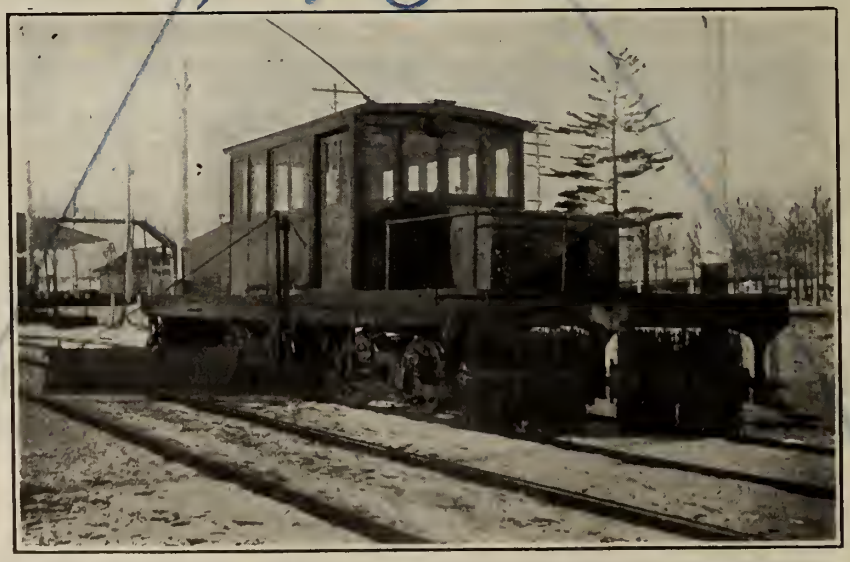
Highest Efficiency

Lowest Upkeep Cost

50 Ton 400 H.P. Electric Locomotive.



Electric City and Interurban Passenger Cars, Electric Express Cars and Locomotives, Sprinklers and Work Cars. Car Seats, Car Curtains Bronze Car Trimmings Bronze Motor Bearings Bronze Axle Bearings Car Axles



Sole Licensees of all rights for manufacture and sale in Canada of The Ackley Brake No staff and 2-E

Combination Snow Sweeper and Locomotive.

Brass Foundry and Forgings.

Our foundry is one of the largest and best equipped, and one of the most modern in the Dominion. We are in a position to machine castings and forgings of every description.

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Jumping Off Place

THE fact that uniformly pure Prest-O-Lite Dissolved Acetylene is obtainable in easily portable and instantly accessible cylinders has greatly enhanced the value of the oxy-acetylene process to Engineers and Contractors.
Not only is it feasible to quickly transport

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DISSOLVED ACETYLENE

to any job, anywhere — but Prest-O-Lite cylinders permit the use of highly pure welding and cutting gas in any desired quantity—large or small. And Prest-O-Lite Service, functioning through a chain of centrally situated plants and warehouses, insures a never-failing supply of Prest-O-Lite Dissolved Acetylene when and where you want it.

Prest-O-Lite Company of Canada
LIMITED

HILLCREST PARK - TORONTO

Branches at Montreal, Toronto, Winnipeg.
Plants at: Toronto, Ont. St. Boniface, Man. Merritton, Ont. Shawinigan Falls, P.Q.

PWC 541

Will the Printing Industry Follow the Building Trades to Stagnation?

An unheard of condition exists in the building trades in Canada.

Everywhere there is a crying need for homes, but practically none are being built.

Why?

Because the cost is considered prohibitive. Labor and materials are so high that the man who contemplates building a home for himself counts the cost, and decides he cannot afford it.

The result, of course, is increased demand for houses to rent—and higher rents—and no one knows the end.

We don't want this stagnation to occur in the printing industry, but employers are right now faced with a demand from the International Typographical Union that the 44 hour week shall be the basis for all wage scales and the Toronto Unions are demanding a wage of $44 per week. This will add 36 per cent. to the wage bill of Toronto job printers and publishers, other than those of daily papers.

Does anyone feel that under present economic conditions an increase from 73c. per hour to $1.00 per hour for printers is justified?

Does anyone believe that the effect of such an increase in the labor cost of printed matter, can be other than harmful to the industry as a whole?

Printers can only find employment as long as users of their product continue to buy.

Will there not come a time, when—if costs keep on mounting—printers will find themselves in the same position as many highly skilled carpenters, bricklayers, plasterers, and painters are now in. They are willing and anxious to work but cannot find a market for their services.

This is a matter in which the buyers of printing—the subscribers to this and other papers—and the advertisers—are vitally concerned. An increase of 36% in the wage bill of publishers would necessarily involve an increase in subscription price and advertising rates.

Publishers would be very reluctant to add one cent to the present subscription price of their papers or to effect any increase in advertising rates, but they cannot possibly absorb any such addition in wage costs as is proposed, and stay in business.

That is plain.

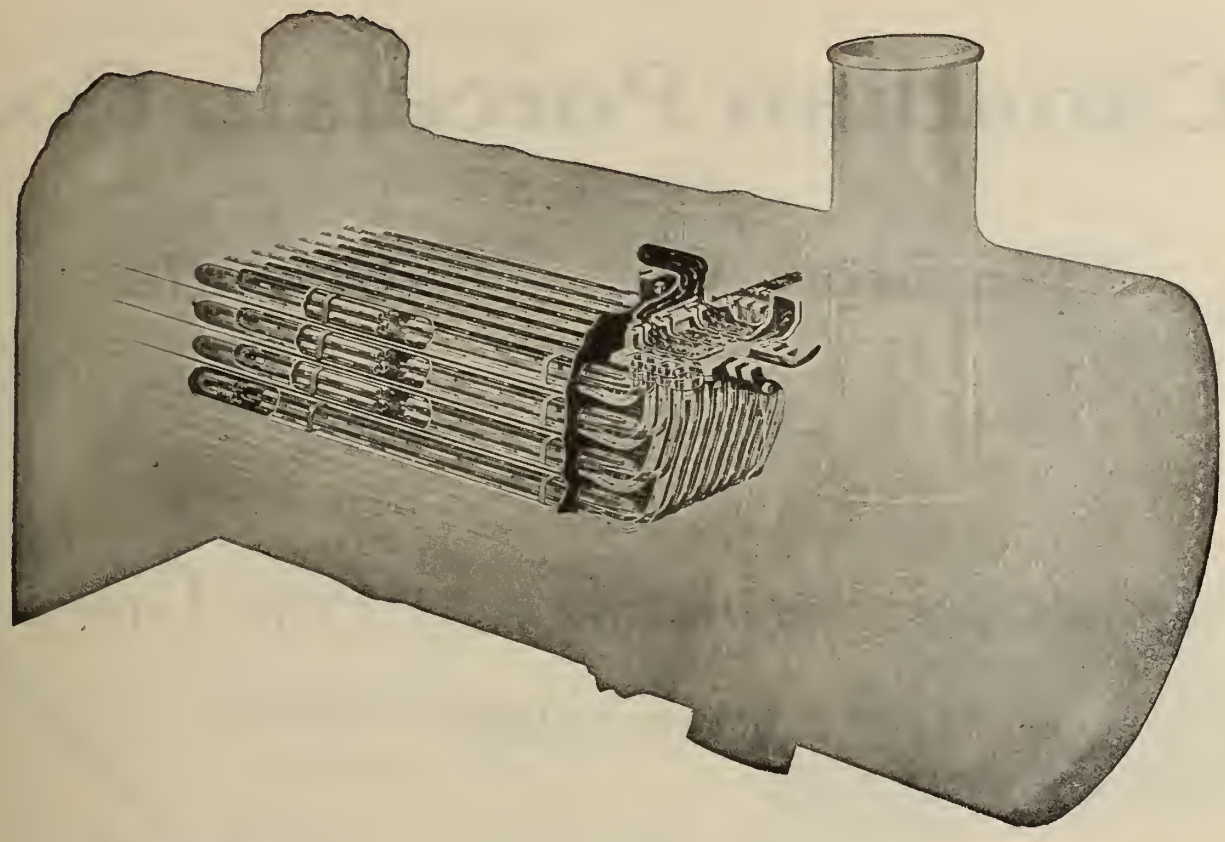
An expression of the opinion of readers of this paper on the Union's proposals, involving an increase of 36% in the labor cost of printed matter, is asked. Will you not write a letter to the editor (not for publication) telling him your view of the situation.

Don't let us drive the printing industry into the condition of the building trades.

This statement is published by and has received the endorsation of the Toronto publishers who are members of the

Canadian National Newspapers and Periodicals Association

including CANADIAN RAILWAY AND MARINE WORLD



Type "A" Superheaters Facilitate Handling in Shops and Roundhouses

Type "A" superheaters are designed and constructed to provide accessibility and convenience for handling in shops and roundhouses.

The parts of each superheater are interchangeable as far as they can be made. There are only as many shapes of units in each superheater as there are horizontal rows of units. All units in each row are interchangeable with each other.

It is seldom necessary to replace superheater material as engines pass through the shop for general overhauling. To prepare dismantled parts for reapplication requires only the cleaning of the ball joints.

Type "A" superheaters require no special machinery for their installation or maintenance. They can be installed as existing engines pass through the shop for general overhauling without delaying the shop schedule.

Type "A" superheaters under average conditions pay for themselves and their cost of installation within the first year.

The Superheater Co., Limited

Transportation Building, MONTREAL

Works at Sherbrooke, Quebec

Designing Engineers and Manufacturers of Ellesco Steam Superheaters and Pipe Coils for all purposes and Feed Water Heating Equipment for Locomotive and Marine Service.

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Canadian Porcelain Co.

Limited

Hamilton Canada

Porcelain Insulators and Pole Line Hardware

The Peirce Wireholder

No. 394

Write in for Sample and Prices.

N. Slater Company, Ltd., *Successors to Slater & Barnard Limited* **Hamilton, Ont.**

Made in Canada under Peirce and Hubbard Patents

Use it for Lubricating or Paint Oils

BOWSER

Handling oils with a battery of Bowser tanks is recognized as most efficient for railway oil houses, shops and paint departments. Discarding the wasteful barrel has saved thousands for many railroads that "Bowserized" their plants.

A compact, convenient installation such as this battery of Bowser tanks and pumps cannot be excelled for handling lubricating or paint oils, kerosene, turpentine, etc. Every delivery of oil is registered, making it easy to keep a check on the amounts received and delivered.

Bowser engineers will gladly co-operate with your department in discussing any installation you may propose to make. A well planned installation is important for efficient service.

Write us.

S. F. BOWSER COMPANY, LTD.

66-68 Fraser Ave.

Toronto - Canada

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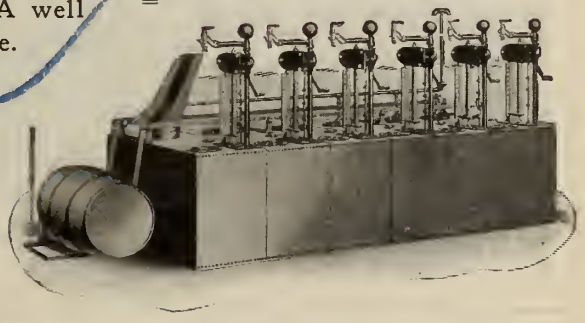

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Improved — "Clothel" System — Patented
(ETHYL. CHLORIDE)

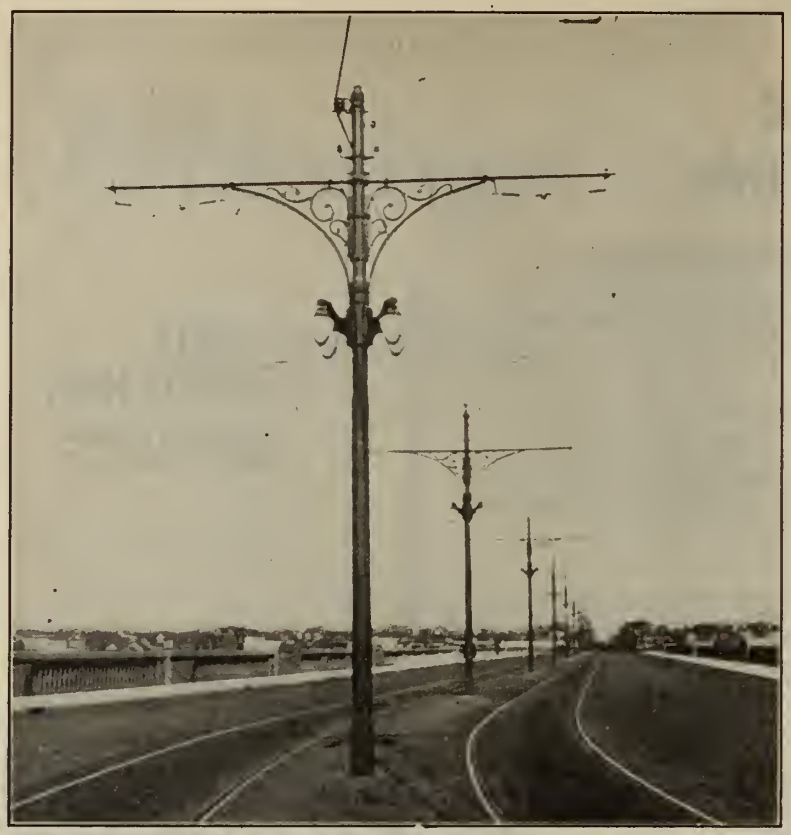
Some recent orders:—

S.S. "Canadian Cruiser" and "Constructor"
S.Y. "Lyndonia" - "Hourmahal"
S.Y. "Delphine" - "Speejacks"
S.Y. "Guinevere II."

Send your Refrigeration problems to:—

The Canadian Clothel Refrigerating Co., Limited

17 St. John St., Montreal



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Tubular Poles

NEAT, UNIFORM AND ORNAMENTAL
in appearance, combined with
GREAT DURABILITY, STIFFNESS AND STRENGTH
make them ideal for
ELECTRIC LIGHT AND POWER
TELEPHONE, TELEGRAPH
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LINES
and also for
FLAG POLES,
all sizes and weights.

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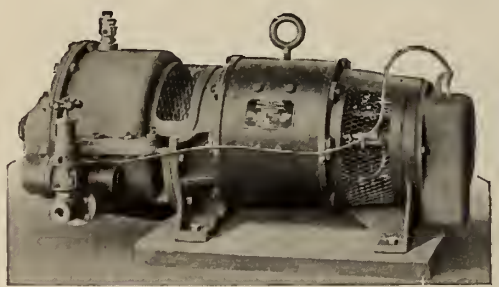
For All-Round Work
In Railway and Marine Service
Westinghouse Small Turbine Generators
From 5 to 15 kw. Capacity



Westinghouse 10 Kw. Turbine Generator.

In shipyards and on shipboard; in railroad yards and in railroad construction work, these small units have been successfully used for a number of years for illuminating purposes.

They are light, compact, self-contained and require no internal lubrication. Their mechanical simplicity calls for a minimum of attention.

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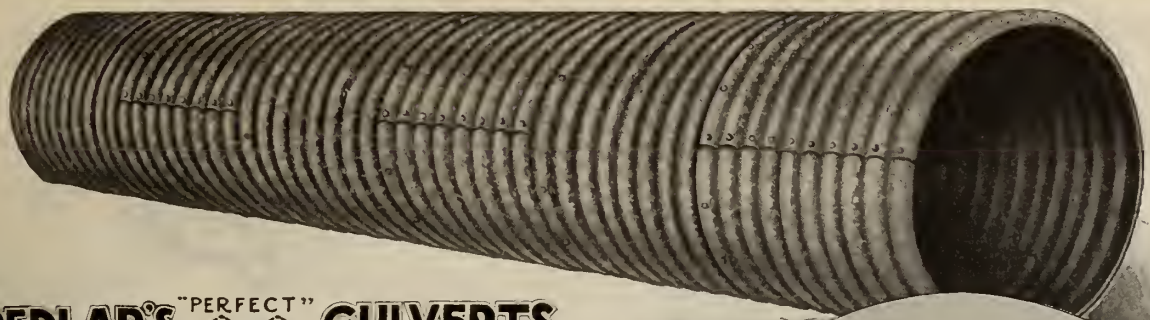

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Long Service, Without Maintenance Cost

WHEN you build a road you naturally figure on keeping down as far as possible the cost of maintenance. In doing this you cannot pay too great attention to the type and capacity of your culverts. You need Culverts that will be large enough to carry off water when Spring floods are at their height; culverts that cannot cause wash-outs by breaking under the internal stresses of frost or ice; culverts that will maintain their shape and position under the stress of the heaviest live or dead loads to which they can be subjected. All these requirements are fully met by the selection of Pedlar's "Perfect" Culverts — the strongest, most durable and convenient culverts made.

Write for Culvert Booklet R.M.

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ESTABLISHED 1861.
Executive Offices: Oshawa, Ont.
Factories: Oshawa, Ont., and Montreal, Que.
Branches: Quebec, Halifax, St. John, Ottawa, Toronto, Hamilton, Winnipeg, Calgary, Vancouver.

We are manufacturing Armature Coils for Railway Motors, Industrial, Direct Current and Alternating Current Motors.

Satisfaction guaranteed

Send us a sample of coil you require.

Railway & Power Engineering Corp., Limited

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performance on the job COUNTS

on the C. M. & St. P.

"The Ball Bearing FAIRMONT is the lighest and most powerful engine that I have seen in my ten years of railroading. I have pulled a 3% grade against a strong wind with myself and six men, besides 500 pounds of tools and never 'fazed' the FAIRMONT. I can very readily see that I have been wasting time and money on other engines. As for the Ball Bearing Never Leak proposition, it is one of the best parts of the motor, and the trouble-proof carburetor is sure the only thing for the average section foreman."

Standardize with Fairmont Motor Cars

These times demand FAIRMONT efficiency and economy. The maintenance department on every railway system in America is striving to stop waste leakage. Several of America's most prominent systems have solved this problem.

STANDARDIZE WITH FAIRMONT MOTOR CARS. We have some interesting maintenance reports, which will be of value to you. Send for your copy.

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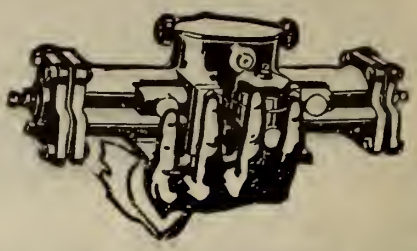
Fairmont
Ball Bearing Motors



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"Better Service" in electric railway operation means more cars, shorter headways and shorter running time.

You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door* and *Step Control,* which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control,* which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

National Pneumatic Company

Originators and Manufacturers of

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Door and Step Control
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Motorman's Signal Lights
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National Pneumatic
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Make your peak periods produce maximum profit and efficiency

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Length of service is the real measure of varnish value.

Berry Brothers' Varnishes, Stains and Enamels produce handsome finishing effects that last. Their use insures the highest efficiency in railway and marine finishing shops.

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Worlds Largest Makers
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AUTOMATIC SAFETY SWITCH STANDS

Guard Rail Clamps
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MANGANESE TRACK WORK A SPECIALTY

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STEEL RAILWAY BRIDGES
STEEL HIGHWAY BRIDGES
STEEL TURNTABLES
STEEL STRUCTURES OF
EVERY DESCRIPTION

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THE HAMILTON BRIDGE WORKS COMPANY

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HEAD OFFICE:

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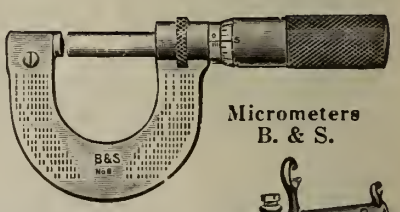

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"Vulcan"
Pipe Vises
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In addition to the tools shown, our line includes Set Screws, Cap Screws, Machine Screws, High Speed and Carbon Drills, Files (extra large stock) and a complete line of machinists' tools (Starrett, Brown & Sharpe, etc.)

We also carry a heavy stock of Bar Iron, Sheet Iron, (black and galvanized), Machine Steel, Cast Steel, High Speed Steel, Cold Rolled Steel, etc.

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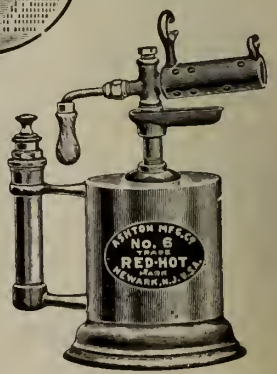

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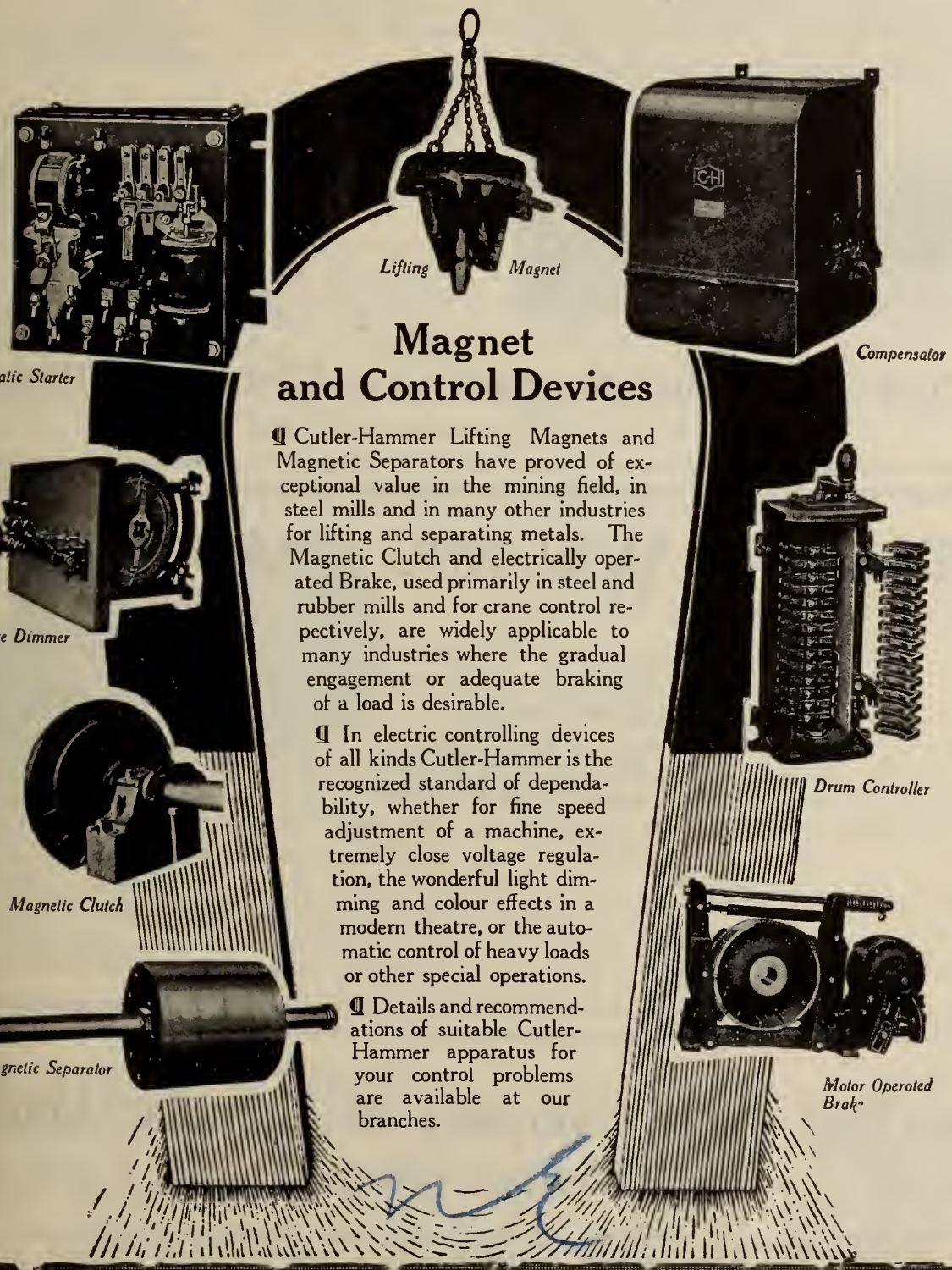

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O.S. Dependable Locomotive Cranes, Clam Shell and Orange Peel Buckets

are built to stand hard and continuous service. Write us for details and let us help you make profits by the economical handling of your material.

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Carbon Specialties of all shapes and sizes for Oxy-Acetylene Welding

Such as carbon plates, rods, and paste. With the use of Columbia Welding Carbon Products it is possible to perform the heaviest welds on castings without dismantling, to reinforce a weld to any strength desired, to make a vertical weld, and to make numerous other types of welds where the flow of metal must be restricted to a definite area.

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All that its name implies. Good materials are only determined by results obtained in service. Ask about it. This is a Packing that overcomes the necessity for carrying many styles and sizes. "INTERNATIONAL" PLASTIC METALLIC conforms to all sizes and shapes of stuffing boxes.

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Something simpler and better.
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Quality *Service*

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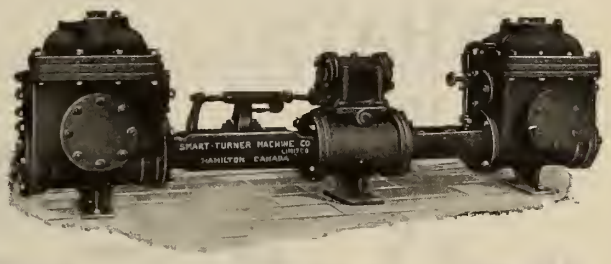

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ROLLER SIDE BEARINGS—PASSENGER, FREIGHT, LOCOMOTIVES
70-TON DOUBLE ACTION TRUCK, LATERAL AND RADIAL MOTION
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In other words, what do you get when you buy "VAN DORN".

Not merely a piece of machined iron, or steel. When you buy "VAN DORN" gearing you get MAXIMUM GEAR SERVICE

which means

OPERATING EFFICIENCY, as well as DURABILITY.

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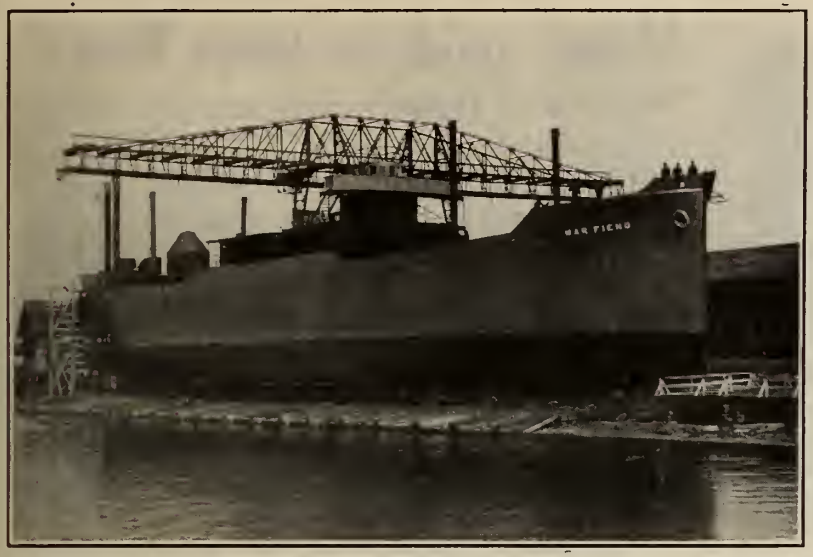

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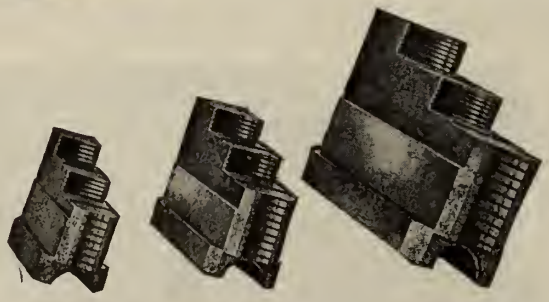

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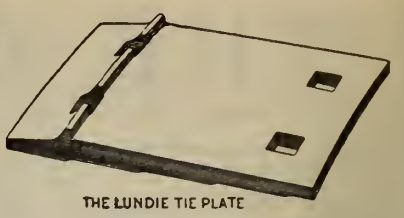

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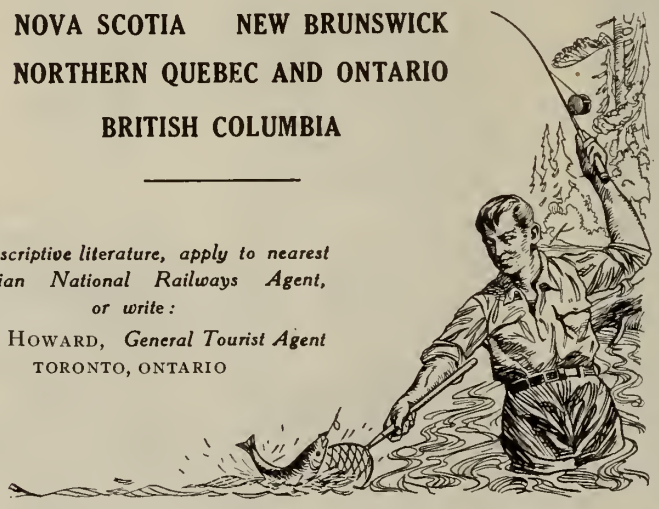

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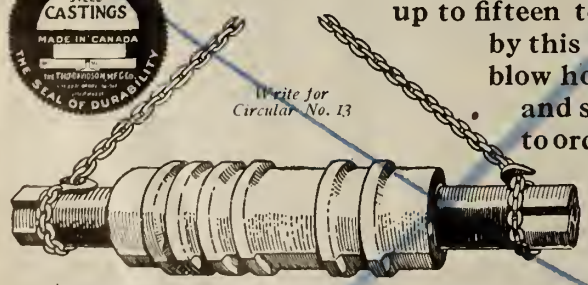

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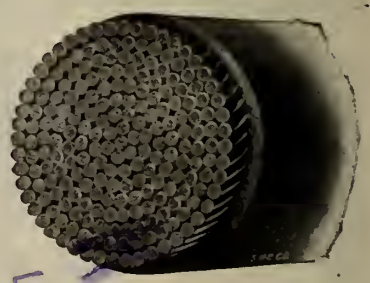

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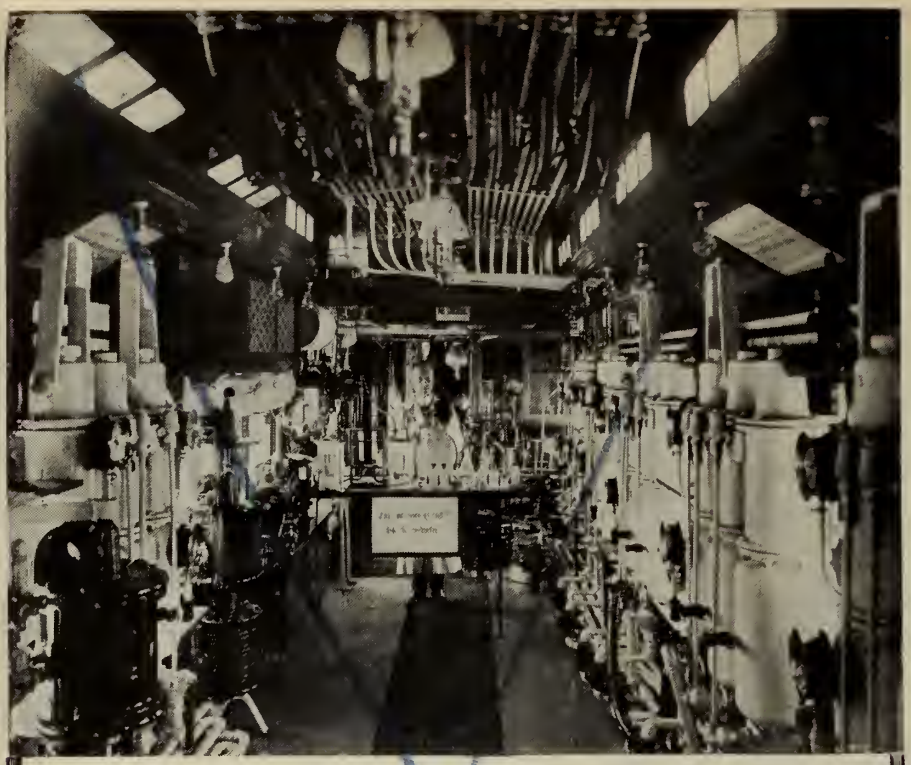

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Alphabetical List of Advertisers

A

Algoma Steel Corporation 61
American Managanese Bronze Co. 62
American Steel Foundries 2
*Associated Business Papers Inc. —
*Association of Manufacturers of Chilled Car Wheels ..... —

B

Babcock & Wilcox 46
Barrett Co. 9
Bartram, V. T. 45
Berry Bros. 57
Bertram, John, & Sons Co..Cover pg. 4
Bowser, S. F., Co. 53
Bradstreet Company 44
Brown Hoisting Machinery Co... 3
Buffalo Brake Beam Co. 38
Butterfield & Co. 57

C

Canada Foundries & Forgings Ltd. 72
Canada Grip Nut Co. 21
Canada Iron Foundries, Ltd. 58
Canada Machinery Corporation .. 35
Canada Steamship Lines, Ltd. ... 37
Canadian Bridge Co. 45
Canadian Bronze Co. 45
Canadian Clothel Refrigerating Co. Ltd. 53
Canadian Consolidated Rubber Co. 18
Canadian Fairbanks-Morse Co. .. 19
Canadian General Electric Co..... 24
Canadian Gold Car Heating and Lighting Co. 68
Canadian Government Merchant Marine, Ltd. 12
Canadian Johns-Manville Co. 46
Canadian National Carbon Co. 60
Canadian National Newspapers & Periodicals Association....15 and 50
Canadian National Railways 70
Canadian Pacific Railway 68
Canadian Porcelain Co. 52
Canadian Railway and Marine World . . ..47 and 75
Canadian Ramapo Iron Works Ltd. 57
Canadian Steel Foundries Ltd... 23
Canadian Steel-Tire & Wheel Co. 25
Canadian Vickers, Ltd. 64
Canadian Westinghouse Co. 54
Carr, C. E. A., Co. 64
Carter White Lead Co. 68
*Chase, L. C., & Co. ..... —
Coghlin, B. J., Co. 64
Collingwood Shipbuilding Co. 40
Commercial Acetylene Supply Co. 32
Consolidated Steel Corp. 7
Corbet Foundry & Machine Co. 44
Crane Limited ..... —
Curtiss-Willis Co. 44

D

Date, John 43
Davidson, The Thomas, Mfg. Co. 70
Dearborn Chemical Co. of Canada 6
Diamond Saw & Stamping Works 73
Diamond State Fibre Co. of Canada . . .. —
Dominion Brakeshoe Co. 66
Dominion Bridge Co. 39
Dominion Coal Co. 66
Dominion Foundries & Steel, Ltd. 22
Dominion Iron & Steel Co. 62
Dominion Oxygen Co. 20
Dominion Steel Products Co. 66
Dominion Towing & Wrecking Co. 44
Dominion Wire Rope Co. 30
Duner Co. 72

E

Engineering & Machine Works of Canada 65

F

Fairmont Gas Engine & Railway Motor Car Co. 56
Flannery Bolt Co. .....27 and 36
Franklin Railway Supply Co. of Canada. 28

G

Galena Signal Oil Co. 10
Galt Malleable Iron Co. 43
Gartshore, J. J. 72
General Railway Signal Co. of Canada. 44
Grand Trunk Railway..... 40
Griffin & Brinkerhoff 44

H

Halifax Shipyards Ltd. 33
Hamilton Bridge Works Ltd..... 58
Hart-Otis Car Co. 30
Holden Co. 38
Hopkins, F. H., & Co. 30
Hoyt Metal Co. 66
Hunt, Robert W., & Co. 45
Hunt-Spiller Mfg. Corporation.. 35

I

Imperial Bank of Canada..... 68
*Imp. Guar. & Accident Ins. Co. —
Independent Pneumatic Tool Co. —
Inglis, John, Co. 41
International Correspondence Schools. 72
International Machinery & Supply Co. 62

J

Joliette Castings & Forgings Ltd. 63

K

Kalamazoo Railway Supply Co... 13
Kennedy, The William, & Sons, Ltd. 2
Krauser, Webb G. 8

L

Lewis, Rice, & Son..... 58
Lincoln Electric Co. ..... —
Lundie Engineering Corporation 68
*Luther Grinder Mfg. Co..... 72

M

McAvity, T., & Sons..... 32
Marconi Wireless Telegraph Co. 61
Metal & Thermit Corporation.... —
Midland Shipbuilding Co. 65
Miller, F. W., Heating Co. 44
Miller, Roger, & Son..... 45
Miner, W. H. 34
Montreal Locomotive Works, Ltd. 34

N

National Lock Washer Co. 4
National Pneumatic Co. 56
Nichols, G. P., & Bro. 70
Nicholson File Co. 71
Northern Crane Works Ltd..... 44
Northern Electric Co. .....29 and 59
Norton, A. O., Ltd. 1
Nova Scotia Steel & Coal Co..... 31

O

Ohio Brass Co. 17
Orton & Steinbrenner Co..... 60
Ottawa Car Mfg. Co. .....39 and 48

P

Page-Hersey Tubes, Ltd. 54
Page & Jones..... 45
Peacock Bros. 5
Pedlar People, Ltd..... 55
Piper, The Hiram L., Co..... 45
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 49
Pyle-National Co. 61

Q

Q & C Co. 16

R

Rail Joint Co. of Canada..... 60
Railway & Power Engineering Corp. 55
Ramsay, A., & Son, Co. 123
Reid Newfoundland Co. 36
Robinson, Dwight P., Co. 14

S

Safety Car Htg. & Ltg. Co..... 26
Sinclair, Angus 45
Slater, N., Co. 52
Smart-Turner Machine Co..... 63
Standard Car Truck Co. 63
Standard Underground Cable Co. of Canada 70
Star Brass Works..... 43
Steel Co. of Canada..... 11
Strauss Bascule Bridge Co. 45
Superheater Co. 51
Symington Co., The T. H. 31

T

Taylor & Arnold Engineering Co. 37
Templeton Kenly Co. ..... —
Tuco Products Corporation..... 65
Turnbull, Harvard, & Co. 41

U

Union Draft Gear Co. 8
Universal Draft Gear Attachment Co. 8

V

Vapor Car Heating Co. of Canada 46

Y

Yarrows, Ltd. 33

*Alternate months.

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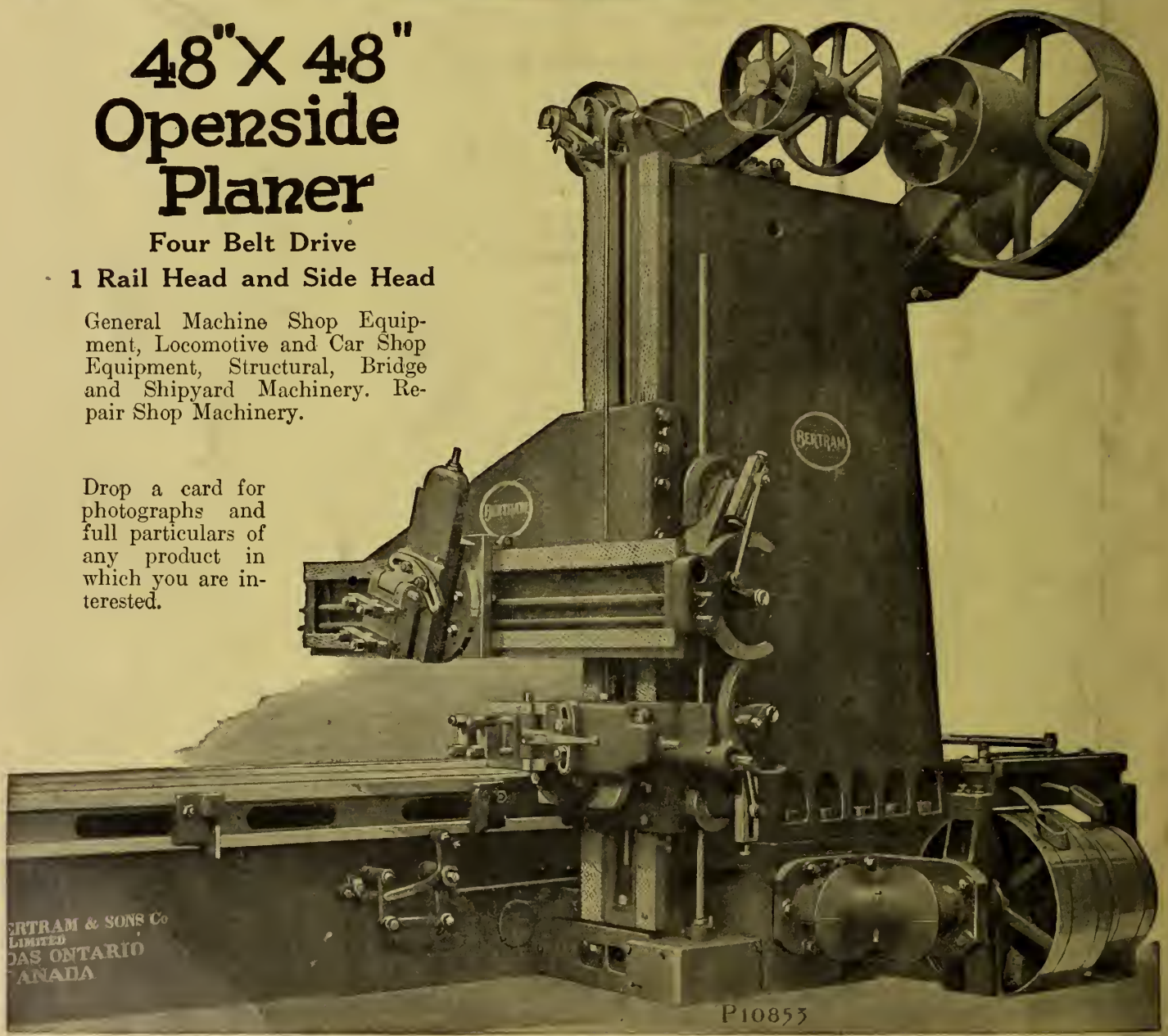

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ESTABLISHED 1898.

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Index to contents, 423.

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Steam Railway and General, Page 401. Electric Railways, Page 433. Marine and Shipbuilding, Page 441.

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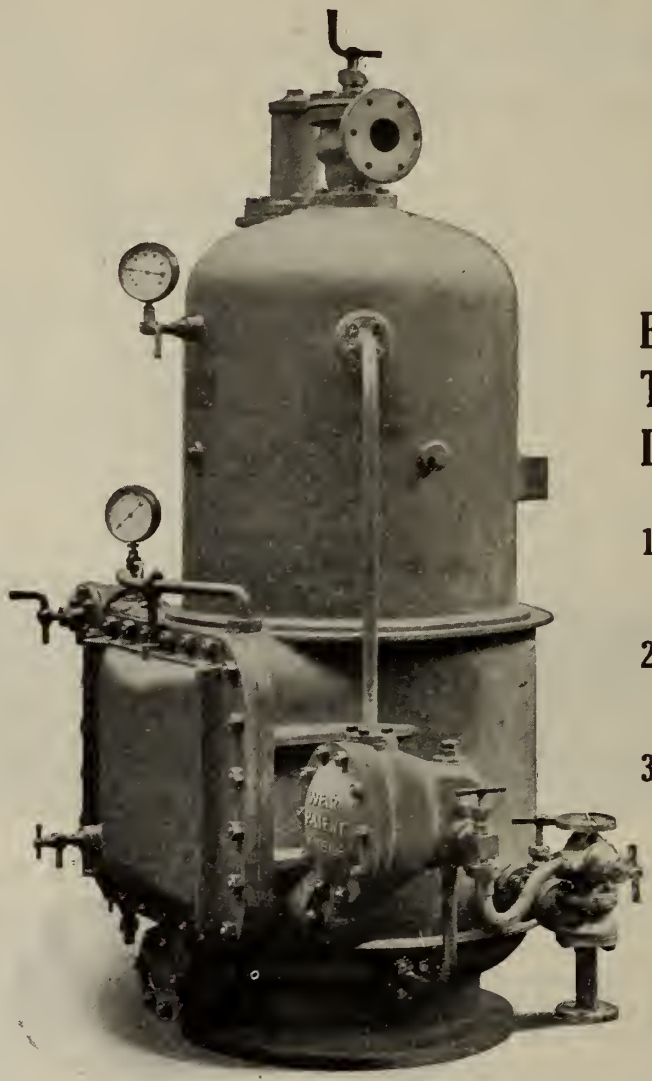

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Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

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G. & J. WEIR (Canada) LIMITED

Sales Engineers

PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver

Keep the Locomotive Boilers

Free From

Scale Formation, Corrosion, Pitting and Foaming

and they will be in service more days per month, burn less fuel, haul heavier trains, and have no failures chargeable to water conditions.

These results can be accomplished by the use of

DEARBORN TREATMENT

at a lower cost per thousand gallons of water than by any other system of water treatment.

The record in one instance showed 872 miles increase between washouts, 1,770 pounds of fuel saved, as well as 12 locomotive hours, and $9.90 in boiler washing expense, on one engine using Dearborn Treatment to prevent scale formation.

Dearborn Treatment is made to suit the water conditions shown by analysis, and the material is furnished in the most convenient form for economical use by the Railways.

Dearborn Chemical Company
of Canada, Limited

2454 Dundas Street W., - TORONTO

Consolidated Steel Corporation

25 Broadway, New York, U. S. A.

TORONTO: 905-906 Royal Bank Building MONTREAL: 263 St. James Street

SOLE EXPORTER OF THE COMMERCIAL PRODUCTS OF

BETHLEHEM STEEL COMPANY
BRIER HILL STEEL COMPANY
CAMBRIA STEEL COMPANY
LACKAWANNA STEEL COMPANY
LUKENS STEEL COMPANY
MIDVALE STEEL AND ORDNANCE COMPANY
REPUBLIC IRON AND STEEL COMPANY
SHARON STEEL HOOP COMPANY
TRUMBULL STEEL COMPANY
WHITAKER-GLESSNER COMPANY
YOUNGSTOWN SHEET AND TUBE COMPANY

CONSTECO
TRADE MARK

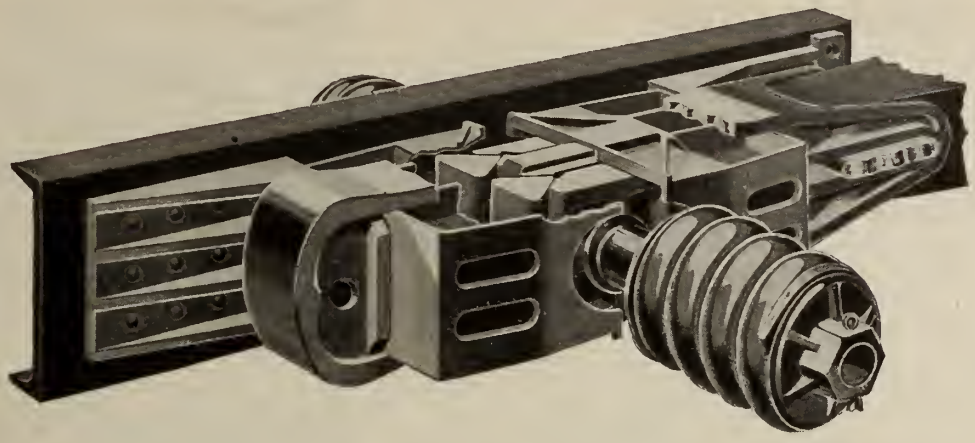
BRANCH OFFICES AND REPRESENTATIVES IN

Barcelona, Spain
Buenos Aires, Argentina
Calcutta, India
Christiania, Norway
Copenhagen, Denmark
Havana, Cuba
Johannesburg, South Africa
Lima, Peru
London, England
Mexico City, Mexico
Milan, Italy
Montreal, Canada
New Orleans, Louisiana
Rio de Janeiro, Brazil
San Domingo, Dominican Republic
San Francisco, California
Santiago, Chile
Seattle, Washington
Shanghai, China
St. John's, Newfoundland
Sydney, Australia
Toronto, Canada
Valparaiso, Chile

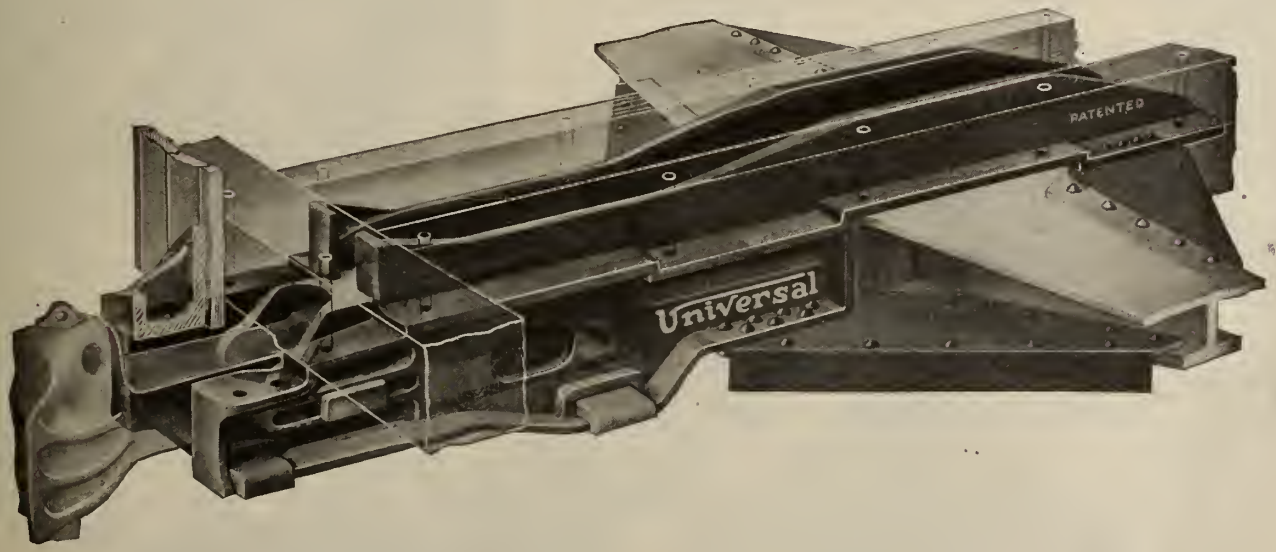
CABLE ADDRESS: CONSTECO, NEW YORK

Cable Codes: Consolidated Steel Corporation, Western Union, A B C Fifth Edition Improved, Scott's 10th Edition, Bentley's Complete Phrase, Lieber's

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
TWIN SPRING DRAFT RIGGING
CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

MADE IN CANADA

WEBB. G. KRAUSER
Transportation Building, MONTREAL

Proven Protective Industrial Paints—

We have studied industrial painting problems for years. Our laboratories have been constantly at work producing paints that meet the most exacting requirements. Paints that withstand severe service, that are proof against weather, water, steam, acids and alkalies; inexpensive and easy to use.

As a result, the superiority of Barrett Industrial Paints is recognized from one end of the Dominion to the other.

Whether for boilers, machinery, smokestacks or for dipping operations, there is a special Everjet Paint for the purpose.

Where a general utility protective paint for exposed wood and metal surfaces is desired, Everjet Elastic Carbon Paint is unequalled.

If your paint needs are unusual, we will be glad to make up special samples, free of charge.

Plastic Elastigum Patching Cement

Plastic Elastigum Patching Cement is tough, durable, acid-proof and waterproof. It sticks tenaciously to either wet or dry surfaces; can be used in all kinds of weather; is easy to apply, low in price, and comes all ready for use.

Is unequalled for stopping leaks in roofs, repairing flashings, relining gutters, stuffing cornices and for innumerable other purposes.

In 1-lb. tins and larger packages up to barrels of about 600 lbs.

Nox-Aer-Leek Boiler-Setting Cement

A leaky boiler-setting means improper draft—poor combustion —wasted fuel—wasted money. Nox-Aer-Leek Boiler-Setting Cement renders boiler settings absolutely air-tight and moisture-proof. It pays for itself over and over again in actual money saved. Easy to apply; inexpensive; comes all ready for use.

Winnipeg
Vancouver
Halifax, N.S.

The Barrett Company LIMITED

Montreal
Toronto
St. John, N.B.

Whether you have a steep-roof or flat-roof problem, our engineers are at your service.

GALENA REPUTATION BUILT UPON ACHIEVEMENT

Practically all of the great railway systems use Galena lubrication, and there is one sound, practical reason for it—*common sense.*

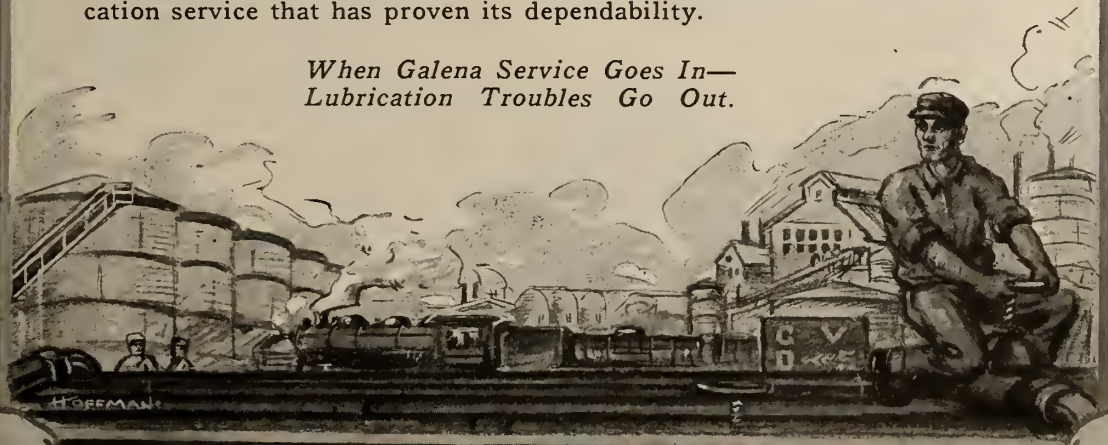
Representative railway executives are aptly classed "the shrewdest heads in the business universe". They are not influenced by tradition nor swayed by sentiment. They do not reach decisions by guessing, but by *knowing.*

The efficiency and economy of Galena Oils are assured facts. Over fifty years of noteworthy service vouches for their reliability. A half century of experience and study of railway lubrication in all its phases enables this company to offer to its customers the most valuable co-operation in the work of securing improved operation.

The cost of lubricants represents but a small fraction of total operating expense, but the quality of the lubrication secured may affect the total to the extent of many times the cost of oils.

Therefore it is simply good business to specify the one brand of lubrication service that has proven its dependability.

When Galena Service Goes In—
Lubrication Troubles Go Out.



Galena-Signal Oil Company of Canada
Limited
TORONTO - MONTREAL

POLE LINE HARDWARE

THAT STANDS THE TEST OF TIME AND WEATHER

WIRES
(Copper and Galvanized)

RIVETS
NUTS and BOLTS

WASHERS

SCREWS

THE STEEL COMPANY OF CANADA LIMITED

HAMILTON
MONTREAL

POLE STEPS

GUY CLAMPS

CROSS ARM BRACES

ETCETERA

66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

Canadian Government Merchant Marine, Limited

REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
From St. John, N.B., and Halifax, N.S., in Winter.

To the United Kingdom, Liverpool, London, Glasgow, Cardiff, Swansea, etc.
To Barbadoes, Trinidad and Demerara.
To Havana, Cuba, and Jamaica.
To South America, Rio de Janeiro, Santos, Montevideo and Buenos Aires.
To India, Dutch East Indies and Straits Settlements via Mediterranean.
To Australia and New Zealand via Panama Canal.
To St. John's, Newfoundland.

From Vancouver, B.C.

To Sydney and Melbourne, Australia.
To Auckland, Wellington, Dunedin, and Lyttleton, New Zealand.
To China and Japan.
To India and Straits Settlements.

Pacific Coastal Service.
Sailings every ten days.
From Vancouver and Vancouver Island ports.
To Seattle, San Francisco and Wilmington.

REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
To Nassau, Bahamas, Kingston, Jamaica, and Belize, British Honduras.

Superior First Class Accommodation. Excellent Cuisine.

B. C. KEELEY, General Agent, Vancouver, B.C.
F. G. WOOD, General Ontario Freight Agent, Toronto, Ont.
R. B. TEAKLE, General Manager, W. A. CUNNINGHAM. General Freight Agt., 230 St. James Street, Montreal, P.Q.

Canadian National Railways

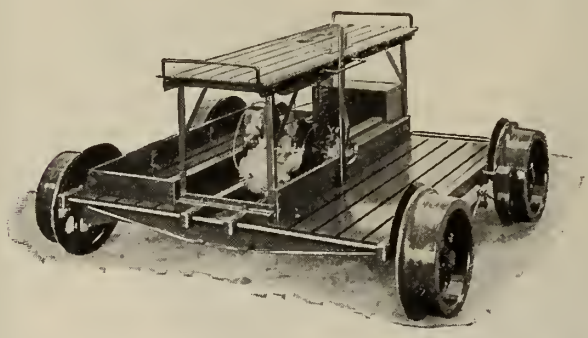
KALAMAZOO MOTOR CARS

Sturdy and Dependable

The Kalamazoo line of motor cars is complete and provides designs for every railroad service.

We make the car for a twenty man crew, as well as the one man inspection car.

Some models are arranged for the transportation of tools and materials and are capable of drawing a trailer carrying five tons additional load.

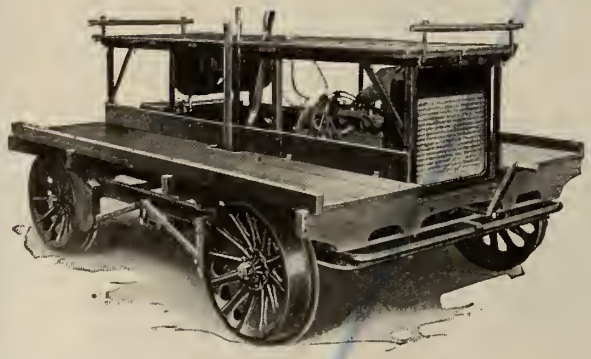


Kalamazoo No. 16 Motor Car

This car is especially designed for use of roadmasters, inspectors, signal maintainers, etc. It is equipped with magneto ignition, free engine clutch and step starter. While there is plenty of room for three or four persons, it is strictly a one man car when it comes to handling and removing it from the tracks.

Kalamazoo No. 17 Motor Car

This car is designed for the use of light section gangs of not over eight men and tools. It has ample power to handle loads and is simple in construction and operation, runs equally well in both directions, and is light enough to be removed from the rails by two men.



Kalamazoo No. 25 Motor Car

This is the ideal car for section gangs, trouble gangs, bridge gangs and hump crews. It is equipped with powerful motor capable of continuous operation while at work where the ordinary section motor car is not suited. Can also be used for drawing a trailer.

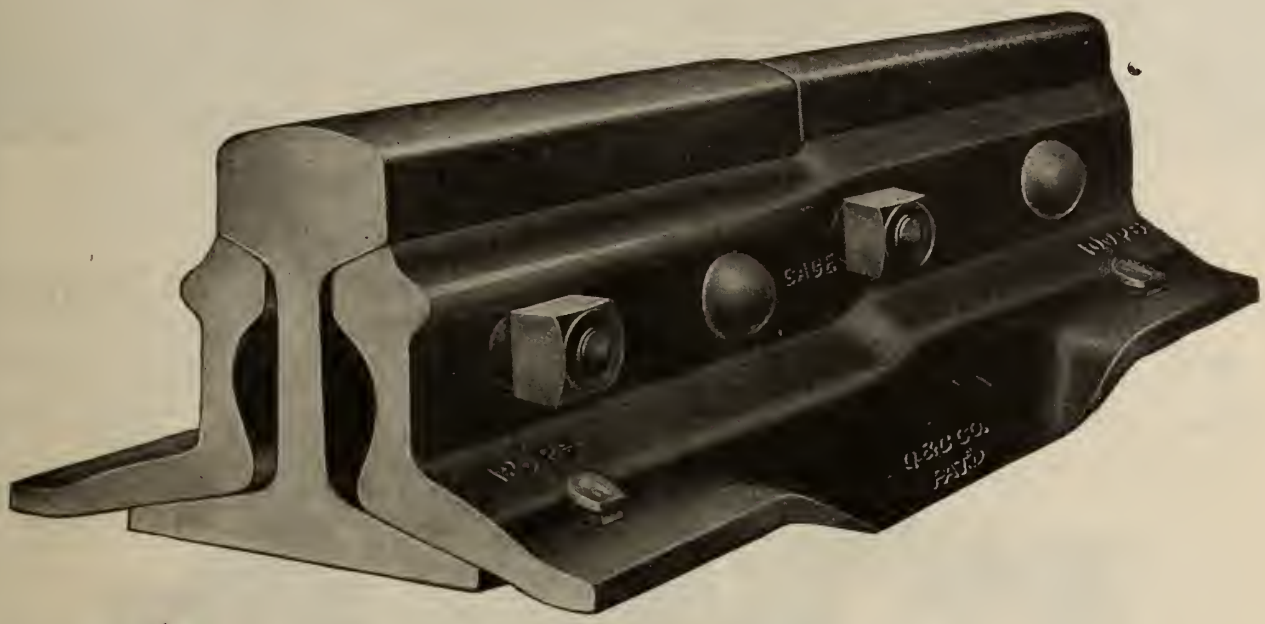
All Kalamazoo motor cars are equipped with through running axles and Hyatt Roller Bearings.

Kalamazoo Railway Supply Company

Kalamazoo, Michigan., U.S.A.

Canadian Representatives: **Kelly Powell Co. Ltd., Winnipeg.**
Wonham, Bates & Goode Trading Corp., Montreal.

Q & C Rolled Steel Step Joints



Made in Canada

We also Manufacture:—

- Derails
- Replacers
- Rail Braces
- Rail Benders
- Rail Saws
- Snow Plows
- Snow Flangers
- Guard Rail Clamps
- Guard Rail Braces
- Electric Snow Melters
- Rolled Steel Step Joints
- Bonzano-Thomson Rail Joints

Dependable Service

THE tide of buying preference has turned to those products whose trade marks carry the assurance of dependable service.

There is a consistency about the economical and endurance qualities of the Q & C Rolled Steel Step Joint that steadily wins careful joint purchasers. It has been our aim to build the strongest and most economical compromise joint made, putting into its structure the results that only honest metal, devoted workmanship and design could obtain.

Combined with their feature of strength — which under actual test has been proven many times stronger than cast metal—Q & C Rolled Steel Step Joints embody the factors of safety and economy. By our process of manufacture a rolled steel joint with the Bonzano and Thomson features is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the step joints that are most efficient. A card will bring you any information. Write us today.

The General Supply Co. of Canada, Ltd.

MONTREAL 356-360 Sparks Street WINNIPEG
TORONTO OTTAWA VANCOUVER

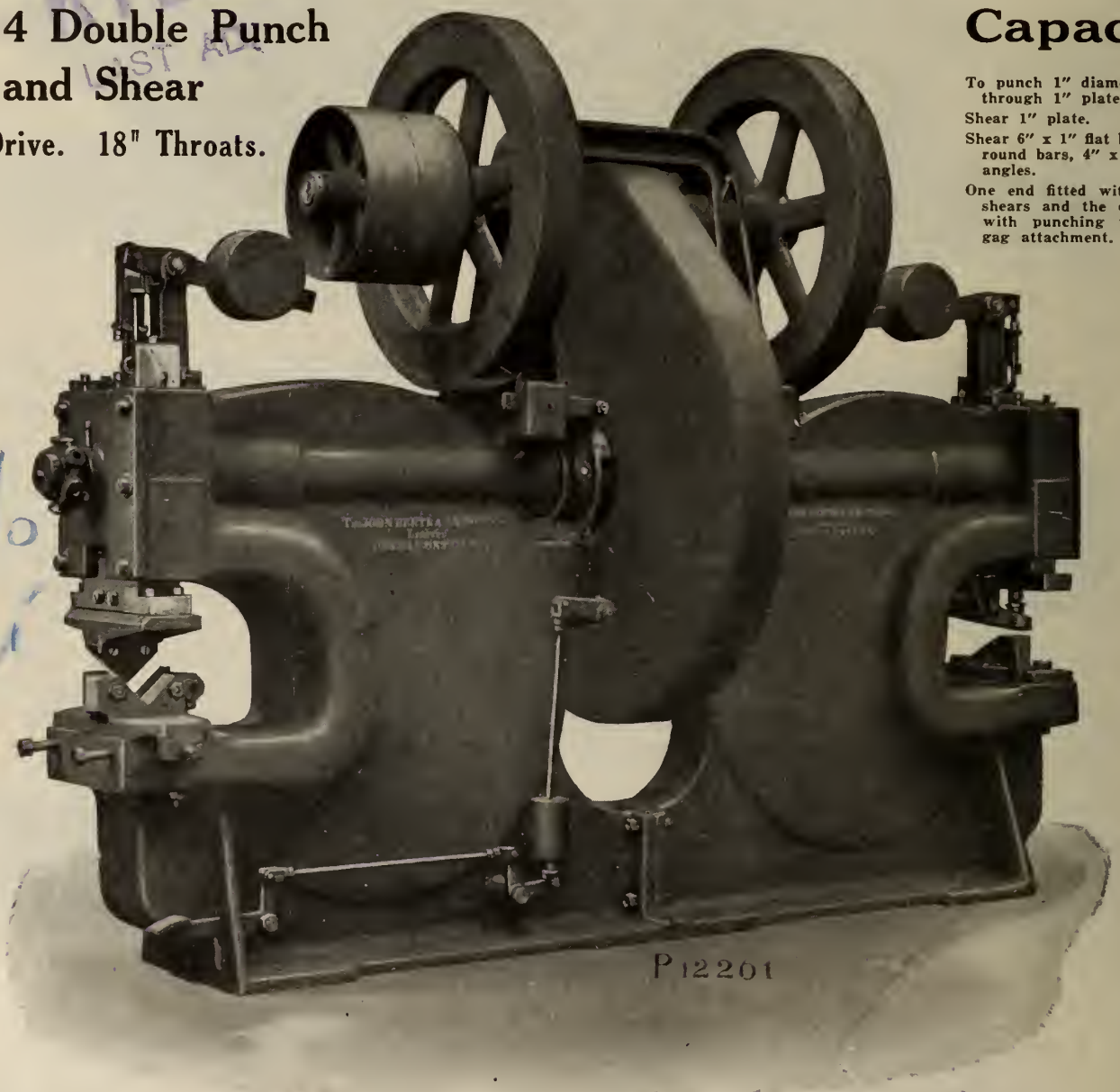
The BERTRAM Page

MACHINE TOOLS

J.B.&S.Co

No. 4 Double Punch and Shear

Belt Drive. 18" Throats.



Capacity

To punch 1" diameter holes through 1" plate.

Shear 1" plate.

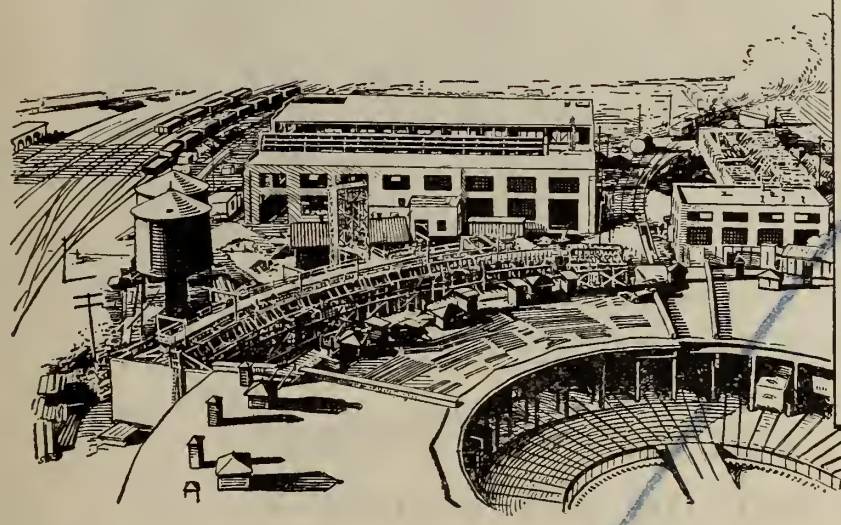
Shear 6" x 1" flat bars, 1¾" round bars, 4" x 4" x ⅜" angles.

One end fitted with Angle-shears and the other end with punching tools and gag attachment.

The John Bertram & Sons Co., Limited

DUNDAS. ONTARIO. CANADA.

MONTREAL 723 Drummond Bldg. TORONTO 1002 C.P.R. Bldg. VANCOUVER 609 Bank of Ottawa Bldg. WALKERVILLE 103½ Sandwich St. WINNIPEG 1205 McArthur Bldg. HALIFAX Roy Bldg.



Complete Service
in the design and construction of
RAILROAD SHOPS
LOCOMOTIVE TERMINALS
PASSENGER TERMINALS
COALING STATIONS
ELECTRIFICATION

INDUSTRIAL PLANTS
OF EVERY CHARACTER

POWER STATIONS

OFFICE BUILDINGS

DWIGHT P. ROBINSON & CO.
INCORPORATED
With which is Consolidated
WESTINGHOUSE, CHURCH, KERR & CO., Inc.

MODERNIZATION

Railroad Shops and Terminals Can Be Modernized Under Operation

To provide for the proper maintenance of locomotives and cars the railroads must improve existing shop and terminal facilities. In many cases complete new plants must be provided. In others, however, it may be possible to convert old shops and terminals into efficient, well-equipped plants.

Modernization can sometimes be effected by making additions to the old buildings; or by providing new handling methods; or by completely revamping the old plant, conserving such of the old buildings as may be used in the new layout. A careful study of each particular situation will best determine what procedure should be followed.

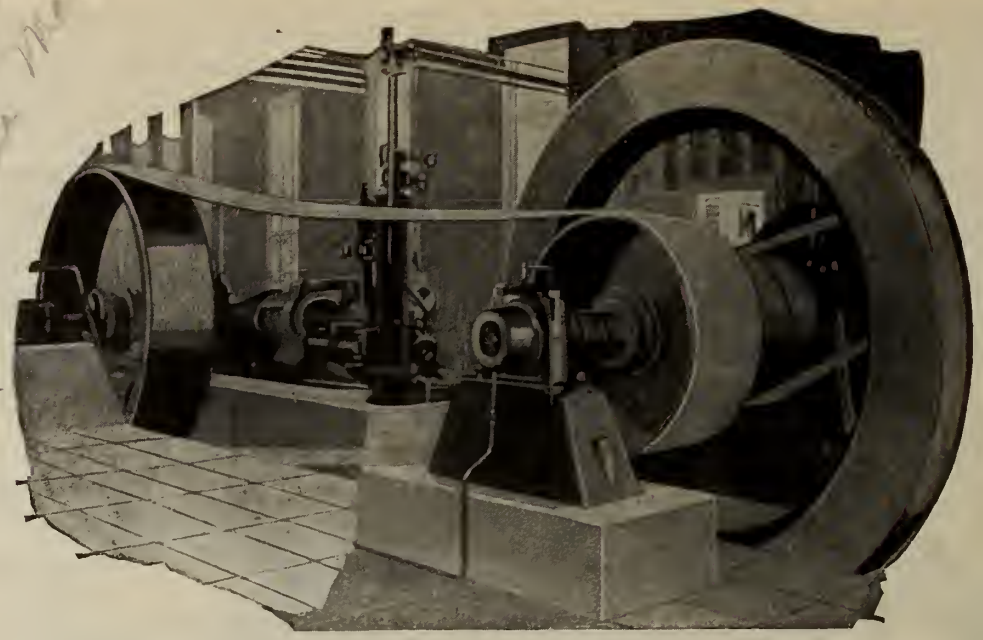
We have modernized shops and terminals for many railroads. In each instance we studied the problem from the operating standpoint, laid out the improvements and executed the construction with our own forces.

Our long experience is available to railroad executives for shop, terminal and power plant work of any character.

D·P·R
ENGINEERS AND CONSTRUCTORS
A CONSOLIDATION OF DWIGHT P. ROBINSON AND COMPANY, INC. AND W·C·K

DWIGHT P. ROBINSON & COMPANY
INCORPORATED
ENGINEERS AND CONSTRUCTORS
With Which is Consolidated
WESTINGHOUSE, CHURCH, KERR & CO., Inc.
DOMINION EXPRESS BUILDING
MONTREAL

NEW YORK CHICAGO YOUNGSTOWN DALLAS LOS ANGELES



The nearest approach to absolute reliability in belting performance

Dominion Friction Surface Belting is the result of the combined experience of all our industrial rubber factories. It is the finished product of the finest materials put together with all the skill of the belt-maker's art.

The inbuilt strength and pulley-gripping power of

Dominion Friction Surface Belting

make it the most dependable and economical for all drives. Every Dominion Rubber System belt installed means so much power conserved and so much freedom from troubles due to stretch and slip.

It will cost you nothing to have one of our belt experts study your belting problems. Phone or Wire our Nearest Service Branch.

Dominion Rubber System

Service Branches:

Halifax	Toronto	Kitchener	Brandon	Edmonton
St. John	Hamilton	North Bay	Regina	Calgary
Quebec	London	Fort William	Saskatoon	Lethbridge
Montreal	Ottawa	Winnipeg	Victoria	Vancouver

DOMINION RUBBER SYSTEM PRODUCTS

Belting

Transmission: "Dominion," "Keewatin," "Para."

Conveyor: "Rockproof," "Canadian," "Hiheat"

Elevator: "Dominion," "Rockproof."

Agricultural: "Dominion," "Star."

Grain Elevator: "Metcalf Standard," "Grain King."

Hose

Air: "Kushion Kover," "4810 Airtite," "Star."

Steam: "Indestructible," "Rockproof," "Para."

Water: "Indestructible," "Para," "Kushion Kover," "Star."

Suction: "Para," "Star," "Trade."

Garden: "Canadian," "Dominion."

Packing

Sheet: "Join-Tite," "Star," "Importers."

Rod: "Cabestos," "Valve-Bestos," "Canadian."

Valves: "Montreal," "Commercial" "Canadian."

Miscellaneous

Mats, Matting and Flooring.

Moulded Goods.

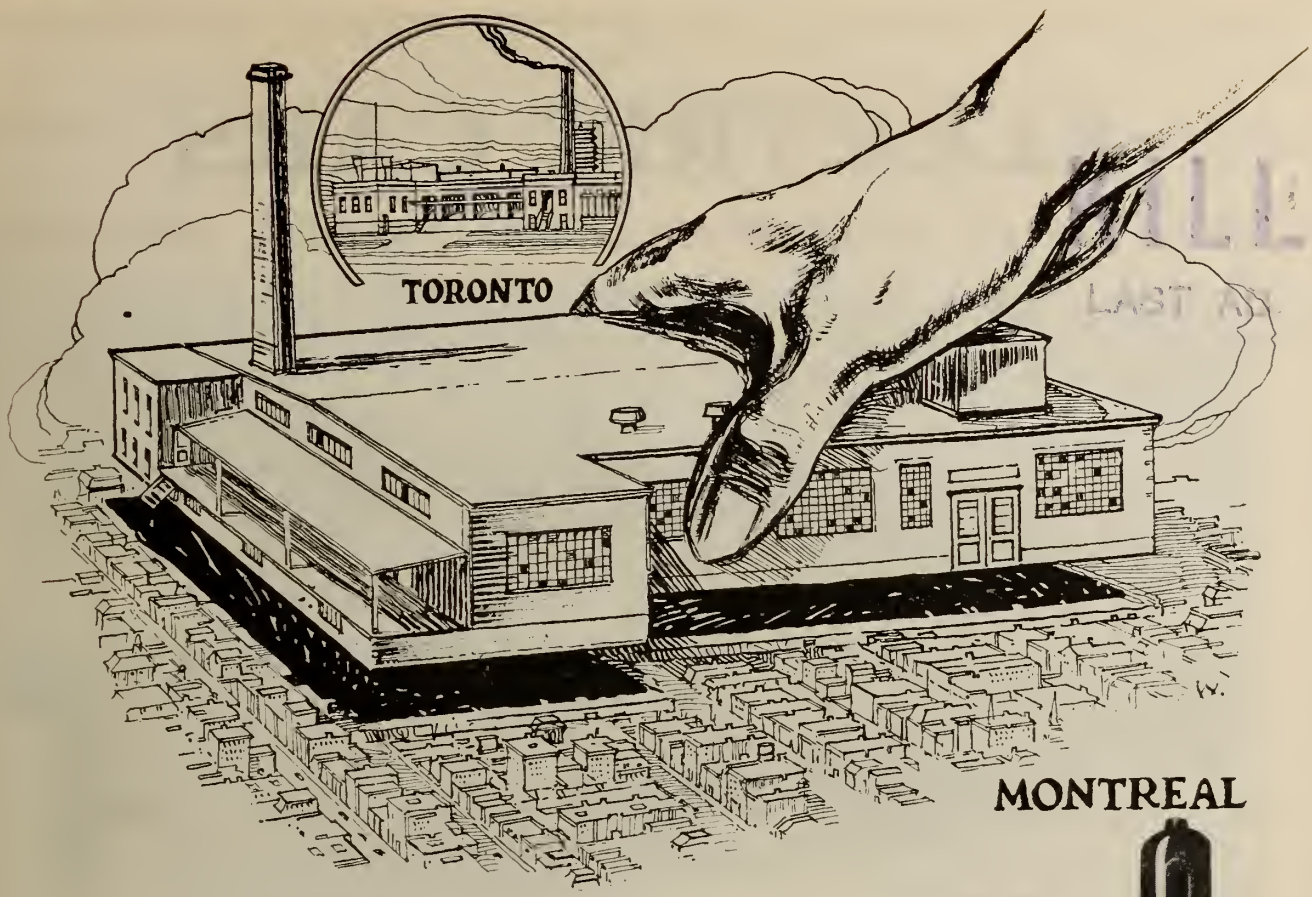
Plumbers' Specialties.

Hard Rubber Goods, Tubing.

Rubber Covered Rolls, Deckle Straps.

Friction Tape, Splicing Compound.

DOMINION RUBBER SYSTEM



"Planting" Another Milestone

The Dominion Oxygen Company Limited announces the achievement of another milestone in its 1921 building program.

In July ground was broken in Montreal for a second large oxygen producing plant. Located at Magdalen, Lieber and Bourgeois Streets, this producing unit will have 10,000 square feet of floor space and will supplement the output of our Toronto plant by a 100 per cent. increase.

This expansion in manufacturing facilities will enable us to supply not only our regular patrons' steadily increasing demands for this highest purity product; but the needs of those who have wanted Dominion Oxygen and could not secure it.

And with the doubling of our producing machinery — employees and equipment—Dominion Oxygen consumers receive double insurance that our policy of filling all orders on the day of receipt will be rigidly maintained.

No matter where your location or what your requirements, an order dispatched to the nearest plant or distributing station — there are six of them—brings you the purest oxygen through the quickest service in the Dominion.

Dominion Oxygen Company, Limited

Hillcrest Park, Toronto

Hamilton, Merritton, Montreal, Welland, Windsor.

D20

returned by company April 25/22

ELECTRIC CARS

for service on City, Suburban and Interurban Railways

Built for Montreal Tramways Co., Limited.

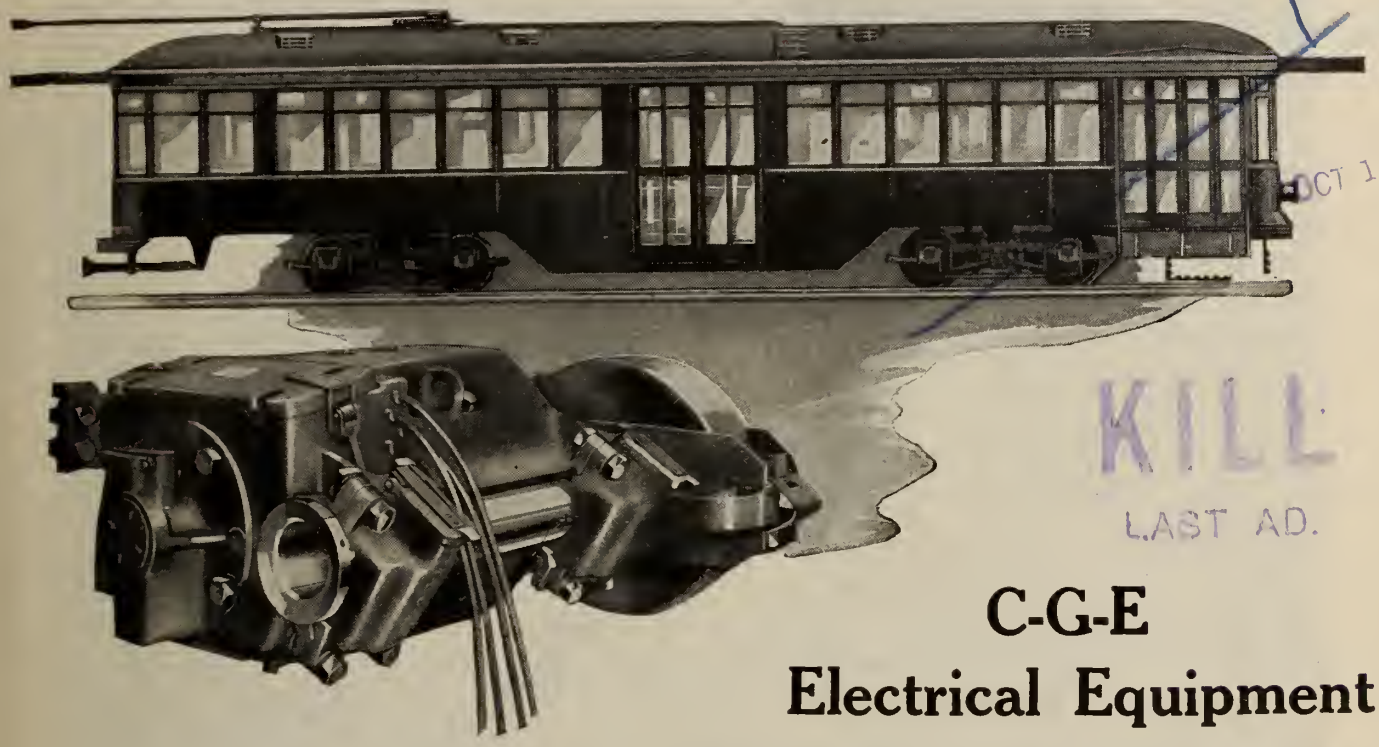
KILL
LAST AD.

PASSENGER CARS
FREIGHT CARS
DUMP CARS
SNOW PLOWS
SWEEPER CARS
SPRINKLER CARS
et cetera

Canadian Car & Foundry Company, Limited

General Offices
Transportation Building
MONTREAL

Health, Housing and Happiness—these three factors in the modern industrial life are dependent upon rapid transportation to counteract the evils of congestion.



OCT 1 0 1921

KILL
LAST AD.

C-G-E Electrical Equipment on Toronto Transportation Commission's New Street Cars

ABOVE is the new type of Motor Car ordered by the Toronto Transportation Commission and shown herewith is the CGE-241-B Railway Motor, 55 H.P. rating—built by us in Canada,—4 of which will drive the motor car, this motor capacity providing for trail car operation.

A novel feature in connection with the control equipment, we are supplying, is the use of a line breaker.

This new line breaker equipment consists essentially of a ratchet switch in the controller, combined switch and fuse for the protection of the line breaker circuit, and a box (mounted under the car body) containing the line breaker, and overload relay. This equipment eliminates severe arcing in the controller as the line breaker breaks the main circuit, and also does away with the hand operated circuit breaker usually mounted in the motor car vestibule.

The control circuit for operating the line breaker is interlocked with the door opening and closing mechanism.

Canadian General Electric Co., Limited

Head Office **TORONTO**

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson, and Victoria

Cab Tire Cable

The Cable De Luxe for Industrial Purposes

This advertisement illustrates:

A length of Northern Electric Cab Tire Cable
One Northern Electric No. 511 Marine Plug and Receptacle
One Northern Electric No. 407 Cargo Cluster

This portable combination is specially adapted for use in shipping departments of industrial plants and in loading and unloading operations on board ships, in railway yards and in general construction work.

Cab Tire Cable is exceptionally flexible and durable and is ideal for use in localities where dampness or gas fumes abound and where other types of cable would be subject to mechanical injury.

Our nearest house will be glad to give your inquiries immediate attention.

Northern Electric Company
LIMITED

Montreal Halifax Quebec Ottawa Toronto Hamilton London Windsor Winnipeg Regina Calgary Edmonton Vancouver

HIPOWER NUT LOCKS

are so designed, so manufactured and so tempered that they effectively and economically perform the function for which they are purchased.

Tests have proved the impracticability of non-elastic track joints. Continual and enormous impacts of rolling loads cause movement of track joint parts, develop a grinding wear, which, if not corrected, rapidly increases and results in looseness of bolted parts, low joints, battered rail ends and mutilated splice bars.

Hipowers provide through their super-strength a compensating member against looseness of bolted parts.

HIPOWERS

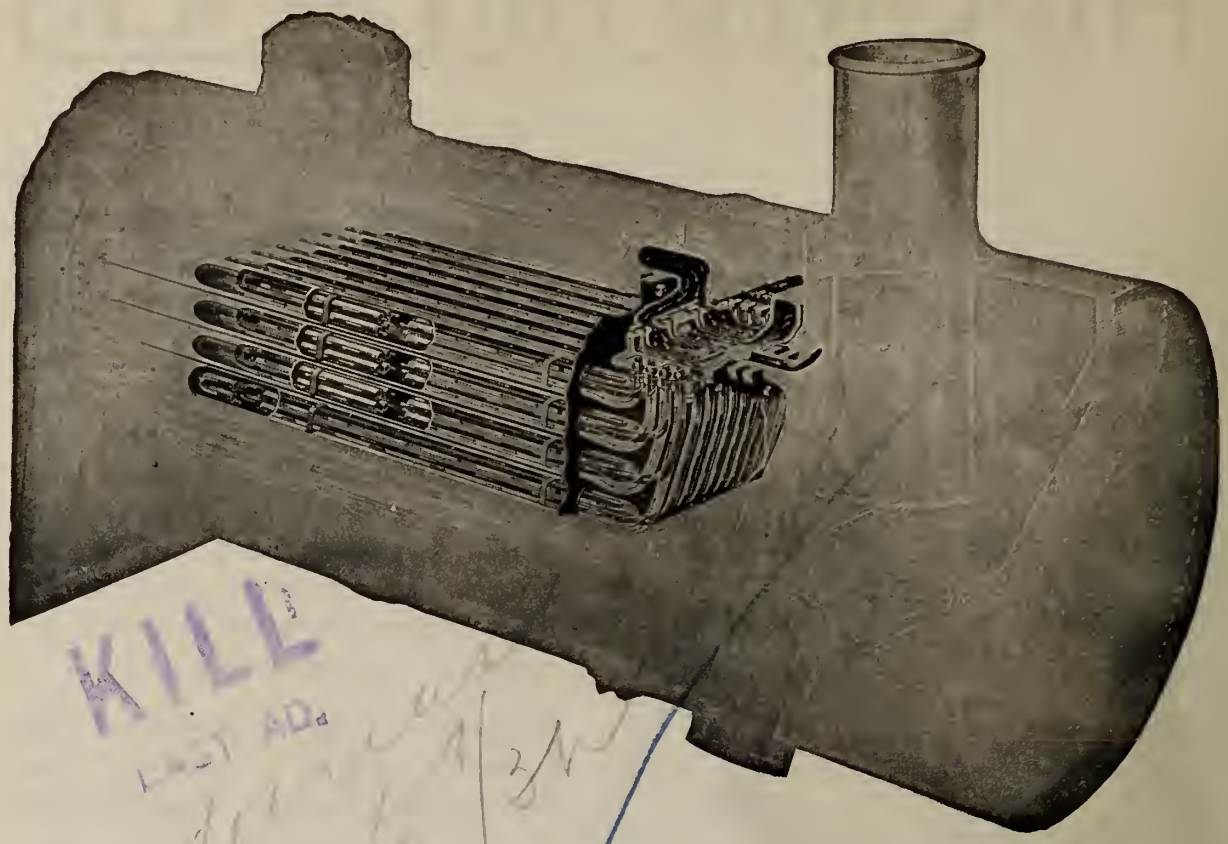
Carry 'em through

THE NATIONAL LOCK WASHER COMPANY

Established 1886

NEWARK, N. J.

New York Chicago Detroit



Superheater Locomotives Increase Track Capacity

Increased track capacity or a larger output of ton miles per mile of track means greater earning power for railroad investments.

Longer trains at the same or faster schedules increase track capacity.

Type "A" Superheaters included in equipment for new locomotives or installed in existing power, make possible longer trains and faster schedules with no increase in labor or amount of fuel burned.

They pay for themelves and their cost of installation in less than a year.

After that the saving is profit.

The Superheater Co., Limited

Transportation Building, MONTREAL

Works at Sherbrooke, Quebec

Designing Engineers and Manufacturers of ELESCO steam Superheaters and Pipe Coils for all Purposes. Feed Water Equipment for Locomotives.

MADE IN CANADA

49 *The map above shows the location of the 49 foundries in the United States and Canada represented by the Association of Manufacturers of Chilled Car Wheels*

Chicago	3	Boston		Huntingdon W Va	
St Louis	2	Detroit		Wilmington, Del	
Buffalo	4	St. Paul		Houston, Tex	
Pittsburg	2	Kansas City, Kan		Hannibal Mo	
Cleveland	2	Denver		Reading, Pa	
Amherst N.S.		Tacoma		Baltimore	
Montreal		Rochester, N.Y.		Richmond, Va	
Mich. City, Ind		Savre, Pa		Ft. William, Ont	
Louisville		Berwick, Pa.		St. Thomas, -	
Mt Vernon, Ill		Albany		Hamilton,	
Ft. Wayne, Ind		Toronto		Ramapo, N.Y.	
Birmingham		New Glasgow N.S.		Marshall, Tex	
Atlanta		Madison, Ill.		Los Angeles	
Savannah				Council Bluffs	

AMERICAN RAILROAD ASSOCIATION STANDARDS

650 lb. wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy Years

Where

CHILLED IRON WHEELS

are made for Railway and Street Car Service

Capacity 20,000 per day
25,000,000 in Service

Association of Manufacturers of Chilled Car Wheels

1847 Mc·Cormick Bldg.
CHICAGO

CANADIAN VICKERS LIMITED

Shipbuilders, Engineers, Boilermakers and Repairers

MONTREAL, CANADA

25,000-TON FLOATING DOCK, 600 FEET LONG
Operated in One or Two Sections.

Norwegian Cargo Steamer "LOCH TAY"

Makers Under License Best British Designs:—
WINCHES, WINDLASSES, ASH HOISTS,
STEERING GEARS, TELEMOTORS

Immediate Deliveries from Stock

Cables:
VICKERS, MONTREAL

The Results Obtained From

"Dominion" Wire Rope

Are ENDURING WEAR and INSURANCE AGAINST SUDDEN ROPE FAILURE

Have you used our BLUE STRAND?

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL Branches: TORONTO AND WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

For Coal or General Service

Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL

Get ready for the big job ahead.

"MARION STEAM SHOVELS"

"INDUSTRIAL WORKS"

PILE DRIVERS & CRANES

"JORDAN" SPREADERS

Branch: 108 Mail Building TORONTO

F. H. Hopkins & Co. Limited

Head Office: MONTREAL

The "Hancock" Loco. Coal Sprinkler—

The "Hancock" Loco. Coal Sprinkler is a jet apparatus for wetting down the coal in the tender, washing off the deck of the locomotive or any similar purpose. It will efficiently perform these duties and at the same time absolutely prevent the scalding of operators with escaping steam or hot water.

"Hancock" Sprinklers, Inspirators, Main Steam Valves, Line Check Valves, and "World" Globe Valves, Pop Valves, Whistles, Car Bearings, Double Top Check Valves, are part of the complete line of Loco. and Railway Specialties manufactured in Canada by

TRADE MARK WORLD McAVITY'S GUARANTEE

J. McAvity & Sons, Ltd.

Valves Fittings & Supplies

GOODS GUARANTEED GOOD BY CENTURY'S EXPERIENCE ALMOST A ESTD. 1834

St. John, N.B. Canada.

MINER
RAILWAY APPLIANCES

MANUFACTURED IN CANADA

CANUCK SUPPLY CO., Ltd.
MONTREAL

ROLLING ROCKER SIDE BEARINGS

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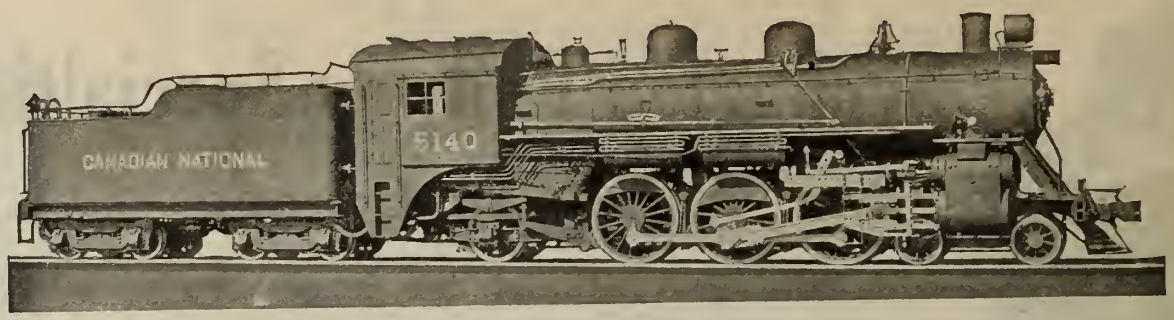

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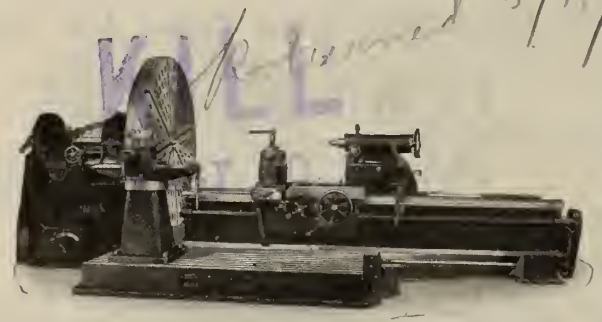

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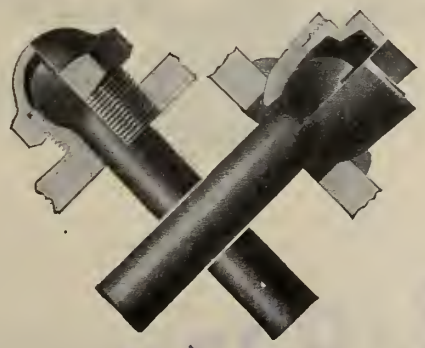

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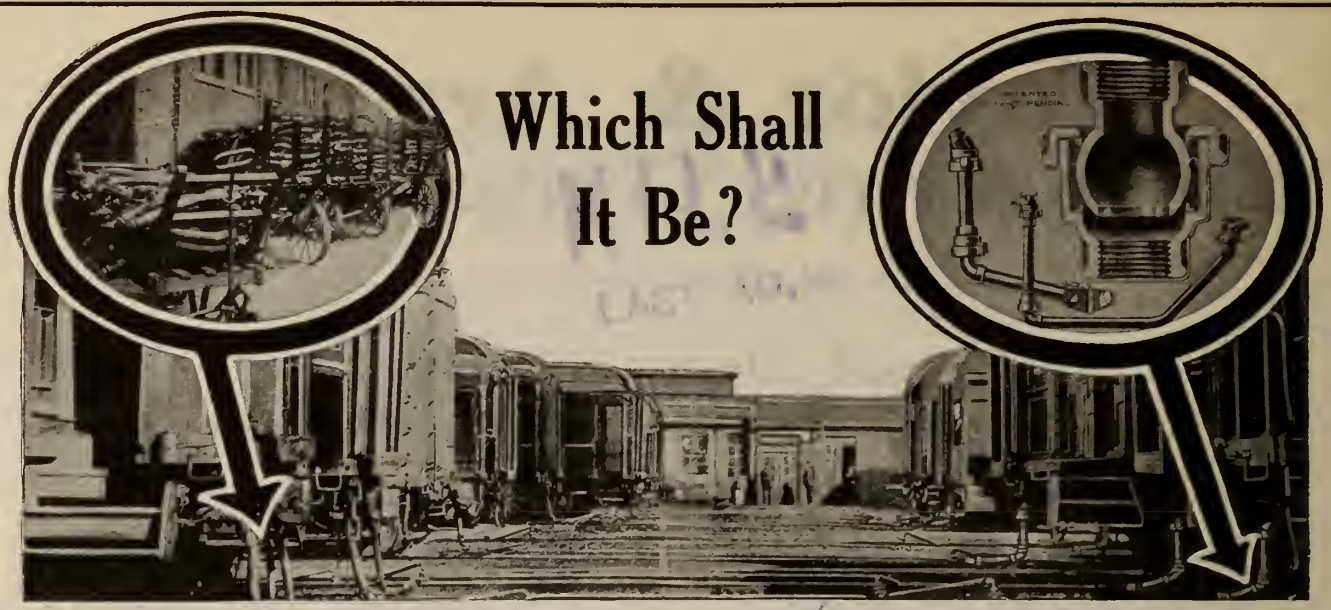

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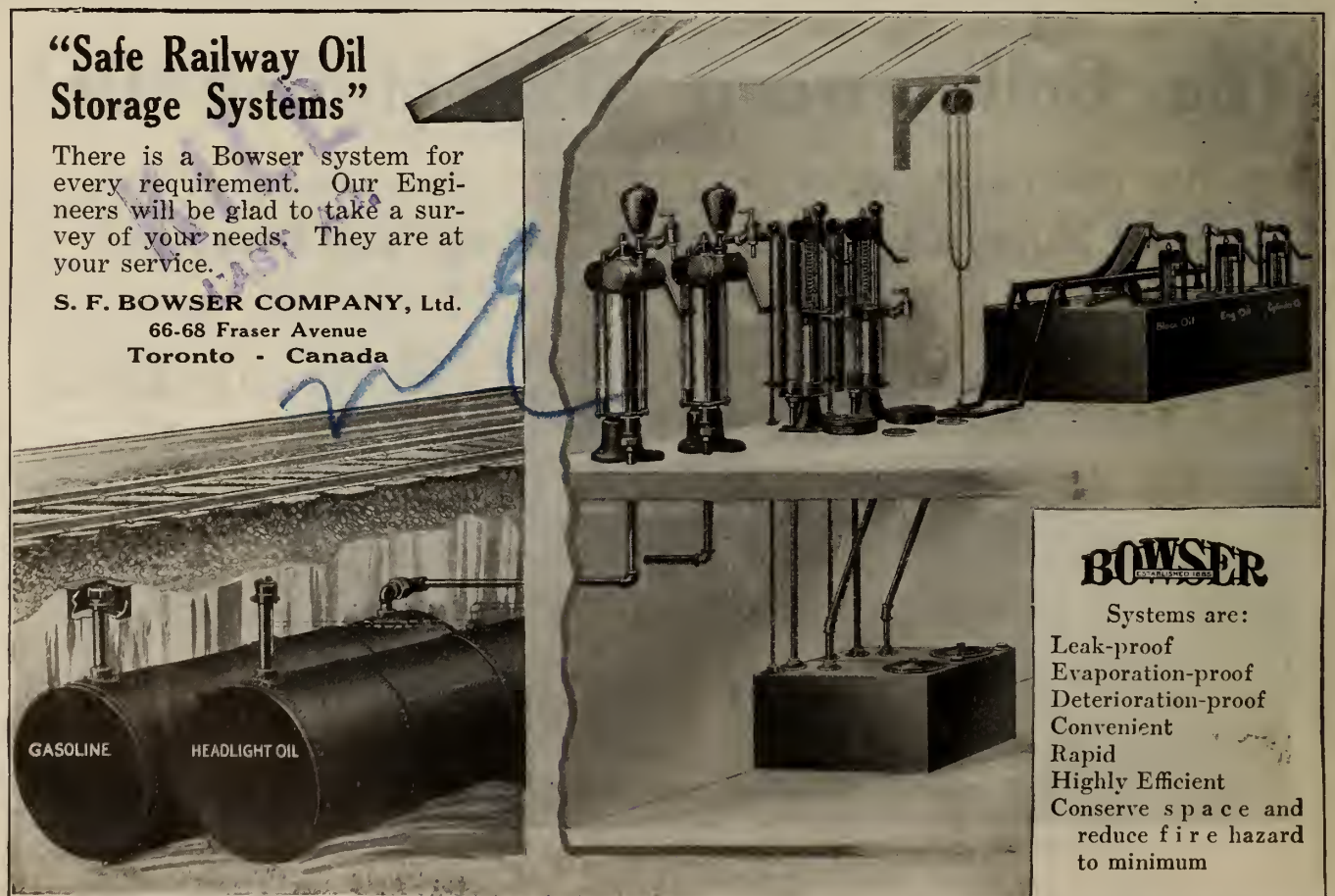

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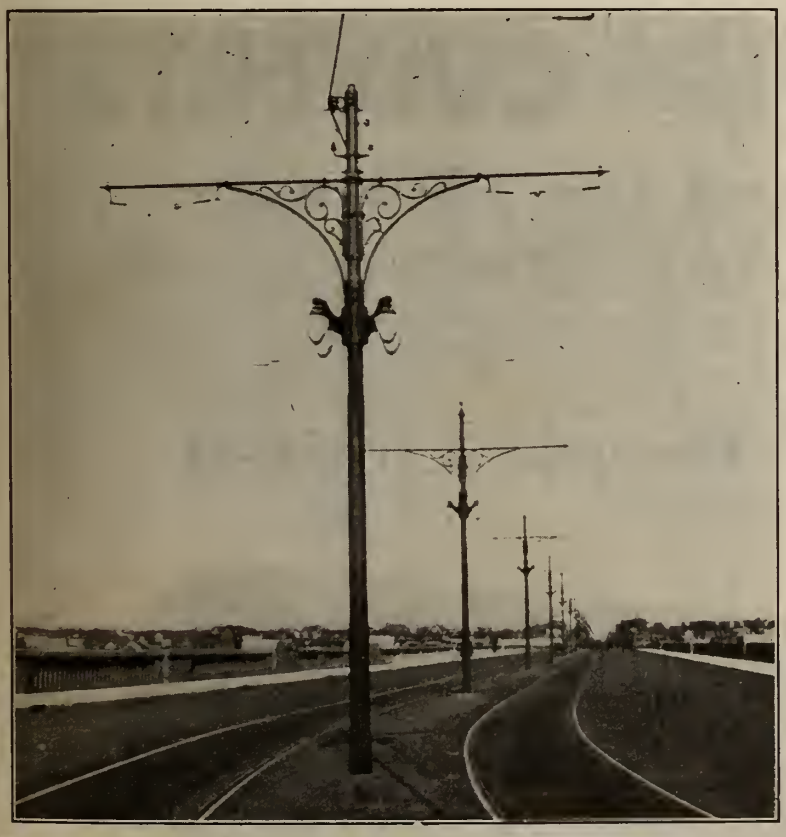

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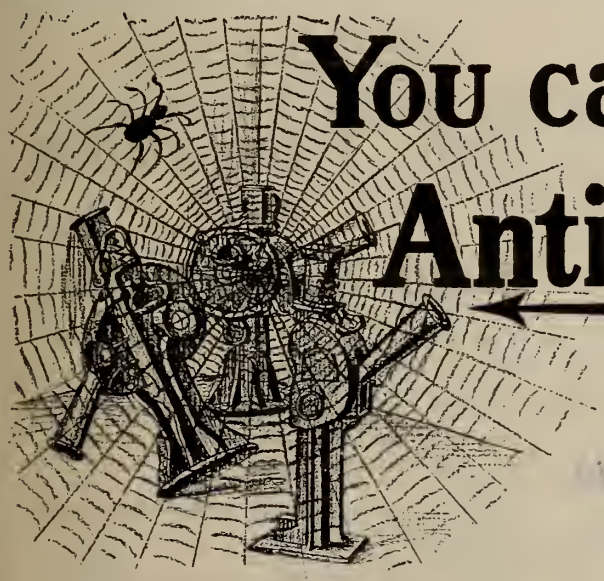

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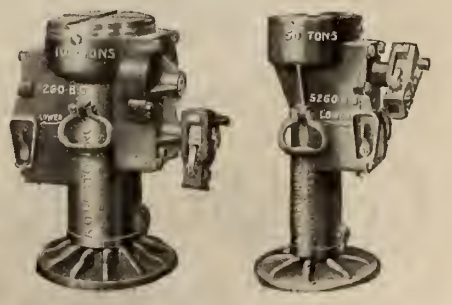

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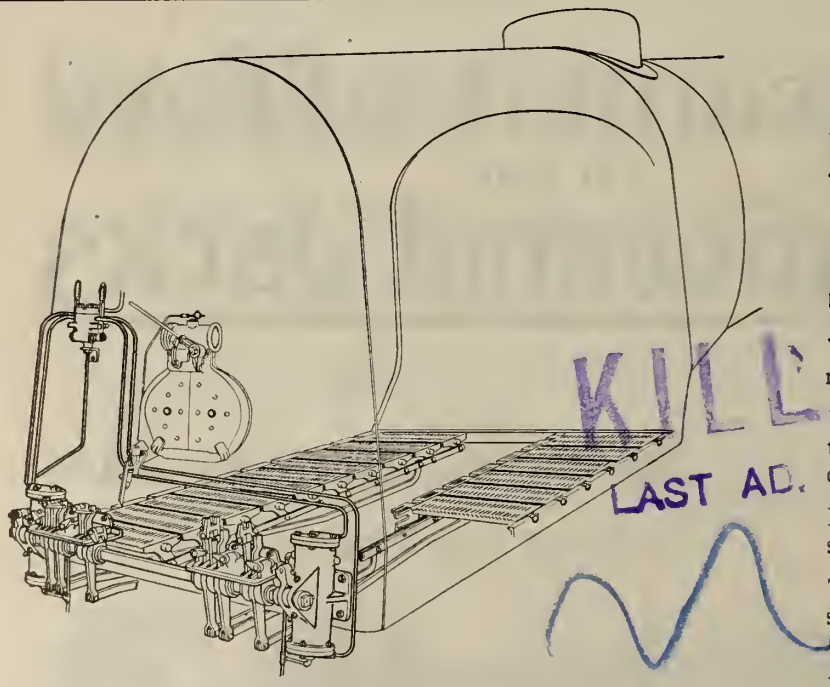

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Canadian Railway and Marine World

August, 1921

Standard Track Centers for Construction of Divisional Points, Terminal Sorting Yards, and Sidings.

S. J. McLean, Assistant Chief Commissioner, Board of Railway Commissioners, gave the following judgment under date of May 23:—As a result of investigations by the Board's officials, circular 157 was issued Jan. 21, 1918, as follows:—"The Board is considering the advisability of establishing a standard distance between track centers, for the construction of divisional points, terminal sorting yards, and sidings, which will provide a safe and satisfactory clearance for the movements of trainmen and yardmen in the performance of their duties. Railway companies are requested to file their views upon the matter within 30 days from this date, stating what clearance, in their opinion, would provide the necessary room between moving cars for the men referred to while carrying on their work."

In response to this, detailed submissions were made by individual railways, which were in accordance with the conclusions arrived at at a meeting attended by the engineers of the Canadian Pacific, Canadian Northern, Michigan Central and the Grand Trunk Railways. The recommendation which follows was a recommendation for a minimum distance between tracks for various uses, with the proviso that these recommendations should be applied to new construction.

Main tracks	13 ft.
Main and passing tracks	13 ft.
Main or running track and parallel yard track	13 ft.
Receiving, classification and departure yard track	13 ft.
Parallel ladder tracks	16 ft.
Ladder and other tracks	15 ft.
Freight shed tracks (A.R.E.A.)	12 ft.
Passenger station tracks (without platform between)	13 ft.
Storage tracks	12 ft.
Team tracks in pairs	12 ft.

A representation is on file from Jas. Murdock, Vice President, Brotherhood of Railway Trainmen, stating that on account of the increased or increasing size of cars and locomotives the distance between parallel ladder tracks in yards should not be less than 14 ft. centers. Other representations from the Brotherhood of Railway Trainmen to the same effect have been submitted. The matter was set down for hearing on Jan. 7, 1919. The engineering departments of the leading roads prepared a statement which was filed at the hearing and which reads as follows:—

1. Main tracks, 13 ft. center to center. To place main tracks at a sufficient distance apart to render safe the occupation of the space between them by men during the passage of trains on both tracks would necessitate such a distance as to be altogether out of the question. This means that it will always be unsafe for men between tracks on main line and therefore the closer together the tracks can be placed with safety to the equipment, the less danger is there of men attempting to remain between them during the passage of trains. Thirteen feet is at present universal practice throughout America; it fulfills the requirement as to safety of equipment, and is also so close as to make it extremely dangerous for men to remain between tracks while two trains are passing. It is the universal rule for railways that men stepping aside for passing trains must step to the outside of both tracks and not to the space between the tracks. We would recommend that 13 ft. be retained as the standard distance between main tracks.

"2. Main and passing tracks, 13 ft. center to center.—The object of a passing track being to permit a train to stand while being met or passed by other trains, gives, in one sense, the same condition as obtains with main tracks, the only difference being that, in this case, one train is standing while the other is moving. This difference, however, means that men caught between tracks have, every 40 ft. throughout the length of their train a refuge into which they will naturally step to protect themselves from the passing train and the possibility of anything projecting or flying from it. We recommend that 13 ft. be established as the minimum distance between main and passing tracks.

"3. Main or running track and parallel tracks, 13 ft. center to center.—This distance center to center of tracks is considered as a minimum only, and is quite sufficient on light traffic, where trains are infrequent and do not attain to high speeds customary on main lines. On main lines, all of the roads represented in this recommendation have adopted as their practice a greater distance than 13 ft., but we do not feel that anything greater than this should be adopted as a minimum.

"4 to 10 inclusive, cover tracks used for such a variety of purposes, and these under such dissimilar conditions that one class of tracks in a given yard or section of the country may require an entirely different distance center to center from the same class of tracks in another yard or section of country. The requirements of storage tracks, where movements are very infrequent, may be such as to involve a tremendous waste in using anything greater than 12 ft. centers. Freight shed tracks have been worked for years at 12 ft. centers and even less, and the manner of working these should certainly determine the necessity for anything more than 12 ft. at any given location. Team tracks in pairs, it would seem, need no argument, as there is one clear side to each track, which should preclude the necessity for men ever having to go between the tracks themselves. The numbering in the above agrees with the statement attached."

In written submissions filed before the hearing, Mr. Murdock, in urging that there should be 14 ft. clearances from track centers, urged that this was essential, not only from the standpoint of safety but also from the standpoint of having sufficient clear way between the tracks to give proper working signals to other members of the switching crew; and he emphasized again the increased size of cars and engines. In a representation made by Mr. Best, legislative representative of the Brotherhood of Local Firemen and Engineers, the same positions were emphasized, and it was also stated that it appeared desirable that tracks should be located at such distance as would ensure no obstruction closer than 2 ft. from the widest cab or car in operation.

At the hearing, the railways set out that without a limitation on the width of cars it was of little value to fix a clearance, and it was represented, therefore, that the matter should stand until the question of the width of equipment could be dealt with. Some years ago the Board had before it, in connection with the question of automobile cars, a proposition as to limiting the size and height of cars, but it was found impossible to make direction at that time.

Mr. McGovern, on behalf of the men employed in train and yard service, in arguing for a 14 ft. center, said this would leave a width of 3½ ft. with the widest car. A considerable amount of information was given by witnesses in regard to local conditions, and judgment was reserved.

The investigations which the Board's engineering and operating departments had been conducting prior to the hearing were conducted subsequent thereto; and as a result of the material collected and evidence submitted at the hearing the following recommendation was made by those departments:—

1. Main tracks	13 ft.
2. Main and passing tracks	14 ft.
3. Main or running track and parallel yard tracks	14 ft.
4. Receiving, sorting and classification yard tracks	13½ ft.
5. Storage tracks	13½ ft.
6. Parallel ladder tracks	18 ft.
7. Ladder and other tracks	15 ft.
8. Freight shed tracks	12 ft.
9. Team tracks in pairs	12 ft.
10. Passenger station tracks, without platform between	13 ft.

The recommendations have been checked against those applying in railway practice in the United States. Items 4 and 5, under U.S. practice, vary from 13 ft. to 14 ft. The standard width of 13½ ft., which is recommended, appears to me to be reasonable. The Chief Engineer advises that the only road he knows of which is using the parallel ladder tracks is the C.P.R. I am of opinion that items 1 to 10, as set out, may be accepted and order drawn accordingly.

An important question has been raised in regard to the effective date. A proposition has been placed before the Board that the tracks now in place should be adjusted to the minimum distance prescribed, such readjustments to be made by a definite date. I am of opinion that all tracks put in place from Jan. 1, 1922, should be subject to the minimum distance set out in the extract above from the engineering and operating departments report.

With regard to the suggestion that the

tracks now in place should be taken up and readjusted to this limited distance by the end of a definite period, on careful consideration, I have to say that I am unable to agree to this. I have a thorough appreciation of the element of human safety involved and am entirely in agreement with the proposition that the best possible precautions in this respect should be taken. The matter is not one which is measured in terms of dollars. In considering, however, the whole situation, one has to remember the effect that would be exercised on the space for cars, and the fact that established business has to be carried on. To direct that by a definite date there should be a readjustment complying with the minimum distances, would dislocate business, and it would mean in various instances a serious curtailment of space. Where yard accommodation is located in a closely settled section of a city, it would mean that additional space could be obtained only at great inconvenience to the public and at almost prohibitive cost. While it does not seem to me that a definite date can be fixed, the railways should have a continuous readjustment in mind; and I, therefore, think it would be justifiable to provide that in case of any tracks now in place which are rearranged as and from Jan. 1, 1922, the rearrangements should be in compliance with the minimum clearances.

Where there are existing clearances less than those recommended, the burden is on the railway, where danger of accident arises from such clearances, to provide proper means of operating so as to adequately safeguard those who are working under such conditions.

The Chief Commissioner, the Deputy Chief Commissioner, and Commissioners Rutherford and Boyce concurred.

The Board of Railway Commissioners passed general order 345, June 23, ordering that all railway tracks laid after Jan. 1, 1922, be placed at the minimum distances recommended by the Board's Engineering and Operating Departments, as quoted in the Assistant Chief Commissioner's judgment, and that any such tracks now laid, which are re-arranged after Jan. 1, 1922, be placed in accordance with the said minimum clearances.

Ice Supply at Mulgrave for Canadian National Railways.

J. H. Sinclair, Antigonish and Guysborough, N.S., asked the following questions in the House of Commons recently, which were answered by the Minister of Railways.

Q. "What are the names of all parties who tendered for supplying ice to the Canadian National Rys. at Mulgrave, N. S., for the present season?" A. "S. H. Hagerty, Monastery, N.S.; James Dunlap, Leitches Creek station, N.S."

Q. "What were the respective amounts of said tenders?" A. "It is not in the interests of Canadian National Rys. to make these tenders public. The contract was let to the lowest tenderer."

Application for Reduced Freight Rates. The Toronto City Council instructed the Corporation Counsel recently, to apply to the Board of Railway Commissioners, to have freight rates reduced to the old basis. The Board has stated in reply that, while retaining control of the case, nothing has developed to justify any change in the rates, but that it will, when the situation changes, take action.

Birthdays of Transportation Men in August.

Many happy returns of the day to,—

V. T. Bartram, ex-Purchasing Agent, Timiskaming & Northern Ontario Ry., now railway contractor, etc., Toronto, born at Ottawa, Aug. 2, 1880.

Major Graham A. Bell, C.M.G., Deputy Minister of Railways and Canals, Ottawa, Ont., born at Perth, Ont., Aug. 13, 1874.

C. B. Brown, Engineering Assistant to Vice President, Operation and Maintenance, Canadian National Rys., Toronto, born at Ithaca, N.Y., Aug. 27, 1879.

A. B. Calder, on Executive Staff, C. P.R., Montreal, born at London, Ont., Aug. 24, 1867.

J. S. Carter, District Passenger Agent, C.P.R., Nelson, B.C., born at Aurora, Ill., Aug. 14, 1864.

Hon. F. B. Carvell, K.C., Chief Commissioner, Board of Railway Commissioners, Ottawa, Ont., born at Bloomfield, N.B., Aug. 14, 1862.

A. E. H. Chesley, General Accountant, Dominion Atlantic Ry., Kentville, N.S., born near Annapolis Royal, N.S., Aug. 27, 1877.

A. B. Chown, General Agent, Passenger Department, Canadian National-Grand Trunk Rys., New York, born at Belleville, Ont., Aug. 4, 1887.

Lieut.-Col. F. F. Clarke, D.S.O., Chief Land Surveyor, Canadian National Rys., Toronto, born at Hamilton, Ont., Aug. 22, 1878.

C. H. N. Connell, Engineer, Ontario District, Canadian National Rys., Toronto, born at Woodstock, N.B., Aug. 26, 1876.

S. W. Crabbe, Superintendent, Smiths Falls Division, Quebec District, C.P.R., Smiths Falls, Ont., born at Teeswater, Ont., Aug. 9, 1885.

H. W. Crawford, ex-General Agent, Canada Steamship Lines, now of Toronto, born at Bowmanville, Ont., Aug. 24, 1887.

E. L. Desjardins, Superintendent, Division 1, Quebec District, Canadian National Rys., Levis, Que., born at St. Jean Port Joli, Que., Aug. 1, 1859.

A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., born in Bosanquet Tp., Ont., Aug. 21, 1870.

J. V. Foy, General Passenger Agent, Canada Steamship Lines, Ltd., Toronto, born there Aug. 27, 1882.

Geo. H. Ham, Head Office Department, C.P.R., Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. B. Harper, Resident Engineer, Laurentian Division, Quebec District, C.P.R., Montreal, born at Baie Verte, N.B., Aug. 15, 1882.

W. P. Hinton, Consulting Officer to Receiver (Minister of Railways and Canals), Grand Trunk Pacific Ry., Winnipeg, born at Hintonburg, Ont., Aug. 30, 1871.

F. S. Isard, Managing Director, Canada Steamship Lines, Ltd., Montreal, born at Hamilton, Ont., Aug. 14, 1888.

H. L. Johnston, District Engineer, Vancouver Island Lines, Canadian National Rys., Victoria, B.C., born at Fredericton, N.B., Aug. 29, 1862.

W. A. Kirkpatrick, Superintendent of Transportation, Prairie District, Canadian National Rys., Saskatoon, Sask., born at West Lorne, Ont., Aug. 28, 1883.

F. L. Lamplough, Superintendent, Ottawa Division, G.T.R., Ottawa, born at Cambridge, Vt., Aug. 15, 1867.

J. D. McDonald, General Passenger Agent, Western Lines, Grand Trunk Ry., and General Western Passenger Agent, Canadian National Rys., Chicago, Ill., born at Toronto, Aug. 27, 1855.

M. K. McQuarrie, Engineer, Dominion Atlantic Ry., Kentville, N.S., born at Sault Ste. Marie, Ont., Aug. 17, 1884.

A. H. Mahon, Assistant Master Mechanic, Canadian National-Grand Trunk Pacific Rys., Edson, Alta., born near Ottawa, Ont., Aug. 27, 1874.

H. C. Meachem, Import Freight Agent, Canadian National Rys., Montreal, born at Brantford, Ont., Aug. 11, 1863.

C. Montgomery, Master Mechanic, Pere Marquette Rd., St. Thomas, Ont., born near London, Ont., Aug. 29, 1860.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., Vancouver, B.C., born at Greenwich, Eng., Aug. 27, 1875.

J. A. Olive, Secretary-Treasurer, New Brunswick Power Co., St. John, N.B., born there, Aug. 4, 1887.

L. Palk, Assistant to General Manager and Assistant Secretary, Winnipeg Electric Ry., and Secretary, Winnipeg, Selkirk & Lake Winnipeg Ry., Winnipeg, born there, Aug. 14, 1885.

Capt. K. G. Polybank, Division Engineer, Canadian National Rys., Hornepayne, Ont., born at Bristol, Eng., Aug. 17, 1884.

Lieut. Col. Blair Ripley, C.B.E., D.S.O., Engineer, Ontario District, C.P.R., Toronto, born at Oxford, N.S., Aug. 29, 1880.

Hon. Gideon Robertson, Minister of Labor, born at Welland, Ont., Aug. 26, 1874.

J. M. Rosevear, Comptroller, G.T.R., Montreal, born at St. Lambert, Que., Aug. 9, 1869.

W. G. Ross, President, Montreal Harbor Commissioners, born at Montreal, Aug. 6, 1873.

W. LeB. Ross, Local Treasurer, G.T. Pacific Ry., Winnipeg, born at Ottawa, Ont., Aug. 9, 1868.

F. C. Salter, European Traffic Manager, G.T.R., and Canadian Express Co., London, Eng., born at Sarnia, Ont., Aug. 31, 1863.

A. O. Seymour, General Tourist Agent, C.P.R., Montreal, born at Ogdensburg, N.Y., Aug. 14, 1887.

S. A. Simpson, Superintendent, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Winnipeg, born at Toronto, Aug. 22, 1880.

J. F. Sweeting, Industrial Agent, Natural Resources Department, C.P.R., Winnipeg, born at Worthing, Eng., Aug. 20, 1872.

W. J. Sturges, Fuel Department, Grand Trunk Pacific Ry., Winnipeg, born at Fairfield, Vt., Aug. 20, 1877.

L. Tait, Secretary-Treasurer, London St. Ry., London, Ont., born at Hamilton, Ont., Aug. 9, 1882.

W. D. Waddell, Chief Accountant, Canadian Northern Ry. System, Toronto, born at Waterford, Ireland, Aug. 7, 1877.

F. E. Warren, General Car Foreman, C.P.R., Winnipeg, born at Chelsea, Que., Aug. 29, 1872.

W. B. Way, Superintendent, Division 1, Central District, Canadian National Rys., Cochrane, Ont., born at Bowmanville, Ont., Aug. 22, 1867.

H. E. Weyman, Manager, Levis County Ry., Levis, Que., born at Guildford, Eng., Aug. 27, 1883.

Steam Railway Operating Revenues, Expenses and Statistics for February.

The following comparative table, for February 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of $500,000 and over, per year, except the St. Lawrence & Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	$23,730,172	$20,735,505	$2,755,352	$1,945,857	$4,491,208	$2,750,630	$8,826,117	$9.372,947	$4,156,873	$3,345,040	$972,939	$673,175
Passenger	5,764,699	5,689.046	519,158	440,482	688,735	626,535	2,690,426	3,063,587	999,768	825,475	147,972	138,486
Mail	275,107	261,226	38,332	35,735	37,576	29,139	119,124	114,698	42,957	42,601	11,402	12,866
Express	1,019,784	922,440	87,363	89,404	124,150	93,148	656,190	511,473	95,687	153,266	24,674	17,860
All other	1,352,978	1,464,539	126,450	114,422	226,111	167,305	576,958	836,406	173,445	152,093	36,722	40,370
Total operating revenues	32,142,741	29,072,758	3,526,657	2,625,902	5,575,782	3,666,759	12,967,818	13,899,112	5,468,732	4,518,477	1,013,712	882,759
Operating expenses												
Maintenance of way and structures	$5,300,603	$5,303,561	647,156	697,144	1,472,253	1,302,548	1,557,561	1,812,690	727,316	629,619	369,270	309,234
Maintenance of equipment	8,039,742	8,377,458	1,006,729	735,708	1,541,264	1,150,060	3,052,639	3,598,562	1,314,333	1,539,398	467,171	561,966
Traffic	852,313	687,394	64,372	61,505	117,679	83,158	450,228	375,080	127,038	89,808	30,983	24,218
Transportation	18,259,004	16,666,557	2,596,834	2,193.780	3,522,460	2,854,730	6,545,295	6,728,908	2,955,080	2,724,788	957,823	582,252
Miscellaneous operation	450,512	590,593	60,421	79,822	98,803	81,199	207,712	325,871	41,739	29,994	5,989	30,071
General	951,001	857,933	8,023	63,866	164,666	134,991	329,895	294,080	272,743	195,724	53,735	45,833
All other	Cr. 52,035	Cr. 91,534	.....	.....	Cr. 55,790	Cr. 100,173	.....	.....	.....	.....	Cr. 12,028	.....
Total operating expenses	33,801,143	32,391,964	4,367,491	3,831,828	6,861,337	5,506,515	12,143,332	13,135,193	5,439,039	5,209,333	1,782,945	1,553,576
Net operating revenue	.....	.....	.....	.....	.....	.....	824,486	763,919	29,692	.....	.....	.....
Net operating deficit	1,658,401	3,319,206	840,833	1,205,925	1,285,555	1,839,755	.....	.....	.....	690,856	859,233	670,816
Ratio of operating expenses to revenue	105.1%	110.7%	123.8%	145.9%	123.0%	150.1%	93.6%	94.5%	99.4%	115.2%	184.7%	175.9%
Mileage and operating statistics												
Average miles operated	38,047.90	37,475.98	4,564.05	4,092.98	9,742.7	9,653.6	13,772.1	13,772.1	3,571	3,571	2,807.3	2.807.3
Tons moved (revenue)	8,429	8,371	816	884	1,303	1,058	2,317	2,572	1,747	1,638	276	202
Tons moved one mile (revenue)	1,946,388	2,113,337	267,408	238,170	379,563	375,673	696,155	905,153	312,192	309,859	95,528	60,861
Tons moved (all freight)	9,806	9,516	997	974	1,641	1,240	2,824	3,123	2,003	1,844	361	273
Tons moved one mile (all freight)	2,199,624	2,331,721	305,226	251,008	449,073	417,635	791,279	1,025,598	332,980	328,132	120,571	83,879
Passengers carried	3,223	3,224	500	488	368	356	1,097	1,159	842	836	56	62
Passengers carried one mile	182,267	223,514	20,005	19,974	21,033	21,288	83,315	124,167	33,323	31,569	4.519	6,990
Freight train miles	4,050	4,577	479	492	932	880	1,306	1,905	731	708	246	216
Passenger train miles	3,349	3,422	382	340	557	516	1,369	1,582	581	545	129	98
Mixed train miles	510	522	91	78	139	130	130	151	54	57	31	35
Loaded freight car miles	80,698	99,453	10,645	10,354	15,797	15,792	28,725	44,952	13,100	14,651	4,754	4,176
Empty freight car miles	41,179	26,067	3,999	1,832	10,447	5,954	9,599	19,623	8,658	3,779	3,274	2,377
Passenger car miles	22,257	23,386	2,627	2,332	3,354	3,135	9,620	11,699	3,361	3,071	981	778
Total pay roll	$19,923,385	$19,525,339	$2,879,535	$2,565,779	$4,262,123	$3,635,177	$6,695,963	$7,585,168	$3,751,122	$3,510,846	$778,418	$758,632
Averages per mile operated												
Operating revenue	$844.80	$775.77	$772.71	$641.71	$572.34	$379.85	$941.60	$1,009.22	$1,531.42	$1,265.32	$361.10	$314.45
Operating expenses	$888.38	$864.34	$956.94	$936.41	$704.30	$570.43	$881.74	$953.76	$1,523.11	$1,458.78	$667.17	$553.40
Net operating revenue	.....	.....	.....	.....	.....	.....	$59.86	$55.46	$8.37	.....	.....	.....
Net operating deficit	$43.58	$88.57	$184.23	$294.70	$131.96	$190.58	.....	.....	.....	$193.46	$306.07	$238.95
Tons moved one mile (all freight)	57,812	62,219	58,589	58,190	38,969	38,929	50,555	65,733	87,448	86,795	34,028	21,680
Tons moved one mile (revenue)	51,156	56,392	66,876	61,371	46,106	43,264	57,455	74,469	93,271	91,913	42,949	29,879
Averages per freight and mixed train miles												
Freight receipts	$5.20	$4.07	$4.83	$3.40	$4.19	$2.72	$6.14	$4.56	$5.29	$4.36	$2.85	$2.67
Tons of revenue freight	426.7	414.4	468.8	417.0	354.1	371.4	484.5	440.0	397.3	404.4	343.3	241.5
Tons of all freight	482.2	457.2	535.0	439.5	419.0	412.9	550.7	498.5	423.7	428.2	433.3	332.8
Loaded freight cars	17.7	19.5	18.7	18.1	14.7	15.6	19.9	21.8	16.6	19.1	17.0	16.6
Empty freight cars	9.0	5.1	7.0	3.2	9.7	4.9	6.7	9.5	11.0	4.9	11.8	9.4
Average per passenger and mixed train mile					$0.988	$0.968						
Passenger receipts	$1.49	$1.44	$1.10	$1.05	~~$0.00~~	~~$0.00~~	$1.79	$1.77	$1.57	$1.37	$0.92	$1.03
Passengers carried	47.2	56.7	42.3	47.6	30.1	32.9	55.5	71.6	52.3	52.3	28.1	52.2
Passenger cars	5:8	5.9	5.5	5.5	4.8	4.9	6.4	6.7	5.3	5.1	6.1	5.8
Average per freight, passenger and mixed train miles												
Operating revenue	$4.06	$3.41	$3.70	$2.88	$3.42	$2.40	$4.62	$3.82	$3.99	$3.44	$2.49	$2.52
Operating expenses	$4.27	$3.80	$4.58	$4.20	$4.21	$3.61	$4.32	$3.60	$3.97	$3.97	$4.59	$4.44
Aver. length of haul. rev. freight, miles	230.9	252.4	327.3	269.2	291.2	355.0	300.3	351.8	178.6	189.0	345.3	300.7
Average passenger journey, miles	56.3	69.3	40.0	40.8	57.0	59.7	75.9	107.1	39.5	37.7	79.5	112.0
Average tons per loaded freight car	27.3	23.4	28.6	24.2	28.4	26.4	27.5	22.8	25.4	22.4	25.5	20.1
Ratio loaded to total freight car miles	65.9%	79.2%	72.6%	85.0%	60.1%	72.6%	74.9%	82.4%	60.1%	79.4%	59.1%	63.7%
Ratio of pay roll to revenue	62.0%	67.2%	81.7%	97.7%	76.4%	99.1%	51.6%	54.5%	68.5%	77.6%	76.8%	86.0%
Ratio of pay roll to operating expenses	58.9%	60.3%	65.9%	67.0%	62.4%	66.0%	55.1%	57.7%	68.9%	67.3%	41.6%	48.9%
Aver. freight receipts per rev. ton mile	1.219c.	.981c.	1.030c.	.881c.	1.185c.	.732c.	1.267c.	1.035c.	1.331c.	1.079c.	.830c.	1.106c.
Aver. passenger receipt per pass. per mile	3.163c.	2.515c.	2.595c.	2.205c.	3.275c.	2.945c.	3.229c.	2.467c.	3.000c.	2.615c.	3.274c.	1.981c.

Last 2 figures omitted

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and the Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

A comparison of the figures for Feb. 1920 and Feb. 1921 for all railways shows that the total operating revenue increased from $29,072,758.29 to $32,142,741.57, the total operating expenses increased from $32,391,964.32 to $33,801,143.22, the net operating deficit decreased from $3,319,206.03 to $1,658,401.65 and the ratio of operating expenses to revenue decreased from 110.7% to 105.1%.

The Canadian Government Rys. reduced their net operating deficit from $1,205,925.27 to $840,833.20; the Canadian Northern Ry. reduced its net operating deficit from $1,839,755.66 to $1,285,555.07; the Canadian Pacific increased its net operating revenue from $763,919.30 to $824,486.02; the Grand Trunk, in place of a deficit in net operating revenue of $690,856.70, had a surplus of $29,692.93, and the Grand Trunk Pacific increased its deficit in net operating revenue from $670,816.50 to $859,233.52.

The ratio of operating expenses to revenue changed as follows:—All railways decreased from 110.7% to 105.1%; Canadian Government Rys. decreased from 145.9% to 123.8%; Canadian Northern Ry. decreased from 150.1% to 123%; C.P.R. decreased from 94.5% to 93.6%; Grand Trunk decreased from 115.2% to 99.4%, and Grand Trunk Pacific increased from 175.9% to 184.7%.

While the several decreases in operating ratio are gratifying, yet the fact of their being as high as they are shows clearly the condition of Canadian railways, which is closely analogous to that in the United States, but made more serious, from a railway earning point of view, by the lower traffic density of the majority of the roads. In January and February, a large number of U.S. railways incurred an operating deficit, and a few more months like those would have bankrupted most of them. Taking into consideration all the conditions surrounding the railway industry, the fact that the C.P.R. was able to keep its operating ratio down to 93.6 may be considered gratifying, but when it is remembered that that road had an operating ratio of 69.46 in 1917; 78.10 in 1918; 81.39 in 1919; and 84.70 in 1920, it is at once evident that operating expenses have increased much more than operating revenues, and that, as is indicated by the C.P.R. returns, a substantial reduction in operating expenses must be made before the industry can be considered as being on a proper basis, or before any considerable rate reduction can be looked for.

The Canadian Government Rys. reduction of operating ratio from 145.9% to 123.8% and the Canadian Northern's reduction from 150.1% to 123% are the results of vigorous efforts by the Canadian National Rys. management to reduce expenses to the utmost limit, but leave little hope to expect that for some considerable time to come these lines will cease to require contributions from the monies raised by general taxation, to keep them going.

In the decrease of the Grand Trunk's operating ratio from 115.2% to 99.4%, a large improvement has been effected; but no railway could keep out of bankruptcy long with an operating ratio of 99.4%. However, such a result could be logically expected, since the results on the majority of the Eastern U.S. railways, operating under substantially similar conditions, have been about the same; those properties have come through the past four years largely because of the U.S. Government guarantee.

The Grand Trunk Pacific was a lamentable exception, its operating ratio increasing from 175.9% to 184.7%. The official explanation is that this was due principally to an increase of over 60% in transportation expenses, and to an increase of about 20% in maintenance of way and structures, though maintenance of equipment decreased over 16%.

The traffic figures show that the business handled by the railways reflected the change in business conditions which took place between Feb. 1920 and Feb. 1921. The ton mileage of revenue freight decreased about 8%, and the passengers carried one mile decreased about 18%. Opinion is expressed in many quarters to the effect that the reduced traffic handled by the railways is a direct result of the increases in rates, but it is probable that the reduction is due almost entirely to business conditions and would have taken place had the rates not been increased. The figures certainly demonstrate the need of the railways for all the revenue it is possible for them to obtain.

The average rate per ton mile was 1.219c. in Feb. 1921, and 0.981c. in Feb. 1920, which reflects the rate increases allowed by the Board of Railway Commissioners in Sept. 1920. In 1917, the C.P.R. received 0.698c. per ton mile; in 1918, 0.847c.; in 1919, 1.003c.; in 1920, 1.038c.; in Feb. 1920, 1.035c., and in Feb. 1921, 1.267c. per ton mile. It is thus seen that the C.P.R. average receipt per ton mile in Feb. 1921 was 81% higher than it was for the year 1917; yet the operating ratio in 1917 was 69.46%, while in Feb. 1921 it was 93.6%. The great increases in operating expenses are thus strikingly illustrated. It is notable that the Grand Trunk Pacific received only 0.830c. per ton mile in Feb. 1921, against 1.106c. for Feb. 1920, which is explained by the great increase in grain it handled in Feb. 1921.

The average passenger rate per mile increased from 2.545c. in Feb. 1920 to 3.163c. in Feb. 1921, so that, despite the reduced passenger mileage, the total revenue from passengers increased $75,000. In connection with passenger traffic, it is noteworthy that the decrease in passenger miles took place principally on the C.P.R., which road suffered a 33% reduction. There was a slight decrease on the Canadian Northern and a 35% decrease on the Grand Trunk Pacific. The Canadian Government Rys. and Grand Trunk had slight increases.

Car loading showed an improvement, the average tons per loaded freight car increasing from 23.4 in Feb. 1920 to 27.3 in Feb. 1921. The freight and mixed train mileage decreased 10.5%, but freight car mileage decreased only 3%. The average number of freight cars per train mile was 26.7 for Feb. 1921 and 24.6 for 1920. These figures indicate the large increase in empty car mileage, as shown. Loaded car miles decreased from 79.2 to 65.9% of the total. Some reduction is also shown in passenger train miles and in passenger car miles, but the reduction is not in proportion to the reduction in passengers carried one mile.

Total operating expenses increased 4%. Transportation expense increased 10%, but maintenance of equipment and maintenance of way and structures both show decreases. The total pay roll increased 2%, the reduction in the number of employes almost compensating for the increases in wages dating from May 1, 1920. The large increase in transportation expense on the Grand Trunk Pacific is notable, and is largely the cause of the operating ratio of that road increasing from 175.9 in Feb. 1920 to 184.7 in Feb. 1921.

While the financial returns for Feb. 1921 show an improvement over those for Feb. 1920, the fact remains that it was an improvement brought about by the application of higher rates to a reduced traffic, which is undesirable. United States railways, which operate with practically the same rate and expense levels as Canadian railways, were supposed to be able to pay their way after Sept. 1920, but many have found difficulty in doing so. The recent wage reduction order should act first to restore the railways to their proper financial standing, not only in the U.S. but in Canada, because it is desirable that an industry as important as the railway one should be on a self supporting basis. It would be folly to look for substantial rate reductions because of the reductions in operating expenses which are being brought about at present; it will be in the country's interest to let these reductions first aid in restoring the railway industry to a proper basis, after the accomplishment of which rate reductions may be looked for. Viewing the subject broadly, our transportation service must be paid for through railway rates and taxes for some time to come, but the greater the proportion paid through direct charges for transportation, up to the limit of a fair return to private capital, the better.

National Transcontinental Railway Locomotives at Parent.

H. Deslauriers, St. Mary, Que., asked the following questions in the House of Commons recently, which were answered by the Minister of Railways.

Q. 1. "Is the Government aware that several National Transcontinental Ry. locomotives were seriously damaged by frost, on account of having been left exposed to the weather during Dec. 1920, at the locomotive house at Parent?" A. "No."

Q. 2, 3 and 4. "If, so why were the locomotives not shunted into shelter at the said works? Are the workmen responsible for this damage still in the Government's employ? What was the approximate cost of repairing these locomotives?" A. "Answered by no. 1."

R. W. Scott, Westmount, Que., formerly Superintendent, Montreal Terminals, G.T.R., who has been a subscriber for many years, in renewing his subscription writes:—"I would not be without Canadian Railway and Marine World if it was my last $2."

Railway Mechanical Methods and Devices.

Riveting Coupler Pockets.

A device for riveting coupler pockets to couplers, in use at the car department C.P.R. West Toronto shops, is illustrated herewith. It is located in the blacksmith shop, a few feet away from one of the larger fires, and is served by an air operated hoist, which is of such range that the drawbar and pocket can be lifted from the fire by it, and placed in position for riveting as shown in fig. 1. The riveting apparatus consists of two castings, on concrete foundations; the one to the left is solid, and the one to the right is as shown by fig. 2, one of the side walls at the rear not being shown, in order to demonstrate the arrangement of the movable parts.

Fig. 1. Coupler Pocket Riveter.

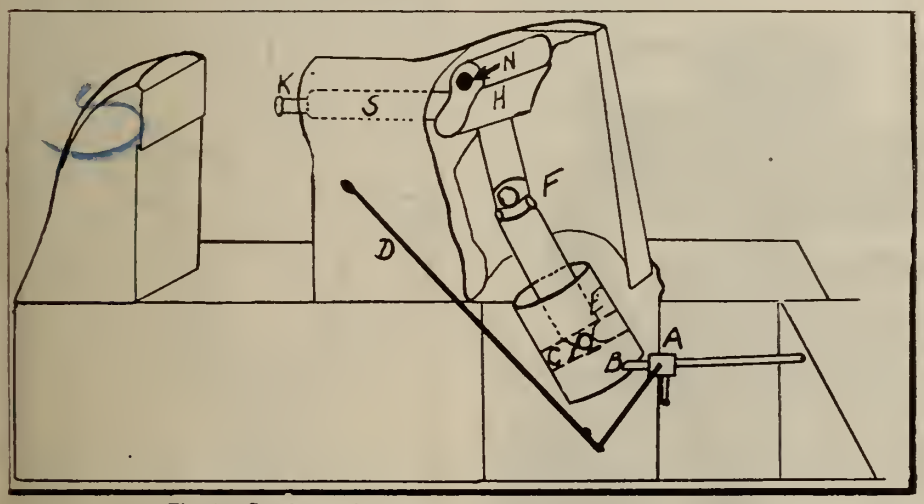


Fig. 2. Coupler Pocket Riveter. General Arrangement of Parts.

At the back is a pit, with a cylinder supported in concrete, with piping for compressed air entering below the piston. By operation of valve A, by handle D, air is admitted to the cylinder, forcing the piston up, and the force is transmitted, through connecting rods and knuckle joints, to casting H, eccentric with fulcrum pin N. The sleeve S is connected to the eccentric so that a complete stroke of the piston gives it a travel of 5 in. The diameter of the sleeve is 5 in., as is also the diameter of the piston and connecting rods. The riveting tool is 3½ in. in diameter, and screws into the chuck, or sleeve, S, threaded three threads per inch. Compressed air, at 90 lb. per sq. in., is used. On reversing the movement of valve A, air is exhausted from below the piston C, and the piston returns to the bottom of the cylinder, the sleeve S, and riveting tool K, being drawn to the right, by the movement of rods and eccentric casting.

In riveting, the coupler and pocket, suspended from the arm of the hoist, are swung into position as shown, the valve A is opened, forcing the riveting tool K against the rivet, and one application for each rivet does the work quickly and effectively. For this information we are indebted to Frank Taylor, Mill Foreman, C.P.R. West Toronto car shops.

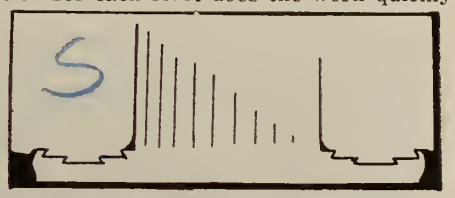


Fig. 1. Pouring Hub Liners. Section Through Part of Hub.

Fig. 2. Pouring Hub Liners. Wheels on End, Ready for Pouring.

Pouring Hub Liners.

The accompanying illustrations show a method of equipping locomotive driving wheels with hub liners, as carried out in the erecting shop of the Canadian National Rys. Leaside shops, Toronto. In getting the inside of the wheel hubs in shape to receive and retain the liner, the wheels are put in the lathe, and the hubs are machined to the form shown by fig. 1. The resulting section, in which the faces are dove-tailed, or undercut in, from the face of the hub, ensures the metal remaining in place after it has hardened, and the wheels have been put into service.

Fig. 3. Finished Hub Liner.

After the hubs have been thus turned up, the pair of wheels is picked up by the crane, and stood with the axle vertical on the shop floor, near the melting furnace. The circular retaining or pattern rings, which are made in two halves, of cast iron, are then put into place, and a joint is made with clay. Fig. 2 shows the set-up preparatory to pouring.

The babbitt is melted in a Rockwell tilting furnace, which is lined with firebrick, heat being supplied by fuel oil, in connection with compressed air. Before pouring, the hub of the wheel is oiled. The molten metal is then poured into the circular space provided, after which the wheel is left until the liner has solidified. The liner is poured about 1¼ in. in thickness. The wheels are then reversed, so that the other wheel is on the floor, and the operation is repeated. Fig. 3 shows a finished hub liner.

After both liners have solidified, the wheel is put in the lathe, and the liners are machined to the desired thickness.

Under ordinary conditions, such liners give the best of service from shopping to shopping, and the operation as carried on has produced successful results to date. We are indebted for this information to Otis Grant, Superintendent of Leaside shops, Canadian National Railways, Toronto.

Portable Boiler Testing Apparatus.

The accompanying illustration shows a portable hydraulic pump which is used in the G.T.R. locomotive house at Mimico, near Toronto, in applying the periodic hydrostatic test to locomotive boilers. The pump is driven by compressed air, brought at a pressure of 90 lb. through the hose shown at the left, from any valve in the compressed air piping extending throughout the house. The tank containing the equipment is kept filled with water while the boiler test is in progress, and while the pump is operating, by directing the end of a hose connected to the house water line into the tank, and regulating the flow by valve opening, in accordance with delivery by the pump, so as to keep the tank just nicely filled. The hose shown at the right is the connection to the locomotive boiler, a check valve to prevent any back flow toward the pump being used in connection with the apparatus. The large pipe at the right is the water intake for the pump, and the pipe of the same diameter at the left is the air exhaust, this pipe being swung around so as to have its open end out of the water when the apparatus is placed at the job ready for operation.

Portable Boiler Testing Apparatus.

The tank is of riveted construction, and the truck is fitted with ball bearings. The method of mounting the apparatus in the tank is clearly shown in the illustration. On account of its compactness, and the ability to use it anywhere in the house, with short connections, this apparatus proves itself a useful piece of locomotive house equipment. For information concerning it we are indebted to H. J. Hague, Locomotive Foreman, G.T.R., Mimico, Ont.

Use of Oil Fuel for Blacksmith Shop Fires.

In eight of the fires used in the blacksmith shop at the Canadian National Rys. Leaside shops, Toronto, for forging, tool making, spring making, etc., fuel oil is used as the source of heat, and affords results greatly superior to those from blacksmith coal. The facilities at Leaside in connection with the use of fuel oil for this purpose are very complete. The accompanying fig. 1 is an exterior view of the concrete oil storage house, with a tank car in position for transfer of the oil to the storage tanks.

Fig. 1. Oil Storage House, Canadian National Rys. Leaside Shops, Toronto.

In the interior of the house are four steel cylindrical storage tanks, as shown in fig. 2. They are all connected to the pipe conveying the oil from the tank car, so that if the valves A are open, the level of the oil is the same in all tanks. The oil is transferred from the tank car to the storage tanks by gravity alone. The outlet pipe, through which the oil is carried to the blacksmith shop, approximately 100 ft., is as shown, the connection being to the lowest part of the tank, and controlled by valves B. Provision is made for cleaning out the storage tanks; all being provided with manholes in the top. The capacity of each is 5,274 imperial galls.

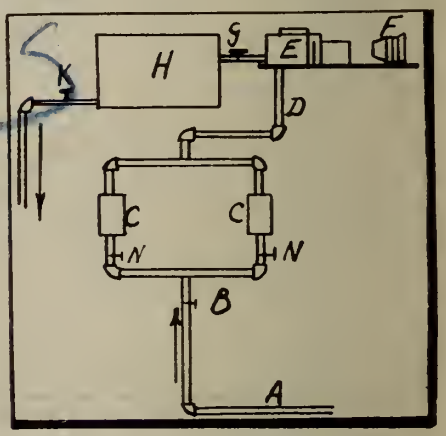


Fig. 3. Arrangement in Blacksmith Shop, for Using Fuel Oil.

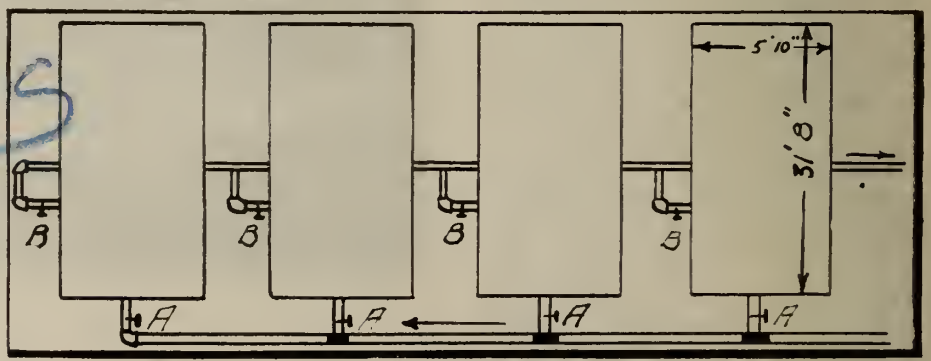


Fig. 2. Arrangement of Oil Tanks, Canadian National Rys. Leaside Shops, Toronto.

While the oil is unloaded from the car to the storage tanks by gravity, it is necessary to force it from the tanks to the blacksmith fire jets, a motor driven pump being used. Both motor and pump are mounted on a small platform, built as a shelf, on the interior wall of the blacksmith shop, about 10 ft. above the floor. The arrangement is shown in fig.

3. The oil delivery pipe enters the shop at A; the flow is controlled at valve B; the strainers C C, are so arranged that sediment can be removed easily, and the pump E, driven by motor F, forces the oil into tank H, whence it is piped to the various jets supplying the fires in the shop. Additional valves, to control the flow, are provided at G and K, and control valves are provided at each individual burner.

Several kinds of burners have been tried, the oil jet being used in all, in connection with the compressed air jet, but the style which has proved most successful is one in which the oil spray enters a separate chamber, where it is given an opportunity to form a gas, before being entrained in the air flow. The effect of this is to furnish a regular and even heat throughout the entire volume of the firebox. The chief objection to the burners used previously was that the most intense heat was developed along the line of the combined oil and air jet, and it was difficult, if not impossible, to secure an even heat on a large job. The use of the improved burner has obviated this entirely. The interior of the firepots is lined with firebrick, and when the fire is in operation, the interior is at white heat. The fires are easy to control and operate. When the furnaces are once got hot they retain the heat a long time, and on a basis of performance and cost, the fuel oil fires are much superior to the coal fires.

We are indebted to J. Templeton, General Blacksmith Foreman, and Otis Grant, Superintendent of Leaside Shops, for this information.

The Real Railroaders on the Canadian Pacific.

(Adapted by a subscriber, with apologies to J. Edward Hungerford.)

You will foind him on the section
Wid a spike and maul and bar-r-r,
And you'll foind he makes inspection
From a C.P. private car-r-r;
Makes no difference where you ramble
If you mate a railroad gang,
You can pretty nearly gamble
Thot you'll hear an Irish twang.

It's from him you buy a ticket,
And it's him that calls the thrane,
And you're hild up at the wicket
Be thot rollin' brogue again;
"Pass roight in, sor-r-r, to the left, sor-r-r,
Over there, thrack noomber eight,
Where yez see thot granish loight, sor-r-r,"
And he lets you through the gate.

You will foind him tendin' switches,
And you'll foind him writin' cheques;
And you'll foind him diggin' ditches,
That an Oirishman inspects.
He's a bossin' iv the station,
And he's clickin' iv the kays;
And he's makin' up the payroll
Wid officials names loike thase:

McKinty, Maughan, O'Hara, Bourne,
Brennan, Hurson, Gilliland,
Tobin, Whalen, Bowen, Phelan,
Sullivan, Tim Riordan,
Dalton, Doolan, Bodkin, Cullen,
Landers, Altimas and Ryan,
Don't it stroike yiz all the Oir-rish
Fer promotion are-r-re in line?

Downey, O'Hearn, Gribbon, Mulkern,
Paddy Coakley, Cotterell,
Britt, McCallum, Burke, O'Connell,
Donnelly, Walsh, Butterell,
Moran, Coghlin, Sheahan, Cochlan,
Powers, Mick Malloy and Code,
Don't it saem as if the Oir-rish
Was the backbone iv the r-road?

Boyle, McConnell, Neal, McDonnell,
Keough, Collins, Flanaghan,
Larmour, Haney, Dennis, Sweeny,
D'Alton Coleman, Lanigan,
Murphy, Kelly, Maharg, Scully,
Beatty, Shaughnessy and Pyne,
Don't yiz sae it is ould Oir-reland
Phwat is runnin' iv the line?

Electric Storage Battery Passenger Car on Canadian National Rys.

An illustrated description of the electric storage battery passenger car which is being tried on the Canadian National Rys., together with an account of its first run from Toronto to Trenton, Ont., 108.4 miles, was given in Canadian Railway and Marine World for June, pg. 313. From May 16 to June 19 the car operated between Trenton and Belleville, 11.4 miles, leaving Trenton on the first trip of the day at 8.25 a.m., and arriving at Trenton on the last trip at 10.10 p.m. The average daily mileage made was 228 miles. The operating cost per car mile was 30c., this including allowance for interest and depreciation. The current consumption averaged 0.73 k.w.h. per car mile, on the basis of the input at the charging station, and actual current consumption at the motors averaged 0.464 k.w.h. per car mile. The greatest number of passengers carried in one day was 550. We are officially informed that the results of the tests exceeded expectations, and were satisfactory from both the operating and financial viewpoints. No trouble was experienced in charging the batteries at Trenton; maintenance expense was practically nothing, and the car demonstrated its ability to cover 160 miles on a single charging of the batteries, this performance exceeding the stated capacity by 20 miles.

After its last run on June 19, the car was taken in local passenger trains to the Bathurst Subdivision, Campbellton Division, Maritime District, Canadian National Rys., where it was placed in operation on June 27 between Bathurst and Campbellton, N.B., 62.96 miles. The car is operating there as a regular train, daily except Sunday, being scheduled as no. 229 westbound and no. 230 eastbound. Westbound, it leaves Bathurst at 9.05 a.m., and arrives at Campbellton at 11.55 a.m.; eastbound it leaves Campbellton at 6.25 p.m. and arrives at Bathurst at 9.20 p.m. Nos. 229 and 230 are shown in the working timetable as second class trains, with 11 schedule stops between Bathurst and Campbellton. Current for charging the batteries is available at both ends of the run, but the round trip mileage is well within the operating range of the car on a single charging.

As a result of the tests to date, the car has demonstrated its economy over steam train operation on short runs on branch lines and lines of limited traffic, and while the car has not as yet been bought by the C.N. Rys., it is probable that it, or one of slightly differing design, will be, and that several such cars may be ordered and built probably in Canada.

A Toronto daily newspaper expressed the opinion recently that the length of time necessary to charge the batteries, which is between 6 and 7 hours, is a serious disadvantage in the operation of this car. But the car is designed to operate in suburban, or branch line, service, where operation throughout the 24 hours of the day is not necessary, or desirable, which leaves ample time for charging, and we are officially informed that the time required for charging is not looked upon as a disadvantage of any consequence. The same paper suggested a duplication of batteries to overcome the supposed difficulty, one set to be charged while the car is operating on the other. But the labor of changing batteries weighing 6,800 lb. would be great, and it is not probable that the necessity for such practice is likely to arise in the work for which the car is intended.

Canadian National Railways Services Between Winnipeg and Quebec.

T. Vien, Lotbiniere, Que., asked the following questions in the House of Commons recently:—How much per bushel does it cost the Government railways for the transportation of wheat from Winnipeg to Quebec? What are the fixed charges, cost of operation and the overhead charges? What is the capacity of a locomotive on the National Transcontinental Ry. between Winnipeg and Quebec? How many passenger and freight trains per day or per week are in operation between Winnipeg and the eastern stations on the National Transconntintal Ry.?

The Minister of Railways replied as follows:—The cost of transportation of wheat depends on weather conditions, number of cars in a train, number of trains moving over the different sections, etc., and varies with these changing conditions.

There are no fixed charges on section between Winnipeg and Quebec.

Passenger locomotives vary in tractive effort from 29,000 to 38,000 lb.; freight locomotives from 30,000 to 53,000 lb.

One passenger train daily, in each direction, between Winnipeg and Cochrane, and between Cochrane and Quebec. One passenger train daily, in each direction, between Quebec and McGivney Junction, N.B. One passenger train triweekly, in each direction, between McGivney Jct., and Moncton, N.B. Mixed train daily except Sunday, in each direction, between Winnipeg and Redditt. Mixed train tri-weekly, in each direction, between Redditt and Sioux Lookout. Mixed train tri-weekly, in each direction, between Hearst and Cochrane. Mixed train daily except Sunday, in each direction, between O'Brien and Doucet, Doucet and Parent and Parent and Fitzpatrick. Freight service is provided to handle business offering.

The Detroit, Toledo & Ironton Rd., which was acquired by the Henry Ford interests recently, has announced that, effective July 1, the wages of every employe on the system would be placed on the same basis as obtains in the Ford motor car works, etc., viz., a minimum of $6 a day, with bonus for demonstrated efficiency. It was also announced that a week of six days would be put into force, no Sunday traffic being permitted, except for a few milk trains, which will be eliminated in the near future.

Australian Railways Deputation.—An Australian press dispatch states that the states of Victoria and New South Wales are each sending a deputation of four railway officials to North America to study railway operation. Sir Thomas Tait, President, Fredericton & Grand Lake Ry. & Coal Co., was for a considerable time Chairman of the Commission operating the Victorian State Railways in Australia, prior to which he was in C. P.R. service, holding several important appointments, and being at different times toward the latter part of that service, Assistant General Manager, Manager, Eastern Lines, and lastly Manager of Transportation.

Extension of Port Arthur, Duluth & Western Railway.

We are officially advised that the Canadian National Rys. is operating the old Port Arthur, Duluth & Western Ry., from Port Arthur to North Lake, 70.6 miles. A train service is given daily, except Sundays and Thursdays, from Port Arthur to White Fish, 42.8 miles, with a corresponding return train daily except Sundays and Wednesdays. On Wednesdays the train from Port Arthur runs on from White Fish to North Lake, returning on the following day. Beyond North Lake, the C.N.R. owns a right of way to Gunflint, at the Ontario-Minnesota boundary, and for 6 miles into Minnesota. This right of way has been leased to the Palatine Mining & Development Co., which proposes to lay rails on about 22 miles of it in Canada and about 3 miles in Minnesota to the Paulson iron property. The Palatine Co. will operate this mileage itself to carry iron ore from the mine which it is developing on the Paulson property to the Atikokan Iron Co.'s plant at Port Arthur, which the Palatine Iron & Steel Co. has taken over recently for making pig iron. Ore in excess of the company's requirements at Port Arthur will be shipped to the United States.

The grading is being done by the Palatine Co.'s own forces, and the track will be laid with 70 and 80 lb. steel rails. The character of the country through which the line runs is hilly and rocky, requiring considerable curvature. There is a very small quantity of earth to be moved; no tunnels, and only 4 bridges, the longest being 1,000 ft., and the shortest about 60 ft. Tenders have been invited for the bridge work. The work is being done under the charge of H. H. Charles. R. E. Hogan, Port Arthur, Ont., is General Manager.

Railways and Canals Department Salaries Estimates.

The estimates for the year ending March 31, 1922, submitted to the House of Commons recently, contain the following items for the principal officials' salaries:—

Deputy Minister	$6,000.00
Chief Engineer	8,000.00
Solicitor for Counsel	5,000.00
Comptroller	4,800.00
Secretary	3,840.00
Right of Way Agent	4,800.00
Asst. Chief Engineer	5,400.00
Assistant Solicitor	3,840.00
Assistant Deputy Minister	4,425.00
Assistant Comptroller	3,600.00
General Assistant Engineers, 2 at $4,800	9,600.00
Senior Electric Engineer	4,800.00
Senior Hydraulic Engineer	4,800.00
Senior Office Engineer	3,660.00
Bridge and Structural Engineer	3,540.00
Assistant Purchasing Agent	2,520.00
Assistant Right of Way Agent	2,340.00

The St. Catharines Bus Co. Ltd. has been incorporated under the Ontario Companies Acts, with authorized capital of $40,000 and office at St. Catharines, Ont., to operate in St. Catharines and neighborhood bus and taxi lines, and a general bus and taxi service. The company is not to operate or control any public utility or municipal franchise witihin the meaning of the provisions of the Ontario Companies Act, part 12, unless authorized to do so by supplementary letters patent. The provisional directors are:—H. Hodgkins, J. H. Ricker and R. Heaslip, St. Catharines.

Quebec & Saguenay Railway Operating Results, Etc.

P. F. Casgrain, Charlevoix-Montmorency, Que., asked the following questions in the House of Commons recently, which were answered by the Minister of Railways:—

Q. "When did the Government, through the Canadian National Rys., take possession of the Quebec & Saguenay Ry?" A. "Under order in council, Sept. 24, 1919, the Quebec & Saguenay Ry. was transferred to Canadian National Rys., for operation. As the road was still under construction, and being operated by the contractors, that arrangement continued until completion of construction, Oct. 1, 1920, when road was put into operation by Canadian National Rys. management."

Q. "How many passengers have been carried on the railway from March 17, 1920, to date?" A. "39,742 passengers were carried from March 1 to Dec. 31, 1920."

Q. "What have been the net earnings of the railway since that date?" A. "Operating deficit March 1 to Dec. 31, 1920, $35,869.62."

Q. "What are the salaries paid monthly to the different station agents or caretakers along the railway?" A. "Schedule rates."

The Assistant Chief Railway Commissioner on Self Propelled Cars.

S. J. McLean, Assistant Chief Commissioner, Board of Railway Commissioners, dealt recently with a complaint of residents along the G.T.R. west from Golden Lake Jct., Ont., against poor train service between Killaloe and Eganville, on account of trains not making proper connections with Ottawa - Pembroke trains, and also an application of residents in territory between Madawaska and Golden Lake, for a better train service on the G.T.R., in the matter of connections with Ottawa-Pembroke trains. He dismissed the cases, on the ground that the changes in the services asked for would not be warranted by the traffic, and said in part:—"The question of the possibility of having a gasoline motor passenger carrying car to give this service has been gone into. At present, the G.T.R. has no such car available. The Canadian National Rys. have one gasoline motor passenger carrying car on their line east of the Winnipeg terminals. This car is being used in service between Winnipeg and Transcona. Experiments are being made between Trenton and Belleville, Ont., with a car operated on an electric storage battery. The service in this respect has not gone sufficiently far to enable a concluded opinion to be expressed. The possibilities of gasoline or electric car service on runs where the traffic will not justify a steam passenger train is a matter which, in my opinion, might well engage the serious attention of the railways. The developments in this respect should be kept in touch with, so that, so far as possible, inconveniences such as herein disclosed may be obviated. So far as Canadian railways are concerned, however, the use of the gasoline or electric car, as an auxiliary to steam passenger train service, is in an experimental condition. Conditions of operating cost, location of charging stations, in the case of an electric car, climatic conditions, etc., will all need to be considered. Until more definite information is obtainable, it does not appear that the Board would be justified in making any direction as to a gasoline or electric car involving a considerable expenditure. There has to be held in mind the condition of operating expenses and costs on the Canadian National system, and also the revenue which in the present instance the figures available would show not to be large.

"It is a matter of regret that the Board cannot make the direction asked for, because there are undoubtedly features of hardship in connection with it. At the same time, the Board is not justified, in the interests of the country, in directing extensions of service where the revenues are not adequate to meet the costs. This creates inconveniences and unpleasant conditions, but the facts have to be faced."

Quebec-Shawinigan Railway Service.

G. Parent, Quebec West, Que., asked in the House of Commons recently:—"Is the Government aware that the Canadian National Rys. local train from Quebec City to Shawinigan is of absolute necessity to maintain traffic between the two cities and the various parishes, such as St. Augustin, Neuville, Les Ecureuils, Donnacona and others situated on this line? Is it true that it is now proposed to cancel this train in the near future? If so, is not the Government aware that such action will deprive the C.N.R. of a good revenue and occasion very serious damages to the population using this line?"

The Minister of Railways replied:—"There have been two trains daily except Sunday, in each direction, providing accommodation between Quebec and Shawinigan Falls and the parishes referred to; the numbers of the trains being 9, 10, 19 and 20. A portion of the same territory is also served by trains 13 and 14, which run daily. It is proposed to discontinue one train in each direction; no. 20, leaving Shawinigan Falls 5.30 a.m., and no. 19, leaving Quebec at 5 p.m. No. 9, leaving Quebec at 9.20 a.m., and no. 10, leaving Shawinigan Falls at 4.45 p.m., will be continued, and should provide sufficient accommodation to meet local requirements. The earnings of these trains, except during certain summer months, do not justify the continuance of the double daily service."

A Station Agent Acquitted.—Leonard Robertson, station agent and telegraph operator at Denmark, N.S., was tried before the Nova Scotia Supreme Court in June on a charge of obstructing trains on the Canadian National Rys., with intent to endanger the safety of persons travelling thereon. The charge arose out of the derailment of the express train from Pictou to Oxford Jct., at Urquharts siding early in the year, when the locomotive man was killed. After a lengthy hearing, the jury returned a verdict of not guilty.

The Pennsylvania Rd., to encourage the purchase of tickets and reduce the burden of collecting cash fares, is charging an extra 5c. on each fare paid on trains, the 5c. not being refunded. This rule applies only where tickets offices are available.

The Brazilian Railway Systems.

By Henry K. Wicksteed, B.A.Sc. C.E.

[Mr. Wicksteed, the dean of Canadian railway locating engineers, who has kindly favored Canadian Railway and Marine World with the following article, made an extended visit to Brazil recently, during which he thoroughly examined a large number of its railways.—EDITOR.]

The Brazilian railway system seems to North American eyes, at first sight, to be a little haphazard and ill-considered, and it is some time before the traveller gets rid of this impression, but there are many valuable lessons to be learned from Brazilian procedure which it would be well if we in Canada had learned some years ago.

In the first place, Brazilian roads are nearly all development railways. Some mining or other valuable territory needed to be reached, and there being practically no means of communication except the mule trail existent, or perhaps a roundabout route by a crooked river, the choice being between the highway and the railway. No private company likes to build highways or wagon roads. It cannot control the traffic upon them and it is practically impossible to exclude the public from using them, and the public does not like to be taxed for maintenance and repairs on a road which belongs to someone else. The turnpike road idea was abandoned by ourselves, after trial, some years ago, and, especially where hauls are long, the wagon road cannot compete with the railway in speed, comfort or cost of carriage, and Brazil is a country of enormous distances. But, as in other new countries, capital was scarce and difficult to obtain, and there was always the chance that the particular industry to be served would not turn out quite as well as was anticipated. Under these circumstances economy in construction was of paramount importance, and the greater number of Brazilian railways not only followed, as we did, the earlier American system of cheap construction and location, but they went a little further, and adopted the narrow gauge theories and practice, permitting, as was believed, a still closer approach to an actual contour line. The result was, in fairly rough country, a means of transport not very much more expensive than a good wagon road, and of very much greater capacity, and these early railways were so entirely successful that they were copied and duplicated, and extended, until there came to be, in the eastern half of the State of Sao Paulo for instance, a complete network of these, quite bewildering to study on the map, and every one of them is busy and most of them paying good dividends. I have said above that the network is bewildering, and it seems at first sight that the building must have been overdone, but when we get into the country they serve, and analyze the conditions, we find some startling things. The Sao Paulo railway system aggregates some 4,000 miles, and the population which it has brought in and serves is 3,600,000. There is, therefore, a mile of railway for every 900 persons. In Canada we have a mile for every 200 people, but this is not the whole story. Brazilian railways have cost per mile on an average not more than one third to one half as much as the Canadian, so that the average Canadian is saddled with at least ten times as much railway debt as this Brazilian ally. But even this is not all, for the Brazilian roads are almost, without exception, minding their own business and developing their own territory, there are practically no competitive points or routes. If a man wants to go from Rio to Sao Paulo, for instance, he may take the Central, or he may take a steamship to Santos, and a two hour railway trip from there to his destination. There is no third alternative, nor is there any need for any, for this Central, if not quite so luxurious in its service and appointments as our own railways, will treat him very well and give him a very comfortable night's run. Very possibly this absence of competition has been carried to an extreme, and the time has come when a little more of it is desirable. I quite believe that this is the case and that Sao Paulo and its neighboring states have outgrown the existing facilities and that these need to be supplemented, but I prefer the conservatism of the Brazilian to the wild building of competitive lines in North America, where untold millions have been spent, not to develop new trade or agricultural and mineral wealth, but to take away trade from the enterprise which has spent years in building up a business sufficient to keep it in healthy condition. Competition may be the life of trade, but competition bids fair to be the death of it in our own case, at any rate it has developed a very serious illness. Brazil may be a little non-progressive in its railway methods; it may perhaps be getting its goods handled a little more slowly, a little more expensively than we are, its people may take a little longer time on their journeys and get a trifle less comfort, but at any rate they have not flown to the opposite extreme of loading themselves and their children and childrens' children with a great incubus of debt, for thousands of miles of railway costing $100,000 a mile where a few hundreds at $30,000 would have answered every purpose of development and expansion.

The standard gauge of Brazilian railways is the meter (3 ft. 3 1/3 in., i.e., 3.28 ft.), and I am inclined to believe that the choice of the narrow gauge was, on the whole, a wise one, in spite of all the arguments to the contrary which have been used in the long controversy about the gauges, and which I myself have used. There is a marked difference in cost of construction, and in the ability of the narrow gauge to worm its way through a mountainous country, such as exists along the cost of central Brazil. Thousands of miles have been built at less than $18,000 to $20,000 a mile, including equipment. It is a point not at all understood as yet by the public, and not until recently by railway men, that it is in the early years of a railway's life, when traffic is light, that interest charges are the hardest to meet, and the greatest drain upon its earnings. Not only are interest charges much less, but maintenance as well. Ties and rails are lighter and easier to handle, axle loads are less, and an idle locomotive costs less to fire and maintain in good order. I believe that in certain cases of specialized traffic, of moderate density, the actual cost per ton mile, exclusive of interest, is less. But in these days of interchange and transfer it is essential that the standard should be uniform throughout the country, and it is here that the anomaly of the Brazilian system occurs. The narrow gauge systems of Sao Paulo and Parana all feed into the abnormally wide gauge of the Sao Paulo Railway from Sao Paulo to the sea at Santos, and in a much lesser degree to the Central from Sao Paulo to Ria de Janeiro. The result is a fabulous expenditure for transhipment of freight. Every ton pays enough for this transhipment to carry it another 200 or 300 miles if it could stick to the same car. This is where the shoe pinches the Sao Paulo producers and it is raising a howl among them for relief. The burden is not only that of expense, but of delay and damage.

The Sao Paulo is an English enterprise and is unique among the railways of the world. Its gauge is 5 ft. 3 in. Why this particular gauge was chosen I have never heard explained. The Grand Trunk of Canada and that of India had already been built to 5½ ft., and the Canadian road had found out its mistake. The American systems had adopted the 4 ft. 8½ in. gauge, which now obtains all over the continent and in England. One would imagine that even the greater facility in getting patterns and drawings for locomotives and cars would have been sufficient reason for a wider or narrower standard. The value of easy grades and their development in mountain country was already understood in America, but the Sao Paulo, confronted with a 2,700 ft. rise, tackled it with a 10% grade, and this being much too heavy for adhesion, used wire rope traction. It afterwards built an entirely new road with 8% grade and still adhered to the wire rope and the 5 ft. 3 in. gauge. The traffic is now notoriously congested, and as a relief it proposes to reopen the old line in addition!! Another proposition is to use the rack system. The cost of this experiment in railroading is something fabulous. The average of the whole road of 90 miles is $17,000 a mile, and as the balance is quite normal this mountain section of 8 miles must have cost, at least, $250,000. It has several tunnels and viaducts, and enormous retaining walls, magnificent and costly construction of all kinds, but as the sole outlet to the sea for a rich country of 3,500,000 population it seems to be rather ridiculous. Even the fast trains, which run 60 miles an hour on the very good track of the balance of the line, take two hours or more to cover the 50 miles from Sao Paulo to Santos, quite sufficient for double the distance on a line of normal type. One speciality about the situation is that the Sao Paulo is quite proud of itself, and advertises its scenery and its construction in a very well illustrated pamphlet, but I have searched in vain through this artistic publication for any reference to its economics, what it cost, or what it charges a ton for freight, or what dividends it pays its shareholders. The good people of Sao Paulo are somewhat curious to know the truth about these matters, meantime it has been left to the Brazilian people, and a Brazilian engineer, to show that a line of normal type and construction and moderate grade could be obtained up this same coast range, farther to the south, and

the Parana Railway is the result. The Parana is not only one of the scenic roads of the world, but it maintains a good service and Brazil found both the capital and the brains to build it.

I have already said that I believe the choice of a narrow gauge to have been on the whole a wise one. The railways have fulfilled their purpose of development extremely well, and at a cost which has not bankrupted the country, or even got it into financial difficulties. On the contrary, they are, on the whole, yielding good returns. The Paulista is paying 10% dividends, the Moggana 6½%, and the St. Paula-Coyar, 8½%. Few, if any, are not earning a good margin over their operating expenses. It is rather hard, however, to understand why the wide gauge should have been chosen instead of 3½ ft., which is the standard of most of the other South American republics, and to which several thousands of miles have been built. Brazil is Portuguese, all the others are Spanish, and this is probably the reason, but inasmuch as the systems are reaching out from opposite coasts to meet one another, it seems rather a pity that a friendly conference could not have settled upon the uniformity which must almost of necessity ultimately obtain. The obstinate retention of the 5 ft. 3 in. gauge by the Sao Paulo has forced the same standard upon the Paulista and the Central, both of which use the Sao Paulo's terminal station. The widening of the Paulista's gauge has cost a considerable amount in itself, for new rolling stock, extra clearances, etc., and it did not always seem advisable to make these improvements on the original line, which embodied the sharp curvature which generally forms a feature of narrow gauge construction. Reconstruction for a great many miles followed, involving still more expenditure. If these several expenditures had solved the problem, and avoided the transhipment altogether, it would probably have been well worth while, but it has not, and will not do so, it merely adds a few more miles of the abnormally wide gauge, which is only a minor factor in Brazilian development, and cannot possibly become standard for the whole of South America. It is, to my mind, therefore, very doubtful whether the expenditures are justifiable.

Rates in Brazil are practically left to the law of supply and demand to determine. If the shipper does not like them he can send his goods by mule train or in some cases by steamship. The general principle laid down is that capital is entitled to a fair return, and that until a new line earns 12% its rates shall not be interfered with. When it exceeds this it must lower its rates, until it earns 6% it is free from taxation. The application of this principle has led to abuses and evasions. Human nature is fallible, but on the whole it seems to have worked out better than our own over interference and super control by boards and commissions. In matters of public safety and convenience the state does exercise control, but Brazil feels that it needs capital and that the only way to secure it is to be liberal and fair towards it, and not to frighten it away by unnecessary restrictions and confiscations. Railway rates are high in Brazil, but they are finite and determinable. In the north we pay so much per mile or per ton mile and we used to boast that it was less than anyone else in the world paid. Now we don't boast, we pay higher rates than we did and then have to pay still more, a great deal more, in the form of taxes, because the railways cannot exist on these rates. The man who does not use this railway is made to pay for the one who does. Surely this is all wrong and inconsistent and Brazil's principle is the more logical one. "If you charge too much you will get insufficient business to keep your line going and someone will be induced to step in and take your business from you. If you charge too little you will not be able to pay expenses and we shall be obliged to step in and run your road for you, which we do not want to do. Your best interest is identical with that of the storekeeper or merchant, to charge so much as will give you a fair return upon your investment and no more." Rates are high in Brazil, simply because the lines have been built as development roads, on the cheapest locations possible to find, and with comparatively cheap construction. Grades are steep, and curves are sharp, and, as a consequence, train loads are light and maintenance charges high. I believe that the time has come when higher standards and greater expenditures are permissible and that the growing density of traffic will render them also profitable, as supplementing the cheaper branch lines of light traffic, and relieving them of the long hauls. A generation ago we understood and accepted this principle, of small beginnings and gradual expansion and improvement. The Canadian Pacific was built on precisely these lines and was a notable success. In more recent days we have acquired the idea that because it has been a success, and because it has gradually improved its line, that therefore a line built to the highest standard in the first place must necessarily be a greater success. The ordinary voter has very little idea of interest charges, or the extraordinary way in which they mount up in a term of years. He has very little idea of the way in which traffic grows from very small beginnings, and has to be nursed and fostered, and yet there are few voters who do not think that they know all about the railway question, or if they do not, that the lawyers they elect to represent them must surely do so. Railroading is one of the many subjects of which a little learning is a dangerous thing.

In Brazil the voter pretends to little knowledge, and even the politician to not a great deal, but there are statesmen in Brazil, men who believe in their country and its wonderful resources. They have encouraged immigration, they have encouraged investment, and treated both in a liberal spirit. The results show that mistakes have been made, that money has been imprudently spent in some cases, that there has been sharp practice or worse, but on the whole the results have been eminently good, the development has been effected, the industries have been started, and are prospering. The State of Sao Paulo shows a growth such as few countries have experienced, and the railways are not loaded down with debt such as bids fair to cripple some of our own.

Railway Time Service.

By H. Hulatt, Manager of Telegraphs, Grand Trunk Railway.

In recent years by far the greater proportion of the railways in Canada and the United States have spent large sums of money on safety first work, with a view not only to educate their own officers and employes in the principles of safety, but, also the public, and their work in this connection, due to the publicity necessary to ensure success, is well known.

The time service department, although it can proudly claim to be the pioneer safety first department of all railways, can also undoubtedly lay claim to the dubious distinction that it is one of the least known departments, and the importance of its work is less appreciated, not only by the public, but, very often, by the rank and file of a railway. There is an old saying that "Efficiency is the conservation of time," and in no branch of human endeavor does correct time occupy such an important place as in the operation of a railway, in connection with which a difference of only a few seconds may result in the injury and possible death of employes and passengers.

Years ago, when operating conditions on railways were less strenuous, and trains did not travel at such fast speeds, little or no effort was made to ensure that those responsible for the movement of trains had equipped themselves with reliable watches; in fact, it was not uncommon for the only timepiece on a train to be an alarm clock hung up beside the locomotive man at his seat. Frequently if the train crew were not sure of the time, they would go on to a siding, and send the fireman over to a farm house to find out what the time was.

This condition of affairs continued until the inevitable happened, namely, serious wrecks, and heavy loss of life, and the origin of watch inspection may be said to date back to sometime between 1890 and 1895, as the result of a serious wreck to a mail train on a prominent eastern railway in the United States, causing several deaths, and to an equally serious wreck on a Pacific coast road, both wrecks being found, after investigation, to be due to defective timepieces. As a result of the investigation as to the cause of the wreck on the eastern road, an expert watchmaker was called upon to make a thorough examination of watches carried by locomotive men and conductors on the road in question. It has been the writer's privilege to peruse a copy of the report submitted, and to the railway men of today, it would seem impossible that conditions as disclosed could possibly have prevailed; suffice it to say that several locomotive men were found running with cheap watches which an enterprising tailor gave away with every suit of clothes bought from him. The outcome of the examination made was the inauguration of a system of watch inspection, the lead of the road referred to being more or less promptly followed by practically all the railways in North America.

In Canada, both the C.P.R. and the G.T.R. have maintained for many years their own time service departments, un-

der the supervision of officers employed directly by them, and while the details of their respective regulations differ one from another, and also from those in effect in the U.S., fundamentally they are the same, the object of such departments, to maintain correct time, and safe watches, always being their predominant thought.

As a result of the inauguration of a time service system, it was clearly demonstrated that not only was it necessary to set standards as to makes and grades of watches employes engaged in the operation of trains should be allowed to carry, but, what was far more important, to improve the grades of watches then manufactured for railway purposes in America. At that time very few, if any, U.S. watches were what is known as "lever set," although such type of watch had been developed by the Swiss. Practically all U.S. watches were "pendant set," i.e., to set the hands you simply pull up the pendant, whereas in the "lever set" you are obliged first to pull out the lever and then turn the pendant, and it is not possible to close the watch without first putting back the lever. Such a safeguard as this would have prevented the wreck on the Pacific coast road mentioned above, investigation in connection with which developed that the locomotive man who carried a pendant set watch, had set his watch some hours before, and failed to press down the pendant, resulting in his watch being awry. When the collision occurred, he fortunately saved his life by jumping, but, his watch was one hour wrong.

The best of U.S. watches in those days were only built to a specification calling for 15 jewels, adjustment to heat and cold, single roller escapement. Today, due to the work of the various time service experts, and to the hearty co-operation of the manufacturers, the minimum specification for a new standard watch allowed to be carried by the train crew of any railway is:—16 or 18 size, 17 jewels, adjusted to 5 positions, temperature, and isochronism, lever set, double roller escapment, brequet hair spring, and an extreme range not exceeding 30 seconds a week. As an additional factor of safety it is specified that all watches must have plain Arabic standard dials, open faced cases, and wind at the figure 12. Furthermore, all watch movements must have clearly stamped thereon the manufacturer's name. Generally speaking, the products of about 13 standard manufacturers comply with the above specifications, giving employes a choice of between 115 and 120 different grades of watches. The above clearly indicates, as a result of the inauguration of watch inspection regulations, the tremendous improvement in the standard of watch permitted in railway work, and consequent decrease in hazard.

When a man now enters the service, either as a trainmaster, road foreman of locomotives, supervisor of track, supervisor of bridges and buildings, conductor, locomotive men, firemen, locomotive motorman, train baggageman, brakeman, yardmaster, yard foreman, and, on some roads, switchman, before being eligible for duty he must submit his watch to a properly appointed inspector for approval, and have, for the company's records, a certificate duly filled in. If the watch carried is rejected, it is necessary that he immediately provide himself with a watch complying with minimum standard, or better. Further, he is required thereafter to present his watch once a week, on some roads, and once a fortnight on others, to an inspector, for comparison with standard time. It is also the rule that all watches must be cleaned, on some roads once every 15 months, and on others once every 18 months, and that the men must secure from the watchmaker a loan watch coming up to the minimum specification, to carry while their own watches are being repaired or cleaned.

Every man coming under watch inspection regulations is called upon to carry a rating card while on duty, which clearly indicates the history of his watch, and as to whether or not he has complied with requirements. In order to avoid hardship to new men entering service, most companies permit their watch inspectors to sell watches to employes on the instalment plan, the inspectors sending deduction orders to the railway, and the latter protecting the amounts by deductions from monthly pay rolls as called for on the order.

In addition to ensuring that men carry correct watch the railways have also undertaken the proper supervision of their own clocks. All offices in which train dispatchers are located are equipped with most accurate standard regulator clocks, which are under the constant supervision of the local watch inspector, a rating card indicating their daily performance being filled in, and forwarded to the head of the time service department monthly. Similarly, care is exercised to see that reliable clocks are installed in stations, and that all clocks are kept properly repaired and cleaned.

On all railways standard time signals are transmitted over telegraph circuits every morning, usually from some properly equipped observatory. When such signals are going over the wire, it is prohibited for any telegraph operator to attempt to "break" them. Their receipt has to be acknowledged by all dispatching offices.

Stories by Railway Officials.

Grant Hall, Vice President, C.P.R., F. L. Wanklyn, General Executive Assistant, C.P.R., and J. H. Walsh, General Manager, Quebec, Central Ry., in addressing the New England Railroad Club in Boston, Mass., recently, told the following stories:—

Grant Hall:—"I was going down one of the lakes in British Columbia on one of our steamboats, and from the deck when she touched at one place I happened to look over and saw on a shop the sign, 'C.P.R. Barber Shop. Cut Rates.' So I said to the General Superintendent, 'Well, it is a little bit of a shock, you know. Nobody has any right to use those letters except the Canadian Pacific Railway, and unless we are running that barber shop, I think we ought to ask him to get another sign.' He got the name of the barber, and wrote to him. It was an Irishman that wrote him back, and the letter was written in language that I can hardly imitate. The Irishman said that he had received our letter. He said that he knowed the C.P.R. owned all the railroads, all the steamboats, most of the good lands, but it was the first time that he had ever heard that they owned every damned letter in the alphabet. And he added 'I want you to understand further, gentlemen, that that stands for something a good deal better than the Canadian Pacific Railway; that is the initials of my old mother in Ireland, Clarissa Patricia Reardon, and what are you going to do about it?' He said 'I notice that you did not say anything about cut rates. You have not been doing anything like that yourselves round here.' We did not interfere with the sign."

F. L. Wanklyn:—"I happened to be fishing on a salmon river that runs into the Bay de Chaleur in Bonaventure County. I had a good many friends there, most of them from St. John, N.B. Before breaking up the camp it was the custom to invite the local member to supper. He drove down there over most awful roads, red clay up to the hubs, and down a most frightfully steep bank from the upper plateau down to the river bottom, in a Ford car with his daughter. He was very pleased indeed to be with us as a guest of the president of the club. We were talking about the marvelous wonders of the Province of Quebec, its wonderful rivers, and its wonderful forests, and its wonderful natural resources and everything else, and finally it hinged on the population. He said, 'I will tell you something, gentlemen. I had the pleasure a few evenings ago of sitting down with a family, the father and the mother and 25 living children, every single one of them alive and well and sitting at their father's table.' He said, 'The little mother was a bright little body, smiling and happy. I said to her, 'Madam, isn't it an awful burden to bring so many people into the world?' She said 'No, Monsieur, not at all. My great difficulty was to catch them, to put them to bed.'"

J. H. Walsh:—"In addition to the great prosperity of the Quebec district, the railway employes are also a happy, contented and prosperous class. Only a short time ago, when making a regular line inspection, I met the wife of one of our French-Canadian agents and she was delighted to tell me that she was the mother of 14 children. This, however, is nothing exceptional in Quebec; one of our foremen of a section adjoining this station is the father of 18 and another foreman quite close has 21, so you see we are progressive in that direction also. I was much amused when this little French-Canadian mother said to me in very good English, 'Mr. Walsh, every night when I am saying prayers with my children, I always tell them to say, 'God bless McAdoo.'"

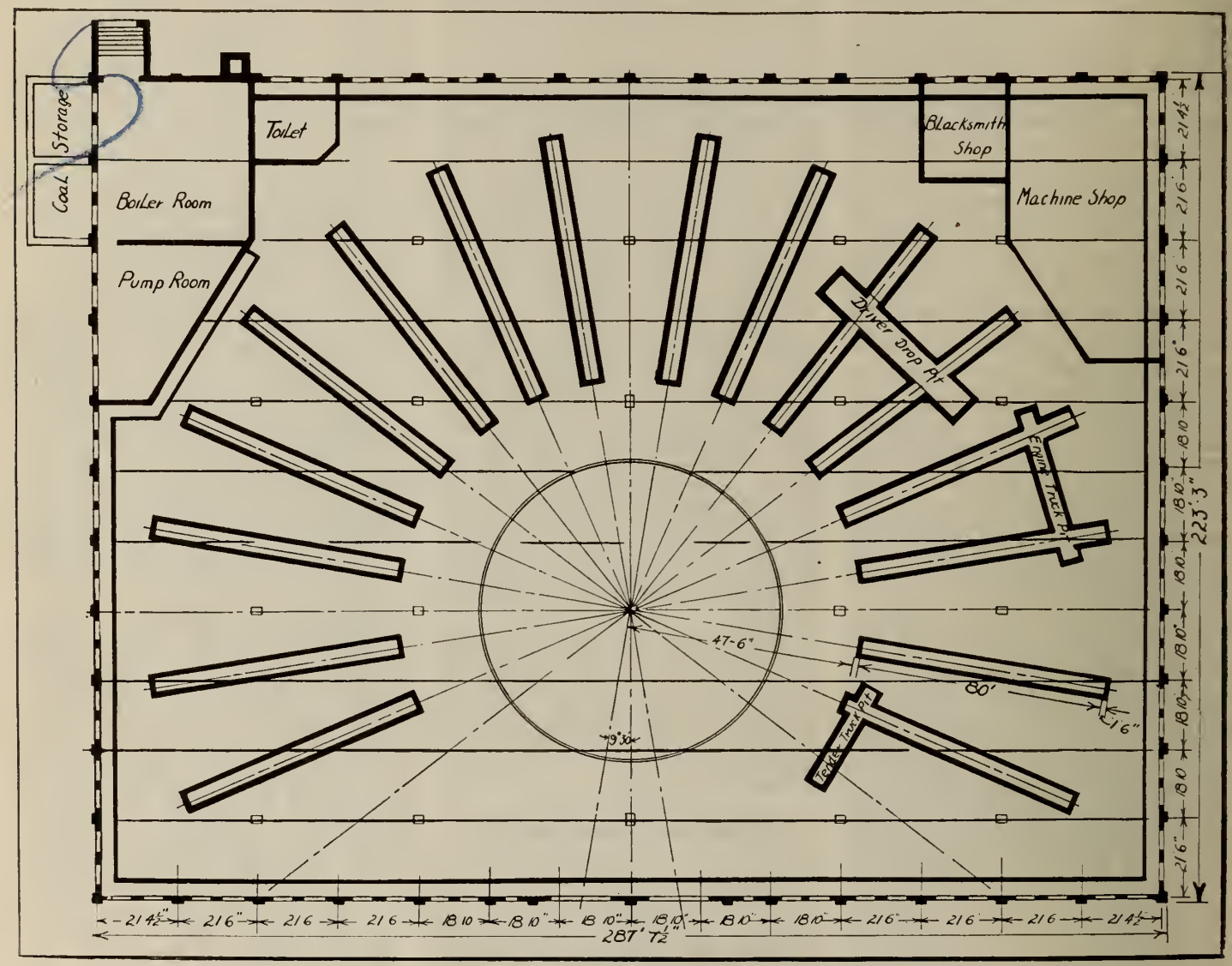
A Railway Manager's Libel Suit. — A. B. Buckworth, General Manager, Pacific Great Eastern Ry., issued a writ in the British Columbia High Court recently against the Vancouver Sun and its publisher, to recover damages for alleged libel. The statements complained of were contained in articles charging that Mr. Buckworth had granted preferential rates on potatoes to a private firm in Vancouver, a representative of which travelled over the line in the General Manager's official car, and that Mr. Buckworth accompanied him in interviewing settlers. The Premier of British Columbia, who is also Minister of Railways, is reported to have stated that the United Farmers of British Columbia, meeting at Egerton, on the P.G.E. Ry., on March 26 asked for a special rate on potatoes to Vancouver, and after consultation with Mr. Buckworth, a special rate was authorized on April 8, and kept in force until May 31.

The Board of Railway Commissioners will not hold any regular sittings during August, the next date fixed being Sept. 13, at Ottawa.

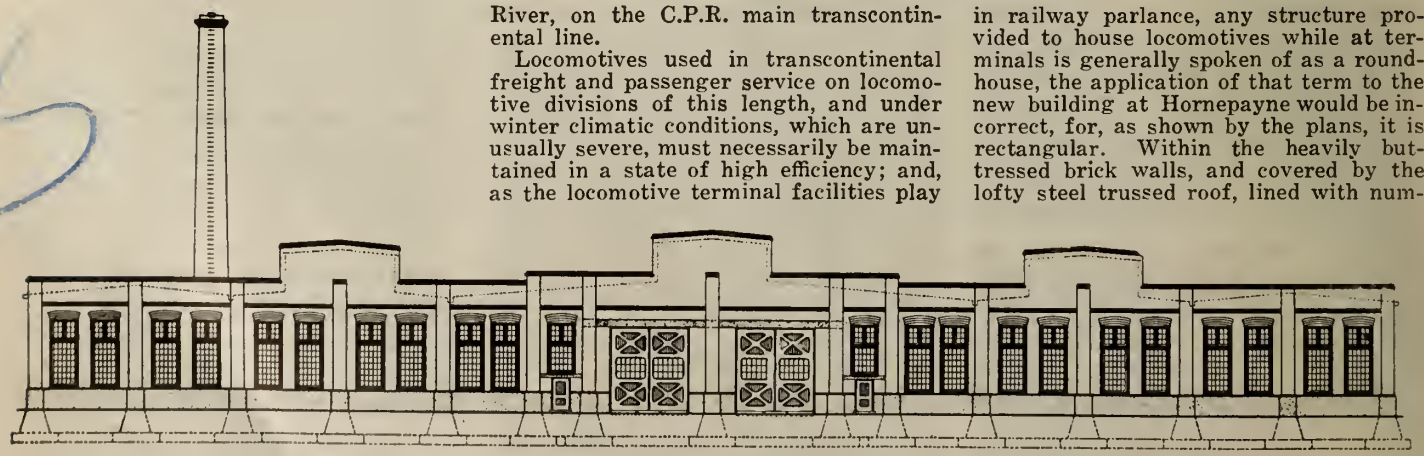
Locomotive House at Hornepayne, Canadian National Railways.

Hornepayne is an important division point on the Canadian Northern Ry., 721 miles west of Montreal on the main transcontinental line running via Port Arthur. Locomotives working out of Hornepayne have a 148 mile division eastbound to Foleyet and a 150 mile division westbound to Jellicoe, Foleyet and Jellicoe being turn-around points. The Algoma Central & Hudson Bay Ry. crosses the Canadian Northern 38 miles east of Hornepayne, at Oba, and Hornepayne is almost due north of White River, on the C.P.R. main transcontinental line.

Locomotives used in transcontinental freight and passenger service on locomotive divisions of this length, and under winter climatic conditions, which are unusually severe, must necessarily be maintained in a state of high efficiency; and, as the locomotive terminal facilities play an important part in this maintenance work, it is necessary that the locomotive terminal at an important divisional point such as Hornepayne be fully modern and suited to existing conditions. A locomotive house designed to meet these conditions has recently been built there; the front and side elevations and plan of which are illustrated herewith. While, in railway parlance, any structure provided to house locomotives while at terminals is generally spoken of as a roundhouse, the application of that term to the new building at Hornepayne would be incorrect, for, as shown by the plans, it is rectangular. Within the heavily buttressed brick walls, and covered by the lofty steel trussed roof, lined with numerous monitors, is an 80 ft. turntable, made by Canadian Bridge Co. and operated by a Taylor & Arnold Engineering Co.'s tractor, 16 locomotive stalls, machine shop, blacksmith shop, boiler room,



Ground plan, Locomotive House, Canadian National Railways, Hornepayne, Ont.



Front Elevation, Locomotive House, Canadian National Railways, Hornepayne, Ont.

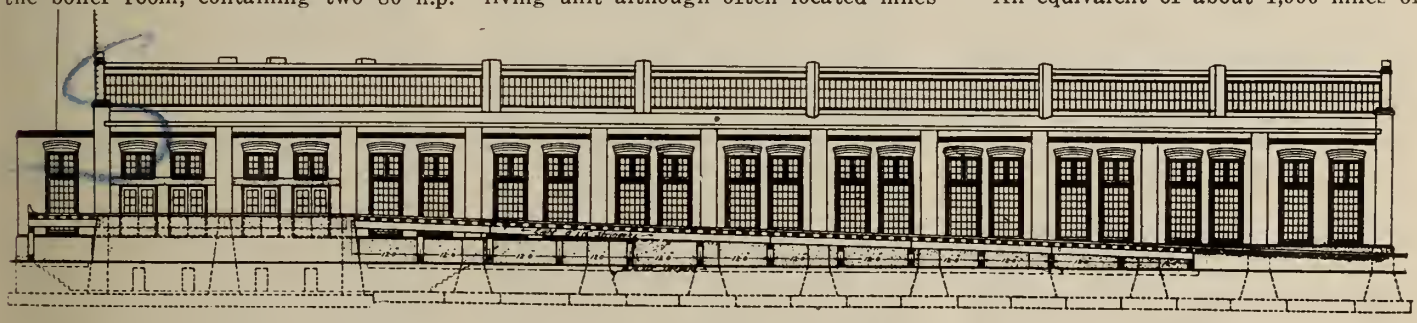
pump room, locomotive supply room, general office, locomotive foreman's office, and men's registering office.

The pits are of modern concrete construction, and are provided with drainage to prevent any possibility of accumulation of water in them. Drop pits are provided for driving wheels, locomotive truck wheels and tender truck wheels. The pits are 80 ft. long, inside.

The number of steel columns supporting the roof trusses has been kept to a minimum, there being only 19 in the whole building, which covers an area of 1½ acres.

Heating is provided by steam coils in the pits, and around the walls, the steam being piped from the boiler room, and the house is fitted in accordance with latest improvements, with lines for steam, water and compressed air. The smoke jacks are of wood, and were made by the company's own forces. Ample lighting is provided by roof monitors, and by large windows in the walls, the interior of the house being much better lighted than is usually the case, this constituting a great advantage in carrying out locomotive repairs. Artificial illumination is by electricity.

The blacksmith shop, fitted up so as to be able to take care of any work arising in connection with running repairs, and the machine shop, equipped with lathes, drills, etc., are adjacent to each other on one side of the building, and the boiler room, containing two 80 h.p. locomotive type boilers, and the pump room, containing air compressors, water forcing pumps, dynamo, etc., are together on the opposite side. Adequate coal storage space is provided in connection with the boiler room.



Side Elevation, Locomotive House, Canadian National Railways, Hornepayne, Ont.

This new locomotive house, in connection with a modern ash and cinder handling plant, coaling plant, standard metal heated water tank, and a well laid out system of incoming and outgoing tracks, furnishes this divisional point with locomotive terminal handling and maintenance facilities that are adequate in every way. Facilities with which to carry on operations must of necessity exert a great influence on locomotive maintenance, and on the degree of efficiency shown by the mechanical department in meeting the demands of the transportation department. This new locomotive house has been built to provide good facilities, to the end that maintenance may be carried on under favorable conditions in a territory with a severe climate, and that all running repairs may be made efficiently and economically. The number of road locomotives dispatched out of this terminal in January of this year was 276.

The building was designed by G. C. Briggs, then Architect, Eastern Lines, now Architect, Western Lines, Canadian National Rys., and built by the company's own forces.

Maintenance Work, Kenora Division, Canadian Pacific Railway.

The C.P.R.'s Kenora Division comprises a double track line of railway 419.3 miles long between Fort William and Winnipeg. It is the throat through which passes a large part of the traffic of the C.P.R. Western Lines en route to the lake ports and the east. A busy section of track at all times, it is at certain times under extreme traffic pressure, especially during the grain movement in the autumn. Like other track in Canada, it has to endure severe climatic changes and for about six months in every year, due to winter conditions, to remain practically untouched as far as ordinary maintenance is concerned. The maintenance of an entire year has therefore to be compressed into seven months or less of working time.

Much of the necessary work of keeping the line in shape is done by the company's regular forces, that is the section gangs. Additional work during the summer is done by so-called extra gangs and it is this latter work which is hereinafter described. These gangs, ranging in size from 6 to 100 men, are housed in outfit cars, consisting in general of foreman's car, tool car, cook and store car, diners and sleepers, the entire string being set out at some point near the work, and representing a complete working and living unit although often located miles from the nearest town or even telegraph station.

Some idea of the variety of things which these gangs are called upon to do will be gained from a partial list of things done by them during 1918, 1919 and 1920:—Applying tie plates, ballasting, bank widening, changing switches, cleaning out old ditches, cleaning up station grounds, constructing concrete culverts, constructing new passing tracks, constructing turntable foundations, constructing water tank foundations and water tanks, ditching, driving foundation piles, fencing, fighting brush fires, grading, lining track, loading coal, loading and unloading cinders, loading and unloading new and second hand steel, moving water tanks, opening new gravel pit and constructing three miles of railroad from the mainline, operating old gravel pits, painting, rail renewal, renewal of ties, surfacing, tie loading.

While the shortage of labor in the last three years is generally known, its acuteness so far as railway maintenance work is concerned is not perhaps wholly recognized. The shortage has been due to several causes, mostly connect with the war. The principal ones have been stoppage of immigration, higher wages in the war industries than in railway work, ability due to high wages to change work or stop work at will, and, since the end of the war, drift back to the countries from which the laborer originated. The principal problem on this work was therefore to obtain and to retain common labor. Intensive methods were used, which in general produced results. If one did not suit another was tried until results were obtained. A special effort was made to see that labor once obtained had no cause for complaint so far as working conditions were concerned. Close watch was kept on board, camp sanitation, condition of cars and general health of men. Interpreters made periodic inspections to remove so far as possible legitimate causes for complaint, and, if not possible, to see that complaints of whatever nature were given prompt attention.

Special methods were used in conducting the actual work. As an instance, tie renewals, which were an important item, were ultimately made very largely by contract, at a specified price per tie, instead of by day wages. An increase in tie output per man per day of from 50 to 100% followed. Some 600,000 ties were placed, of which 65% were placed by contract method. Ditching was done in a somewhat similar manner. A total of about 25 miles of new ditch was dug, and water, the great enemy of good track, was drained off to nearby lakes and streams.

An equivalent of about 1,000 miles of single track line was surfaced and generally overhauled. About 175 miles of new steel was laid and the old steel loaded and shipped out for branch line and other use. 325,000 cu. yds. of material were dug from pits and used for filling, ballasting and bank widening, much of it in 1920. Jobs somewhat out of the ordinary were done, such as moving a water tank at Pine. The tank measured about 33 ft. high and 24 ft. in diameter, and weighed about 55 tons. After jacking it up rollers were inserted, and, with heavy tackle and a Lidgerwood engine, the entire tank was moved on to the tracks and 1,000 ft. west

The foregoing is reproduced from Engineering and Construction Notes, issued by Sydney E. Junkins Co., Winnipeg and Vancouver, who were the contractors, on a cost plus basis. This applied to track work only, and any train service required in connection with ballasting, etc., was excluded from the terms of the contract. The C.P.R. gave a similar contract on certain other divisions, for the replacement and renewal of ties. It is not the intention to do maintenance work this year, on a similar basis, as labor conditions now approximate more nearly to normal.

British Columbia expects to ship 500,000 car loads of apples, containing 3,750,000 boxes, this year.

Mainly About Railway People Throughout Canada.

J. B. Boucher, who died at Ottawa, Ont., July 16, aged 71, was several years ago a member of the contracting firm of Keatings, Bigga, Wilson & Boucher, and built a number of bridges on the Canada Atlantic Ry., now part of the G.T.R.

Edward Greig Bowie, who has been appointed Master Mechanic, Schreiber Division, Algoma District, C.P.R., Scheiber, Ont., was born at Winnipeg, Aug. 20, 1892, and entered C.P.R. service in May, 1907, since when he has been, to Aug. 1912, machinist apprentice, Winnipeg; May 1912 to Sept. 1914, machinest, Winnipeg, and on Western Lines; Oct. 1914 to Apr. 1915, Master Mechanic's clerk, Calgary, Alta.; Apr. to July 1915, machinist, Angus shops, Montreal; July to Oct., 1915, dynamometer car operator, Eastern Lines; Oct. 1915 to Apr. 1915, Assistant Locomotive Foreman, Ottawa; Apr. to Nov., 1916, Assistant Foreman and Locomotive Foreman, Outremont, Que.; Nov. 1916 to May 1917, Locomotive Foreman, Sherbrooke, Que.; May 1917 to June 1918, Locomotive Foreman, Smiths Falls, Ont.; June 1918 to Apr. 24, 1920, General Foreman, McAdam Jct., N.B.; Apr. 24, 1920 to July 19, 1921, Master Mechanic, Brownville Division, New Brunswick District, Brownville Jct., Me.

E. H. Bronson, of the Bronson Co., Ottawa, Ont., who died there, Oct. 19, 1920, left an estate valued at $1,029,912.17, to his widow, daughter and son. He was interested in several railway and other transportation projects, including the Des Quinze & Blanche River Ry.

C. B. Brown, Engineering Assistant, Canadian National Rys., Toronto, became ill, while on an inspection trip with S. J. Hungerford, Vice President, Operation and Maintenance, towards the end of June, and on returning to Toronto was confined to his house for some little time, with a severe attack of mumps. He left Toroto about the middle of July, for Bathurst, N.B., to recuperate.

Sir George McLaren Brown, K.B.E., European General Manager, C.P.R., has been elected Past Grand Master of the Grand Lodge of Canada, A.F. and A.M., in recognition of his services to members of the order during the war.

W. W. Butler, President, Canadian Car & Foundry Co., has returned to Montreal, with Mrs. Butler, after spending several months in Europe.

James L. Cooke, whose appointment as Canadian Freight Agent, Pennsylvania Rd., Toronto, was announced in our last issue, was born at White Lake, Mich., April 11, 1875, and entered railway service March 1, 1899, since when he has been, to Sept. 30, 1902, clerk, Northern Central Ry., Rochester, N.Y.; Oct. 1, 1902 to Apr. 1, 1905, chief clerk, same road, Buffalo, N.Y.; Apr. 1, 1905 to Aug. 14, 1907, soliciting freight agent, Pennsylvania Rd., Buffalo, N.Y.; Aug. 15, 1907 to Apr. 21, 1910, Travelling Freight Agent, Eastern & Southern Despatch (P. Rd.), Rohester, N.Y.; Apr. 22, 1910 to Dec. 31, 1915, Soliciting Freight Agent, Erie & Western Transportation Co., Buffalo, N.Y.; Jan. 1 to Feb. 28, 1916, Soliciting Freight Agent, Pennsylvania Rd., Buffalo, N.Y.; March 1, 1916 to Aug. 15, 1918, representative, same road, Rochester, N.Y.; Aug. 16, 1918 to May 31, 1921, representative, same road, Buffalo, N.Y.

Frank Heywood Daly, who has been appointed City Passenger Agent, C.P.R., Vancouver, B.C., was born in England, Oct. 7, 1889, and entered C.P.R. service June 1, 1909, since when he has been, to May 14, 1910, ticket clerk; May 15, 1910 to June 1, 1911, advertising and refund clerk; June 1, 1911 to June 1, 1921, Travelling Passenger Agent, all at Vancouver, B.C.

J. L. Englehart, formerly Chairman, Timiskaming & Northern Ontario Ry. Commission, who died at Toronto, Apr. 6, left an estate valued at $2,056,805, which includes 2,070 shares in Imperial Oil Ltd. After a number of charitable bequests, the estate is divided between numerous relatives of himself and his wife, who died a few years ago. The hospitals benefitted by the distribution are, the Charlotte E. Englehart Memorial Hospital, Petrolea; Hospital for Sick Children, Women's College Hospital, Hospital of St. John the Divine, Toronto, and hospitals at North Bay, Cobalt, Haileybury, Liskeard, Englehart, Matheson and Cochrane, Ont., provided the different municipalities maintain such hospitals within two years of his death.

Max Enos, Representative, Bureau of Canadian Information, C.P.R., New York, was married at South Norwalk, Conn., July 7, to Miss K. Lemcke.

John T. B. Foote, whose appointment as Manager, Prince Edward Hotel, Canadian National Rys., Brandon, Man., was announced in our last issue, was born at Quebec, Que., July 17, 1878, and entered railway hotel service in June 1911, since when he has been, to Apr. 1912, night clerk, Prince Arthur Hotel, Canadian Northern Ry., Port Arthur, Ont.; Apr. 1912 to Dec. 1913, day clerk, Prince Edward Hotel, same road, Brandon, Man.; Jan. 1914 to May 1921, day clerk, chief clerk and Assistant Manager, consecutively, Fort Garry Hotel, Grand Trunk Pacific Ry., Winnipeg.

R. J. Guthrie, dispatcher, G.T.R., Allandale, Ont., was drowned July 22, while fishing from a small boat at Washaga Beach.

E. Handcock, who has retired as Auditor of Passenger Receipts, C.P.R., Montreal, after 30 years service, was the recipient of a presentation by the office staff, July 5.

William D. Hannah, who died at Montreal, July 1, after an illness of 10 days, was born at Newton Stewart, Scotland, Sept. 1, 1844, and entered G.T.R. service Nov. 9, 1881, since when he had been, to Apr. 1, 1882, assistant agent, Toronto; Apr. 1 to Dec. 31, 1882, night yardmaster, Toronto; Dec. 21, 1882 to Jan. 1, 1887, inspector, Montreal; Jan. 1 to May 1, 1887, agent, Bonaventure station, Montreal; May 1 to Aug. 18, 1887, General Inspector, Montreal; Feb. 1, 1907 to Nov. 1, 1912, Coal Inspector, Montreal, and from Aug. 1, 1913 to Jan. 31, 1920, when he retired on superannuation, Fuel Inspector, Montreal.

Harold E. Heal, whose appointment as Canadian Passenger Agent, Pennsylvania Rd., Toronto, was announced in our last issue, was born at Bowmanville, Ont., Dec. 17, 1891, and entered transportation service in April 1908, since when he has been, to July 1908, clerk, C.P.R., Toronto; July 1908 to April 1912, ticket clerk, C.P.R., Toronto; May 1912 to May 1916, clerk, Pennsylvania Rd., Toronto; May 1916 to May 1919, in military service overseas; Dec. 1919 to June 1920, ticket clerk, C.P.R., Toronto; Aug. 1920 to May 1921, clerk, Canadian Customs, Toronto.

Sir Herbert Holt, one of the C.P.R. directors, sailed from Quebec, by the s.s. Empress of Britain, on July 5, to join Lady Holt, who has been in Europe for some time.

Miss Jessie Hutchinson, daughter of Col. J. Alex. Hutchinson, C.B.E., M.D., Chief Medical Officer, G.T.R., Montreal, is announced to be engaged to Major E. F. Newcombe, son of the Deputy Minister of Justice, Ottawa.

Q. B. Lawson, of Campbellton, N.B., who is mentioned in a press dispatch as having been a Canadian National Rys. special agent, was killed at Glen Emma, Que., 28.67 miles west of Campbellton, on July 23, in a rear end collision between two sections of a freight train. Special Agent F. B. Floyd, of Moncton, was injured.

H. E. MacDonnell, Assistant Freight Traffic Manager, C.P.R., Montreal, who was given leave of absence recently, on account of illness, has left Montreal, with Mrs. MacDonnell, to spend some time in Europe.

Sir William Mackenzie is in England.

A. H. Middleton, Car Foreman, Canadian National Rys., Jellicoe, Ont., was drowned while bathing there, July 9.

A. J. Mitchell, Vice President, Finance and Accounts, Canadian National Rys., Toronto, sailed from Quebec, by the s.s. Empress of France, on July 19, for England, expecting to return about the end of August.

D'Arcy Boulton Niblock, whose appointment as Special Ticket Auditor, Canadian National Rys., Toronto, was announced in our last issue, was born at Point Edward, Ont., March 1, 1875, and entered transportation service in Feb. 1892, since when he has been, to May 1894, billing clerk, C.P.R., Winnipeg; May 1894 to Sept. 1896, billing clerk, C.P.R., Calgary, Alta.; Sept. to Nov. 1896, agent, C.P.R., Golden, B.C.; Nov. 1896 to Apr. 1897, assistant agent and agent, C.P.R., Medicine Hat, Alta.; Apr. to Dec. 1897, chief billing clerk, C.P.R., Fort William, Ont.; Dec. 1897 to March 1898, night agent, C.P.R., Calgary, Alta.; March 1898 to Jan. 1901, ticket clerk, C.P.R., Alta.; March 1898 to Jan. 1901, ticket clerk, C.P.R., Brandon, Man.; Jan. 1901 to March 1906, ticket agent, C.P.R., Calgary, Alta.; March 1906 to Nov. 1909, Manager, Steamship Department, Ellis & Grogan, Calgary, Alta.; Nov. 1909 to Dec. 1914, President and Manager, Niblock & Bull Ltd., general steamship agents and city agents, Grand Trunk Pacific Ry., Calgary, Alta. From Dec. 1914 to Nov. 1917 he was in military service with the 50th Battalion from Calgary and held the rank of Captain, and from April 1918 to Oct. 1920 he was Manager and Secretary-Treasurer of the Peerless Rubber Co., Toronto. He is a son of John Niblock, who was the first passenger conductor on the C.P.R. between Emerson and Winnipeg, and afterwards Superintendent, C.P.R., at Medicine Hat and Calgary from 1887 to 1912, when he retired and went to British Columbia, dying there in 1914.

W Stapleton, District Freight and Passenger Agent, Canadian National Rys., Saskatoon, Sask., has returned after a visit to England.

A. F. Stewart, Chief Engineer, Canadian Government Rys., Moncton, N.B., who was operated on for appendicitis, early in June, was able to leave the Royal Victoria Hospital, Montreal, on July 22, and went to the Laurentian Mountains to recuperate.

M. F. Tompkins, General Freight Agent, Canadian National Rys., Moncton, N.B., addressed the Rotary Club there, on July 6, on freight rates.

Lem Wah, who is stated in a press report to have been Chinese interpreter and agent in New York for the C.P.R. for 33 years, has resigned and returned to China. Officials of the New York office gave him a gold ring when he left.

A. E. Warren, General Manager, Western Lines, Canadian National Rys., Winnipeg, has been elected First Exalted Loyal Knight of the Benevolent Protective Order of Elks.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners. — We are officially advised that the appointment of a Chief Traffic Officer, to succeed the late James Hardwell, will be made through the Civil Service Commission, upon the Board's application to that body. When Mr. Hardwell was appointed in 1904, by order in council, he was designated Traffic Expert to the Board, but the Board always referred to him as Chief Traffic Officer, except in the list of officials in its annual report, in which it followed the order in council's designation, viz., Traffic Expert to the Board. In the Civil Service Classification of 1919 he was classified under the designation of Supervisor of Railway Traffic.

Canadian National Rys.—R. R. BOSTWICK, heretofore draftsman, Chief Engineer's office, Moncton, N.B., has been appointed draftsman, Roadways Departmen, Engineer of Standards' office, Toronto.

C. R. DOULL, heretofore Assistant Engineer, Bridge Department, Moncton, N.B., has been appointed Assistant Engineer, Bridge Department, Engineer of Standards' office, Toronto.

A. DUNN, heretofore Chief Dispatcher, Sydney, N.S., has been appointed General Agent there, the Sydney dispatching office having been closed, and the work transferred to New Glasgow. The four train dispatchers heretofore at Sydney have been transferred to points where their seniority permitted them to relieve junior men.

J. A. ELLIS, heretofore Office Engineer, Moncton, N.B., has been appointed Assistant Engineer of Standards, in connection with Roadways Standards, reporting to the Engineer of Standards, Operation and Maintenance Department. Office, Toronto.

W. N. KENNEDY, heretofore chief draftsman, Architectural Department, Winnipeg, has been appointed chief draftsman, Architectural Department, Engineer of Standards' office, Toronto.

J. L. KEOHAN, heretofore secretary to Chief Engineer, Moncton, N.B., has been appointed chief clerk, Engineer of Standards' office, Toronto.

G. H. LAYCOCK, heretofore Locomotive Foreman, Canadian National-Grand Trunk Pacific Ry., Jasper, Alta., has been appointed Locomotive Foreman, same roads, Edmonton, Alta., vice J. E. Lewis, transferred.

J. E. LEWIS, heretofore Locomotive Foreman, Canadian National - Grand Trunk Pacific Ry., Edmonton, Alta., has been appointed Locomotive Foreman, same roads, Jasper, Alta., vice G. H. Laycock, transferred.

L. A. McKEAGE, heretofore Assistant Engineer, Bridge Department, Moncton, N.B., has been appointed Assistant Engineer, Bridge Department, Engineer of Standards' office, Toronto.

J. SCHOFIELD, formerly Architect, Western Lines, Winnipeg, was stated in our July issue as having been appointed Architect, Eastern Lines, at Toronto, this information having been furnished us officially, but erroneously. He has been appointed Architect in connection with building standards, reporting to the Engineer of Standards, Operating and Maintenance Department. Office, Toronto.

A. M. SMITH, heretofore Designing Engineer, Bridge Department, Winnipeg, has been appointed Designing Engineer, Bridge Department, Engineer of Standards' office, Toronto.

R. O. STEWART, heretofore Assistant Bridge Engineer of Standards, in connection with Bridge Standards, reporting to the Engineer of Standards, Operation and Maintenance Department. Office, Toronto.

J. S. WATSON, heretofore draftsman, Construction Department, has been appointed draftsman, Roadways Department, Engineer of Standards' office, Toronto.

J. WHITELAW, heretofore Assistant Engineer, Moncton, N.B., has been appointed Assistant Engineer, in charge of plans and records, Engineer of Standards' office, Toronto.

Canadian Pacific Ry.—J. S. ALLAN, heretofore Master Mechanic, Schreiber Division, Algoma District, Schreiber, Ont., has been appointed Master Mechanic, Brownville Division, New Brunswick District, vice E. G. Bowie, transferred to Schreiber. Office, Brownville Jct., Me.

W. BAIRD, heretofore General Passenger Agent for Europe, Liverpool, Eng., has been appointed Assistant European Passenger Manager, with office at 62 Charing Cross, London, S.W. England.

E. G. BOWIE, heretofore Master Mechanic, Brownville Division, New Brunswick District, Brownville Jct., Me., has been appointed Master Mechanic, Schreiber Division, Algoma District, vice J. S. Allan, transferred to Brownville Jct. Office, Schreiber, Ont.

F. H. DALY, heretofore Travelling Passenger Agent, has been appointed City Passenger Agent, Vancouver, B.C., and not City Ticket Agent, as stated in our last issue.

R. K. OLIVER, heretofore assistant foreman, West Toronto, Ont., has been appointed Locomotive Foreman, Kingston, Ont., vice F. W. Clarke, superannuated.

G. A. C. PHILLIPS, local agent, C.P.R. Telegraphs, Calgary, Alta., is reported to have been appointed local agent, C.P. R. Telegraphs, Winnipeg, vice J. R. Russell, transferred to Calgary.

J. R. RUSSELL, local agent, C.P.R. Telegraphs, Winnipeg, is reported to have been appointed local agent, C.P.R. Telegraphs, Calgary, Alta., vice G. A. C. Phillips, transferred to Winnipeg.

Grand Trunk Ry. — J. C. GARDEN, heretofore acting, has been appointed Superintendent, Motive Power and Car Departments, lines east of Detroit and St. Clair Rivers. Office, Montreal.

C. M. WALTON has been appointed acting Superintendent, Montreal Terminals, vice R. Gilmour, Superintendent, who has been granted leave of absence on account of illness. Office, Montreal.

Pennsylvania Rd.—H. E. HEAL, not H. E. Hall, as mentioned in our last issue, has been appointed Canadian Passenger Agent, Toronto.

The Greater Winnipeg Water District Railway's Future.

A a meeting of the Greater Winnipeg Water District adminiseration board on July 14, Mayor Parnell recommended that the railway be not abandoned, at least until the expiration on July 1, 1924, of the lease on the St. Boniface property on which the terminal stands, and that an investigation be made to learn if a revisions of the rates were possible to allow the railway to operate until business revives. It is estimated that it would cost $243,575 to remove the rails and prepare the roadbed for vehicular traffic, and that if the line is retained it would cost about $148,000 for new terminals. The deficit on opeartion for 1920 was stated to have been $54,000, but the profit to the city for the delivery of gravel was put at $35,000. No decision was reached on the matter.

Definition of Technical Railway Engineer.

The United States Interstate Commerce Commission issued regulations in Oct. 1920, placing engineers in the subordinate official class as engineers of mechanics. The American Association of Engineers, through a committee headed by C. W. Hand, Assistant to President, Chicago & Northwestern Ry., protested that the term was not clear as to whether it included mechanical and electrical engineers. The I. C. C. has now issued new regulations designating professional engineers as technical engineers to include civil, mechanical, electrical and other technical engineers inferior in rank to chief engineers of maintenance of way, division engineers and other technical engineers. The opinion is expressed that instrumentmen, rodmen, chainmen, designers, draftsmen, computers, tracers, chemists and others in similar engineering or technical work are not "officials of the carriers."

The Matheson Fire.—Two of the three commissioners who have been investigating the causes of the fire while destroyed Matheson, Ont., in 1916, have presented an interim report, in which they hold the Timiskaming & Northern Ry. responsible for some of the damage done and recommend that the compensation offered by the T. & N.O. Ry. Commission be accepted, and that further hearings be given in cases where the offers made are not accepted.

Railway Operating Revenues, Expenses and other Statistics for March.

Steam railway operating revenues, expenses and other statistics for February are given very fully on pages 403 and 404 of this issue. Since those pages went to press the statistics for March have been received and show a considerable improvement over January and February and also an improvement over March 1920. The figures given for "all railways" include all lines with an operting revenue of $500,000 a year and over, except the St. Lawrence & Adirondack.

A comparison of the figures for March 1920 and March 1921 for all railways shows that the total operating revenue increased from $35,259,846.96 to $35,-528,083.04, the total operating expenses decreased from $35,072,458.91 to $34,-333,964.24, the net operating revenue increased from $187,388.05 to $1,194,118.80 and the ratio of operating expenses to revenue decreased from 99.47% to 96.64%. The figures for Jan. 1921 were 108.0% and for February 105.1%.

The Canadian Government Rys. operating revenues increased from $3,344,-659.04 to $3,595,143.16, the operating expenses decreased from $4,579,923.88 to $4,538,904.24 and the operating deficit decreased from $1,235,264.84 to $943,-761.08. The Canadian Northern Ry. operating revenues increased from $4,892,-576.73 to $5,812,789.67, the operating expenses increased from $6,173,464 to $6,-746,912.06, and the operating deficit decreased from $1,280,887.27. The Canadian Pacific operating revenues decreased from $16,004,399.92 to $14,882,592.55, the operating expenses decreased from $14,067,498.71 to $12,449,504.57 and the net operating revenue increased from $1,936,301.21 to $2,434,087.98. The Grand Trunk operating revenues increased from $5,792,417.03 to $6,271,920.55, the operating expenses increased from $5,303,-557.88 to $5,584,720.39 and the net operating revenue increased from $398,859.15 to $687,200.16. The Grand Trunk Pacific operating revenue decreased from $1,-038,475.50 to $1,007,499.04, the operating expenses decreased from $1,694,035.69 to $1,664,227.42, and the operating deficit increased from $655,560.19 to $656.728.38. Although transportation expenses increased, maintenance of way and structures and equipment both showed sufficient decreases to make a decrease in the total. The ratio of pay roll to revenue for all lines decreased from 59% to 57.20% and the ratio of pay roll to operating expenses from 59.3% to 59.2%, indicating that men were laid off or put on short time, to an extent more than sufficient to compensate for the increased rates of wages put into operation since March 1920.

The ratio of operating expenses to revenue for all railways decreased from 99.47% to 96.64%. In January it was 108% and in February 105.1%. Following is a comparison for the principal railways:—

	1921	1920
Canadian Government—		
January	123.3	115.9
February	123.8	145.9
March	126.3	136.9
Canadian Northern—		
January	128.8	140.3
February	123.0	150.1
March	116.1	126.2
Canadian Pacific—		
January	95.5	95.2
February	93.6	94.5
March	83.6	87.9
Grand Trunk—		
January	111.3	112.2
February	99.4	115.2
March	89.0	93.1
Grand Trunk Pacific—		
January	125.8	173.1
February	184.7	175.9
March	165.2	163.1

The improvement in the C.P.R. operating ratio is particularly gratifying, and the decreases in those of the Canadian Government Rys. and Canadian Northern Ry. reflect the efforts being made by the management to promote economy in every direction. Low traffic density on the Grand Trunk Pacific prohibits the operating ratio on that road from being brought down to a proper figure, and while the present relationship as between traffic, expenses and revenues obtains, improvement in the figures for the other Government owned properties must necessarily be a gradual process. The reduction in the G.T.R. operating ratio is gratifying, and on comparing the performance of this road with that of various eastern U.S. roads, which operate under substantially similar conditions, it is evident that the G. T.R. has made a very favorable showing. The majority of the eastern U.S. roads, during the same period, were incurring operating deficits.

The revenue ton mileage for March increased by 5% over that for February and was slightly higher than for January, but 16% less than in March 1920. It is evident that the traffic figures reflect quite accurately the general slowing up of business which has taken place since last year. The increased rates on freight traffic did not quite compensate for the decrease in tonnage handled, the total freight revenue having decreased from March 1920 by $757,928. Passengers carried one mile showed an increase over January and February 1921, but a decrease from March 1920. The falling off in passenger traffic, however, was not so pronounced as in freight traffic, being only 6%. The increased fares offset the decrease in traffic, passenger revenue increasing by $687,948. The decreases in the number of passengers carried one mile took place on the Canadian Northern, Canadian Pacific and Grand Trunk Pacific; while the Canadian Government Rys. and Grand Trunk showed increase. Increases in the ton miles of freight handled were shown by the Canadian Northern and Grand Trunk Pacific, but the decreases in freight traffic suffered by the other roads produced, as stated above, a net decrease of 16% from March 1920. The average receipt per ton mile of revenue freight handled was 1.212c. in March 1921, against 1.054c. in March 1920, an increase of 16%. The average receipts per passenger mile was 3.248c. in March 1921, against 2.758c. in March 1920, an increase of 17.7%.

Viewing the March returns broadly, it is evident that Canadian railways have made some progress in their efforts to get operations back to a proper financial basis; in fact, the reduction of the operating ratio from 108 in January to 96.94 in March may be said to be distinctly encouraging. But it is evident that they have a long way yet to go before the railway industry, considered as a whole, will be on a self supporting basis. An operating ratio of 70 is commonly considered as necessary, if a railway is to be strong financially and able to provide capital for the improvements and extensions which are necessary in the public interest. However, with the reductions in operating expenses, through wage reductions which are coming into effect at present, and decreases in fuel and material prices which are gradually being brought about, it would seem that the railways have turned the corner, and it may be confidently expected that further improvement will take place.

Freight and Passenger Traffic Notes.

Rossland Board of Trade has declared its opposition to the Great Northern Ry.'s application to the Board of Railway Commissioners for leave to discontinue train service on its branch line from Northport to Rossland, B.C., and the Vancouver Board of Trade has endorsed the Rossland action.

A Chicago press dispatch of July 14 stated that U.S. railways were making a 25% cut in the prices of meals on dining cars. W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars, C.P.R., Montreal, is reported in this dispatch to have said that there is but little difference in the prices of meals on dining cars on Canadian and U.S. lines. Canadian lines made a 25% cut in January, and a further cut on June 1, therefore the U.S. lines in making their recent cut were merely following the Canadian lines' example.

The matter of the reclassification of freight rates on all Canadian railways is under consideration by two committees, one for eastern Canada and one for western Canada. These committees consist of representatives of the several railways, and in order to obtain the views of all interested parties conferences with representatives of boards of trade have been held or are being arranged. The western classification committee was formed at Winnipeg in June, and the first conference with the representatives of boards of trade of Manitoba, Saskatchewan, Alberta and British Columbia opened at Regina, July 6. Other conferences will be held at convenient centers during the summer and autumn.

The Minister of Labor is reported to have said July 11, that the usual arrangements will be made with the railways to take men at reduced rates from eastern points for harvest work in the prairie provinces, and that arrangements were being made to relieve the unemployment situation in British Columbia by providing facilities for cheap fares for them. The Premier of British Columbia had taken up the question with C.P.R. officials previously and had been informed that proportionately as low rates would be given to harvesters from British Columbia points as given from eastern points. Representatives of the railways and other delegates met at Winnipeg, July 11, to discuss the employment and distribution of harvest labor.

Railway Lands Patented. — Letters patent were issued during June for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	2.09
Canadian Northern Pacific Ry.	21.679
Canadian Pacific Ry.	50.90
Edmonton, Dunvegan & British Columbia Ry.	23,69
Nicola, Kamloops & Similkameen Ry.	5.36
Total	103.719

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of tbe Board's proceedings. No otber paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 343. June 17.—Extending to Sept. 1, time within which changes and instructions, referred to in general order 322, directing all railways to withdraw Special Instruction E from their respective timetables, may become effective.

General order 344. June 27.—Ordering that the words "ordinary published rate," as contained in sec. 14 of general order 252, Oct. 26, 1918, be construed to mean the rate that would be charged for the same movement as a local switching and not an interswitching operation.

General order 345. June 23.—Establishing standard track centers for building of divisional points, terminal sorting yards and sidings. The judgment on which this order is based is given in full on another page.

31,147, 31,148. June 13, 16.—Authorizing C.P.R. to remove station agents at Franktown, Ont., and Pointe au Chene, Que., caretakers to be appointed.

31,149. June 17.—Declaring that C.P.R. crossing, north of Wilcox station, Sask., is protected to Board's satisfaction.

31,150. June 20.—Declaring that G.T.R. crossing of King Edward highway at Lacolle station, Que., is protected to Board's satisfaction.

31,151. June 17.—Extending to Nov. 30, time within which G.T.R. may build spur for Hepworth Mfg. Co., Keppel Tp., Ont., authorized by order 30,344, Nov. 13, 1920.

31,152. June 10.—Ordering C.P.R. forthwitb to widen cut on both sides of track at crossing of public road between Cons. 4 and 5, Albion Tp., Ont., to right of way limit, for 300 ft. south of crossing.

31,153. June 20.—Authorizing C.P.R. to remove station agent at East Templeton, Que., caretaker to be appointed.

31,154. June 17.—Extending to Nov. 15, time within which C.P.R. may build spur for Dominion Sugar Co., Chatham Tp., Ont., authorized by order 30,327, Nov. 15, 1920.

31,155. June 20.—Ordering C.P.R. to appoint station agent at Dunlop, Ont., by July 15.

31,156. June 22.—Authorizing C.P.R. to build three tracks across Long Lake Road, and to relocate Sudbury Brick Co.'s spur at mile 1.56 Webbwood Subdivision, in Lots 7 and 6, Con. 2, McKim Tp., Ont.

31,157 to 31,159. June 20.—Authorizing Lethbridge Northern Irrigation District to carry irrigation canal across C.P.R. at 3 points n.w. ¼ Sec. 25, Tp. 10, Range 23; n.w. ¼ Sec. 6, Tp. 10, Range 26, and n.w. ¼ Sec. 4, Tp. 12, Range 23, west 4th meridian, Alta.

31,160. June 11.—Exempting C.P.R. and St. John & Quebec Ry. from complying with conditions set out in sec. 154 of Railway Act, re joint use of C.P.R. between Westfield and St. John, N.B.

31,161. June 22.—Ordering Canadian National Rys. to install farm gates on s.w. ¼ Sec. 22, Tp. 27, Range 29, west first meridian, Man.

31,162, 31,163. June 22.—Ordering G.T.R. to maintain bells at crossing of Rochester St., in its yard, and at Lebreton St., Ottawa, Ont., until further order.

31,164. June 23.—Extending to Oct. 1, time within which C.P.R. may build station at Victoria Ave., Westboro, Ont., required by order 30,155, Sept. 29, 1920.

31,165. June 22.—Ordering G.T.R. to maintain bell at crossing of Booth St., Ottawa, until further order.

31,166. June 23.—Authorizing C.P.R. to remove station agent at Proctor, B.C., caretaker to be appointed.

31,167. June 22.—Authorizing Canadian National Rys. to build spur for McCullough & Sons, Windatt Coal Co., and Winnipeg Paint & Glass Co., Winnipeg.

31,168. June 22.—Authorizing Spallumacheen Tp., B.C., to make highway crossing over Hayes spur of C.P.R. Shuswap & Okanagan Branch in n.e. ¼ Sec. 13, Tp. 7, Osoyoos Division, Yale District, B.C.

31,169. June 23.—Authorizing Canadian National Rys. to build across highway between east and west road allowance in Secs. 25 and 24, Tp. 22, Range 12, west 4th meridian, Alta.

31,170. June 22.—Authorizing C.P.R. to build spur for Canadian Oil Co., Camrose, Alta.

31,171. June 22.—Approving agreement between Bell Telephone Co. and Cameron Telephone Co., Victoria County, Ont.

31,172. June 23.—Authorizing G.T.R. to build spur for McCraney Lumber Co., McCraney Tp., Ont.

31,173. June 25.—Ordering that diversion of side road between Lots 20 and 21, Con. 7, Chisholm Tp., Ont., by Canadian Northern Ontario Ry., authorized by order 29,109, Dec. 6, 1919, be completed by July 15.

31,174. June 23.—Authorizing C.P.R., until Sept. 1, to remove station agent at Adelard, Ont., with leave to apply for permanent closing of station after Sept. 1.

31,175. June 23.—Refusing application of City of Toronto for order directing G.T.R. to discon- and Balfour Aves., built under order 2,515, Ave., to York Knitting Mills, between Coleman and Danforth Aves., built under order 2,515, Jan. 28, 1907.

31,176. June 23.—Amending order 27,768, Oct. 9, 1918, re watchmen at certain G.T.R. crossings at Port Hope, Ont.

31,177. June 24.—Authorizing G.T.R. to operate over spur serving Wm. Knechtel & Son, and Peppler Bros. Co., Hanover, Ont., authorized to be built by C.P.R. under order 31,027, May 13.

31,178. June 27.—Approving agreement, June 8, between Bell Telephone Co. and Haldimand Municipal Telephone System.

31,179. June 23.—Relieving Michigan Central Rd. from complying with provisions of general order 293, Apr. 26, 1920, requiring that all locomotives be equipped with seats for brakemen.

31,180. June 24.—Recommending to Governor in council, for sanction, agreement between Rutland Rd. and Rutland & Noyan Ry. Co., Aug. 21, 1920.

31,181. June 28.—Rescinding order 28,938, Oct. 22, 1919, re removal of G.T.P.R. spur for U.G.G. Saw Mills, Ltd., at mile 1218.5, Cariboo District, B.C.

31,182. June 25.—Declaring that G.T.R. McAnyas crossing, being 5th crossing west of Coaticook, Que., is protected to Board's satisfaction.

31,183. June 27.—Authorizing C.P.R. to build spur for Northern Construction Co. and J. W. Stewart, Vancouver, B.C.

31,184, 31,185. June 25. — Approving Bell Telephone Co. agreements with Warwick Telephone Co. and Cold Springs Rural Telephone Co.

31,186. June 27.—Approving plan showing proposed changes in interlocking plant at crossing of G.T.R. & James Bay Ry., on Lot 21, Con. 8, East Gwillimbury Tp., Ont.

31,187. June 23.—Amending order 27,768, Oct. 9, 1918, re G.T.R. crossing of Walton (Main) St., Port Hope, Ont.

31,188. June 29.—Ordering that signalmen operating gates at crossing of Toronto Suburban Ry. and C.P.R. at St. Clair Ave., West Toronto, act in each instance for and on behalf of the railway company.

31,189. June 29.—Authorizing Canadian National Rys. to issue periodical passes, good until Dec. 31, between points on their lines, Edmonton, Alta., west and Sydney, N.S., east, in favor of F. S. Cleverly, G. E. McIntosh and C. Brooks, of the Dominion Agriculture Department, Fruit Branch.

31,190. June 24.—Approving agreement between Bell Telephone Co. and Belmont Telephone Co-operative Association.

31,191. June 28.—Ordering Canadian National Rys. to erect signboards at each side of highway crossing, Letellier, Man.

31,192. June 25.—Ordering Canadian National Rys. to provide station facilities at Cushing Station, Que.

31,193. June 6.—Authorizing Canadian National Rys. to build spur for Douglas Fuel Co., St. Boniface, Man.

31,194. July 4.—Relieving Canadian National Rys. and C.P.R. from maintaining a signalman at crossing at Rosetown, Sask., home signals and derails to be set clear for C.N.R. and against C.P.R.; and key of tower to be left with C.P.R.

31,195. July 4.—Extending to Sept. 30 time within which G.T.R. may complete station at Marysville, Ont.

31,196. July 4.—Amending order 31,106, June 2, re protection of G.T.R. crossing of Kelly St., Hamilton, Ont.

31,197. June 30.—Declaring that for the present Canada National Rys. crossing at mile 111, Muskoka Subdivision, near Torrance station, Ont., is protected to Board's satisfaction.

31,198. July 4.—Approving plan and specifications of work to be done under Lake Erie & Northern Ry. and Toronto, Hamilton & Buffalo Ry., in Lots 1 and 2, Range 1, Brantford Tp., Ont.

31,199. June 30.—Approving agreement between Bell Telephone Co. and Lambton Telephone Co., Lambton County, Ont.

31,200. June 29.—Ordering Chatham, Wallaceburg & Lake Erie Ry. on 2 days notice in writing being served on its station agent or manager, or person in charge of its office at Chatham, Ont., to remove its bridge over Little Bear Creek drain in Dover Tp., to enable dredge to pass.

31,201. June 30.—Approving plan and specifications of work to be done under G.T.R. on Slagg drain, through Lots 7, 8, 9 and 10, Front Concession, Raleigh Tp., Ont.

31,202. July 8.—Ordering Lake Erie & Northern Ry. and Grand River Ry. to operate a certain portion of railway in Galt, Ont.

31,203. June 25.—Authorizing G.T.R. to move its operator from Rockfield station to Dominion station, Que., and appoint caretaker to look after Rockfield station.

31,204. June 30.—Declaring that C.P.R. crossing near Nevis station, Alta., is protected to Board's satisfaction.

31,205. July 7.—Authorizing Canadian National Rys. to build highway in s.w. ¼ Sec. 1, Tp. 15, Range 10, west 3rd meridian, Sask.

31,206. July 7.—Amending order 17,092, July 22, 1912, re Campbellford, Lake Ontario & Western Ry. (C.P.R.) crossing of G.T.R. at mile 163.46 from Glen Tay, Ont.

31,207. July 7.—Authorizing Canadian National Rys. to divert highway in n. ½ and s.e. ¼ Secs. 5, Tp. 35, Range 7, west 2nd meridian, Sask.

31,208. July 7.—Amending order 9,129, Dec. 31, 1909, authorizing C.P.R. to build branch on its London Section, in Etobicoke Tp., Ont., and to connect with G.T.R.

31,209. July 7.—Amending order 759, Aug. 29, 1905, re C.P.R. crossing of G.T.R., near Utopia station, Ont.

31,210. July 7.—Amending order 8,937, Dec. 7, 1909, re Georgian Bay & Seaboard Ry. (C.P.R.) crossing of G.T.R., Victoria Harbor, Ont.

31,211. July 7.—Amending order 761, Aug. 29, 1905, re C.P.R. crossing G.T.R. at Colwell Jct., Ont.

31,212. July 4.—Approving agreement between Bell Telephone and Metcalfe Rural Telephone Co., Carleton County, Ont.

31,213. July 7.—Authorizing Ontario Public Highways Department to divert and widen highway across Toronto, Hamilton & Buffalo Ry. at Hamilton and Ancaster Roads, Ancaster Tp., and to build subway, and apportioning cost.

31,214. July 7.—Authorizing G.T.R. to build siding into Kitchener, Ont., municipal yards.

31,215. July 6.—Extending to Nov. 19, 1922, time within which Canadian National Rys. may complete branch lines from mile 35.1 Lachute Subdivision, St. Canut and St. Jerome Parishes, Que.

31,216. July 6.—Extending to Nov. 19, 1922, time within which Canadian Northern Ontario Ry. may complete branch to Ste. Monique, Que.

31,217. July 6.—Authorizing British Columbia Public Works Department to make crossing over British Columbia Southern Ry. and Crows Nest Southern Ry., at Sparwood.

31,218. July 6.—Extending to Sept. 9, time within which C.P.R. may install wigwag signal at crossing of Drummond St., Perth, Ont.

31,219. July 7.—Authorizing Grand Trunk Pacific Ry. to build spur for Balkan Coal Co. in s. e. ¼ Sec. 14, Tp. 49, Range 21, west 5th meridian, Alta.

31,220. July 7.—Declaring that for present, G.T.R. crossing near Tavistock station, Ont., is protected to Board's satisfaction.

31,221. July 6.—Extending to Nov. 19, 1922, time in which Canadian Northern Quebec Ry. may build branch at mile 35.16, Lachute Subdivision to St. Monique, Que.

31,222. July 7.—Dismissing Montreal Central Terminal Co.'s application for approval of route map showing general location of its line.

31,223. July 8.—Relieving Grand River Ry. from maintaining speed limitation of 20 miles an hour imposed by order 30,657, Feb. 14.

31,224. July 8.—Ordering Canadian National Rys. to grade up diversion between Cons. 2 and 3, station 1465-50, Tarbolton Tp., Ont., an additional foot to bring it to road level.

31,225. July 8.—Extending to Aug. 15, time witihin which C.P.R. may make road diversion in Manvers Tp., Ont.

31,226. July 11.—Extending to Nov. 30, time within which C.P.R. may make road diversion Lime Co., St. Elizabeth Parish, Que.

31,227. July 8.—Ordering Central Vermont Ry. to make farm crossing for Col. A. M. Labelle, 250 ft. soutb of Brentwood station, Que.

31,228. July 8.—Approving agreement between Bell Telephone Co., and Ingersoll Telephone Co.

31,229. July 11.—Declaring that G.T.R. crossing near Craigville station, Ont., is protected to Board's satisfaction.

31,230. July 8.—Approving clearance on C.P.R. at proposed mail elevator for Public Works Department at postal station A, Winnipeg.

31,231. July 12.—Authorizing C.P.R. to make crossing on Lot 33, First Concession and Concession A, Ottawa Front, Nepean Tp., Ont., and ordering protective island, two automatic electric bells and standard crossing warning board to be installed.

31,232. July 11.—Approving revised location (Saskatchewan Land Survey) of portion of C.P.R. Bassano Easterly Branch (Empress to Milden) from Sec. 22, Tp. 27, Range 20, mile 194.39, to Sec. 28, Tp. 27, Range 16, west 3rd meridian, mile 222.13, Sask.

31,233. July 8.—Authorizing Canadian Northern Ontario Ry. to remove station agent at Elgin, Ont., caretaker to be appointed.

31,234. July 11.—Rescinding order 30,125, Sept. 21, 1920, authorizing Ontario Lands and Forests Department to make highway crossing over G.T. R., on Lot 18, Con. 11, Chaffey Tp., Ont.

31,235. July 12.—Authorizing G.T.R. to build spur at Mount Dennis, Ont., for G. Howard Grey.

31,236. July 11.—Authorizing C.P.R. to build spur for Rainier Brewing Co., Kamloops, B.C.

31,237, 31,238. July 11.—Ordering C.P.R. to build farm crossings for A. Yacowbar, Schmidt, Sask., and S. Yacowbar, Burstall, Sask.

31,239. July 11.—Authorizing C.P.R. to remove station agent at Sand PPoint, Ont., caretaker to be appointed instead.

31,240, 31,241. July 12.—Authorizing C.P.R. to cross, close and divert road allowances in s.e. ¼ Sec. 12. Tp. 27. Range 17, at mile 217.45, and s.s. ¼ Sec. 17, Tp. 27, Range 17, west 3rd meridian, mile 211.78, Bassano Easterly Branch, Alta.

31,242. July 8.—Amending order 21,248, Jan. 23, 1914, authorizing Campbellford, Lake Ontario & Western Ry. (C.P.R.) to cross G.T.R. on Pinnacle St., Belleville, Ont.

31,243. July 12.—Authorizing C.P.R. to cross, close and divert road allowance in s.e. ¼ Sec. 15, Tp. 27, Range 17, west 3rd meridian, mile 214.95 Bassano Branch, Alta.

31,244, 31,245. July 8.—Amending orders 760, 720, Aug. 29, 1905, authorizing C.P.R. to cross G.T.R. near Coldwater, and at Alliston, by providing that watchmen be provided by C.P.R. instead of G.T.R.

31,246. July 8.—Amending order 22,325, Aug. 1, 1914, authorizing Glengarry & Stormont Ry. (C.P.R.) to cross G.T.R. near Cornwall, Ont., by providing that watchmen be appointed by C. P.R. instead of G.T.R.

31,247. July 12.—Authorizing C.P.R. to build spur for Tessier & Gershfeld, Winnipeg, Man.

31,248. July 12.—Authorizing Canadian National Rys. to remove station agent at Pocahontas, Alta., caretaker to be appointed.

31,249. July 12.—Approving relocation of C. P.R. station at Westboro, Ont.

31,250. July 11.—Approving Michigan Central Rd. bylaw, June 15, appointed certain officials to prepare and issue tariffs.

31,251. July 13.—Authorizing C.P.R. to move station at Macaza, Que., near River Rouge Bridge, highway to be diverted under bridge, cost to be paid by Riordan Co. and Laurentide Co.

31,252. July 12.—Ordering Canadian National Rys. to build standard third class station at Ranfurly, Alta.

31,253. July 12.—Authorizing C.P.R. to cross, divert and close, within right of way limits, the Swift Current to Battleford trail in s.e. ¼ Sec. 16, Tp. 27, Range 17, west 3rd meridian, mile 212.78 Bassano Easterly Branch, Alta.

31,254. July 12.—Authorizing Quebec & Lake St. John Ry. (C.N.R.) to cross highway between Lots 77 and 76, Con. Range 10, Signai Tp., Que.

31,255, 31,256. July 12.—Authorizing C.P.R. to cross, divert and close, within limits of right of way, road allowances in n.w. ¼ Sec. 15, Tp. 27, Range 17, west 3rd meridian, mile 213.80 Bassano Easterly Branch, Alta., and between Secs. 34, Tp. 35, Range 27 and Sec. 26, Tp. 12, Range 16, west principal meridian, at Brookdale, mile 36.9 Varcoe Subdivision, Man.

31,257. July 13.—Declaring that for present C.P.R. crossing at mile 11 Port Burwell Subdivision, near Ostrander, Ont., is protected to Board's satisfaction.

31,258. July 7.—Ordering Esquimalt & Nanaimo Ry. (C.P.R.) to remove scrub obstructing view at crossing at mile 76.57 Victoria Subdivision, about 1,953 ft. north of Wellington South mile board, Vancouver Island, B.C.

31,259. July 12.—Ordering G.T.R. to install two automatic electric bells with wigwag attachments at Lacroix St., Chatham, Ont.

31,260. July 14.—Declaring that for present, C.P.R. crossing of Dundas St. at mile 7.7 Galt Division, is protected to the Board's satisfaction.

31,261. July 13.—Authorizing L'Air Liquide Society to use 2,500 high pressure cylinders, requiring test of 3,000 lb. a sq. in. for transportation of acetylene, subject to certain conditions.

31,262. July 13.—Approving Great Northern Ry. supplement 1 to standard freight tariff C.R. C. 1,630.

31,263. July 13.—Ordering Toronto, Hamilton & Buffalo Ry. to build wooden bridge over its tracks at Robinson St., Hamilton, Ont.

31,264. July 13.—Ordering G.T.R. forthwith to remove from service, and repair and reinforce mail car 22.

31,265. July 14.—Authorizing C.P.R. to build spur for Irvin Lumber Co. at mile 8.80 Galt Subdivision, Etobicoke Tp., Ont.

31,266. July 14.—Ordering that Yonge St. be carried under G.T.R. at crossing south of station at Aurora, Ont.

31,267. July 15.—Ordering that so long as present character of movements over crossing of Grand Trunk Pacific branch lines and Canadian Northern Saskatchewan Ry. over C.P.R. at Yorkton, Sask., continues, the companies be relieved from maintaining signalman there on Sundays.

31,268. July 15.—Ordering that so long as present character of movements at crossing of Canadian Northern Saskatchewan Ry. by C.P.R. at Yorkton, Sask., continues, the companies be relieved from maintaining signalman on Sundays.

31,269. July 14.—Authorizing G.T.R. to connect with Canadian National Rys. on Lot 28, Con. 2, Elizabethtown Tp., Ont.

31,270. July 15.—Ordering that so long as present character of movements continues over crossing of Canadian Northern Ry. and C.P.R. at Morris, Man., the companies be relieved from maintaining signalman there on Sundays.

31,271. July 15.—Approving Supplement 1 to Express Classification for Canada 5.

31,273. July 16.—Ordering G.T.R. to build spur 300 ft. long for United Farmers of Ontario, En Brooke Club 1250, near Alvinston, Ont.

31,272. July 16.—Ordering that so long as present character of movements continues over crossing of G.T.R. and Canadian Northern Ontario Ry. at Brooklyn, Ont., the companies be relieved from maintaining a signalman there on Sundays.

Railway Rolling Stock Orders and Deliveries.

The Timiskaming & Northern Ontario Ry. has ordered 6 conductors' vans from Preston Car & Coach Co.

The Laurentide Co. has received 1 prairie (2-6-2T) locomotive from Montreal Locomotive Works.

The C.P.R. has ordered 5 pit flat cars, 80 tons capacity, and 15 steel mail cars, 80 ft. long, from Canadian Car & Foundry Co.

The G.T.R., since June 15, has received 4 switching locomotives from its Montreal shops, and 53 flat cars from National Steel Car Corporation.

Canadian National Rys. have received 50 express refrigerator cars from Canadian Car & Foundry Co., thus completing receipts of all rolling stock ordered in 1920.

The Alberta & Great Waterways Ry. is reported to have received 5 new cabooses, bought in Colorado, and 2 locomotives, bought in Chicago, as mentioned in our last issue.

The Railways and Canals Department has received 4 four-wheel (0-4-0T) switching locomotives with cylinders 14 x 22 in. from Montreal Locomotive Works. These locomotives are for use on Welland Ship Canal construction work.

The C.P.R., between June 13 and July 12, received 15 steel sleeping cars, the frames for which were built by Canadian Car & Foundry Co. from its Angus shops; and 138 steel hopper bottom box arcs, 60½ tons capacity, from National Steel Car Corporation.

The C.P.R. has ordered 4 locomotive tenders from Montreal Locomotive Works. Following are the chief details:

Frame	Commonwealth cast steel
Wheel, diar.	36¼ in.
Journals	6½ x 12 in.
Tank, type	C.P.R. Standard water bottom
Capacity, water	10,000 imp. gall.
Capacity, coal	14 tons

Locomotives for South African Government Railways.

The South African Government Rys. have ordered 13 (4-8-2) locomotives from Montreal Locomotive Works. Following are the chief details:—

Gauge	3½ ft.
Weight on engine truck	32,000 lb.
Weight on drivers	41,000 lb.
Weight on trailing truck	19,000 lb.
Weight, total	192,000 lb.
Wheelbase, driving	12 ft. 9 in.
Wheelbase, total, engine	30 ft. 8 in.
Cylinders, diar. and stroke	22 x 26 in.
Driving wheel, diar.	48 in.
Driving journals, main	9 x 10 in.
Driving journals, others	8½ x 10 in.
Engine truck wheel, diar.	28½ in.
Engine truck, wheel journals	5½ x 8 in.
Trailing truck, wheel diar.	33 in.
Trailing truck journals	6 x 12¼ in.
Boiler, type	Belpaire straight top
Boiler pressure	190 lb.
Boiler diar. first ring	67½ in.
Firebox, length and width	79⅞ x 65¼ in.
Tubes, no. and diar.	139—2¼ in.; 24—5½ in.
Heating surface, tubes	1,555 sq. ft.
Heating surface, flues	657 sq. ft.
Heating surface, firebox	138 sq. ft.
Heating surface, total	2,350 sq. ft.
Superheating surface	558 sq. ft.
Grate area	36 sq. ft.
Tractive power	42,300 lb.
Factor of adhesion	3.38
Superheater	Superheater Co.
Reverse gear	
	Montreal Locomotive Works standard
Tender, frame	Steel channels
Tender, truck wheel, diar.	33½ in.
Tender, truck journals	5½ x 10⅛ in.
Tank, type	Water bottom
Capacity, water	4,250 imp. gall.
Capacity, coal	10 tons

Tank Cars for Russian Soviet Government.

The Russian Socialist Federal Soviet Republic has ordered 500 fifty-ton tank cars from Canadian Car & Foundry Co., for transporting oil from the Caucasian oil wells to Black Sea ports. The order was obtained in Berlin, Germany, by W. W. Butler, President of the company, through the co-operation of Canadian Government Merchant Marine, and the cars will be shihpped by that line to Novorossisk. It is expected that delivery will commence in October and be completed in Novomber. Following are the chief details:—

Gauge	5 ft.
Length of truck centers	19 ft. 7 in.
Length over end sills	30 ft. 6 in.
Truck wheel base	6 ft. 3 in.
Wheels, type and diar.	Chilled cast iron 39¾ in.
Height from rail to top of tank	11 ft. 7 3/16 in.
Height from rail to top of dome	13 ft. 10 in.
Tank diar.	86¾ in.
Dome diar.	54 in.
Tank length	26 ft. 11 in.
Width over side sills	9 ft.

Equipment Painting Section, Mechanical Division, American Railway Association.—Notice has been issued that, owing to present unsettled conditions, the annual meeting fixed for Cleveland, Ohio, Sept. 6 to 8, has been postponed for a year. The present officers and committees will be continued. J. R. Ayers, Master Painter, C.P.R., Montreal, is Second Vice Chairman, chairman of the committee on shop construction and equipment and a member of the committee of direction and of the special committee on protection by paint of parts of equipment subject to corrosion. The following are also on the committees named:—Thos. Marshall, Foreman Painter, C.P.R., Montreal, on classification of painting repairs and shopping of equipment; Jas. McCarthy, Foreman Painter, G.T.R., Montreal, on tests; Robt. Woods, Foreman Painter, G.T.R., Western Lines, Port Huron, Mich., on safety and sanitation. V. R. Hawthorne, 431 South Dearborn St., Chicago, is Secretary.

Seats on Locomotives for Brakemen.—The Board of Railway Commissioners passed order 31,179 June 23 as follows: Re application of Brotherhood of Railroad Trainmen, on behalf of the Michigan Central Rd. Co., for an order exempting the company from complying with provisions of General order 293, April 26, 1920, requiring that all locomotives be equipped with seats for brakemen. Upon reading what is alleged in support of the application, and the report and recommendation of the Board's Chief Operating Officer, the Board orders that the M. C. Rd. be hereby relieved from complying with the requirements of the said general order.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry.—H. A. Warner, Superintendent, on returning to Edmonton, Alta., from a recent trip of inspection, is reported to have stated that the line from Carbondale Jct. to Lac la Biche was in the best of shape, and that the track from Lac la Biche to the Clearwater River was in a fair condition, and being improved daily. A ditcher is being operated between Carbondale and Lac la Biche cleaning out ditches and improving the drainage, and a gang is putting in new ties and repairing trestles, etc. A new ballast pit has been opened at mile 84, and ballasting is reported to have been started. This work is being done by the Alberta Government with the railway's own forces. Beyond Lac la Biche the work is being done by the Northern Construction Co. About 150 men are reported to be putting in new ties, and others are bringing the track up to the condition of that south of Lac la Biche. Gangs are reported to be grading on the recently located new route from the end of track into Fort McMurray. It is reported that rails, etc., for laying this extension have been delivered, and that the track will be laid into Fort McMurray by Sept. 30. (June, pg. 305.)

Canadian Niagara Bridge Co.—Following are directors elected at a meeting of shareholders in Hamilton, Ont., recently: Lord Shaughnessy, E. W. Beatty, K.C., Grant Hall, J. N. Beckley, A. H. Smith, A. H. Harris, I. A. Place. The meeting was formal and no intimation was given as to when active construction on the bridge across the Niagara River and the connecting railways will be started. The entire work projected comprises the construction of 10 miles of track to connect the Toronto, Hamilton & Buffalo Ry., and the Michigan Central Rd., near Welland, Ont., to the Niagara River, the erection of a bridge which will cross Grand Island, and the construction of 11 miles of line in New York State to connect with the New York Central Lines. (Feb., pg. 82.)

Canadian Transit Co. — Preliminary work on the detail design for the proposed railway and general traffic bridge between Windsor, Ont., and Detroit, Mich., is reported to have been completed, and it is said that they are to be submitted for approval by a consultative committee consisting of Lt. Col. C. N. Monsarratt, Consulting Bridge Engineer, Canadian National Rys.; W. H. Burr, New York; C. R. Young, Toronto, and G. Pegram, New York; with C. E. Fowler, New York, as chairman. The bridge is proposed to be built jointly by the Canadian Transit Co. and the American Transit Co., which will be controlled by a joint board of directors, the organization of which is reported to be in progress. Arrangements are reported to have been completed for putting a bond issue on the market. Other reports state that a contract has been given for the wire for the cables, and that some contracts have been made for foundation work. (June, pg. 305.)

Central Canada Ry.—The Alberta Government started negotiations with the C.P.R. some time ago for the completion and operation of a 26 mile extension of the Central Canada Ry., beyond the Peace River. The Central Canada Ry. extends from Winagami, mile 273.5 from Edmonton, on the Edmonton, Dunvegan & British Columbia Ry., to Peace River, 48.5 miles, and is being operated, together with the E. D. & B.C. Ry. by the C.P.R. A bridge has been built across the Peace River, and some grading has been done in the direction of the Waterhole district. The Alberta Legislature at its last session provided $600,000 for the completion of the extension. We are officially advised that the general terms of the agreement for the extension of the line have been settled between the Alberta Government and the C.P.R. The extension will run from Peace River Landing to south of Bear Lake, approximately 25 miles. A contract for grading the extension has been let to W. A. Sutton, Winnipeg, and the work was reportedto be well under way on July 5, and rails and other track materials were being delivered. It is expected that track will be laid by Sept. 30. The work is being done under the supervision of J. A. Macgregor, Manager, and Lt. Col. J. G. Reid, Chief Engineer, E.D. & B.C. Ry. (June, pg. 305.)

The Central Ry. Co. of Canada, the affairs of which are being wound up under the direction of the Exchequer Court, has been granted a 5-year extension of time by the Dominion Parliament for the completion of certain pieces of line under construction at the time of its failure, viz., the uncompleted portions of lines authorized between South Indian and Hawkesbury, Ont.; and between St. Andrews and Ste. Agathe, Que. (July, 1919, pg. 381.)

The Edmonton & Mackenzie River Ry. Co. was incorporated by the Dominion Parliament at its last session to build a railway from Fort McMurray, on the Athabasca River, to the junction of the Jackfish and Peace Rivers, and thence to the mouth of the Hay River on Great Slave Lake. It was stated before the House of Commons railway committee that Imperiol Oil Ltd., which is interested in the Fort Norman oil district, was substantially supporting this proposal. The provisional directors are:— R. G. Brett, W. T. Henry, J. Ramsey, C. E. Taylor, H. G. Macdonald, E. N. Kennedy, D. Carter, H. L. McInnes, J. Pirie, R. L. Shaw, R. W. Jones, H. H. Hyndman, Edmonton, Alta., (May, pg. 241.)

Edmonton, Dunvegan & British Columbia Ry.—Negotiations are reported to have been completed for handling this line's traffic at the C.P.R. station at 109th St., Edmonton, Alta.

See also Central Canada Ry.

Esquimalt & Nanaimo Ry.—The Victoria, B.C., City Council is reported to have let a contract to the Canadian Bridge Co.. Walkerville, Ont., for the fabrication and erection of the steel Strauss bascule lift span which will form the superstructure of the bridge under construction at Johnston St., at an estimated cost of $239,000. Fabrication is to be started at once, and the erection is to be begun in November. The substructure work is reported to be progressing satisfactorily under the direction of F. M. Preston, City Engineer.

The Mayor of Victoria is reported to have stated on returning from Montreal recently that the President of the C.P.R. had informed him that the replacing of the building now serving as a terminal on Store St. had been decided on, and that work would be started thereon soon after the completion of the Johnson St. bridge. (June, pg. 305.)

Grand Trunk Ry.—Montreal City Council has appointed a special committee, consisting of the Mayor, Aldermen Brodeur, O'Connell, Hushion, Elle and Bedard, to take up the question of the elimination of the G.T.R. level crossings in Montreal, with the Dominion Government.

A press report states that plans are being prepared by the G.T.R. and the City of Detroit, for a temporary steel and timber bridge 150 ft. long by 30 ft. wide on East Larned St., over the G.T.R. tracks in Detroit, at an estimated cost of $75,000. (June, pg. 305.)

Grand Trunk Pacific Ry. — Tenders were invited recently for the construction of a frame warehouse on the new dock in the harbor at Prince Rupert, B. C., for the erection and completion of station buildings at Prince Rupert and Prince George, B.C., and for the excavation and laying of cast iron pipe lines at Margo, Sand, Watson and Kindersley, Sask., for the excavation of reservoirs and construction of earth dams at Archydal and Hubbard, Sask., and for the construction of earth dams at Riverhurst and Kindersley, Sask.

Great Northern Ry.—The City Engineer of Vancouver, B.C., is reported to have advised the city council recently that the G.N.R. had forwarded to the Board of Railway Commissioners plans for the construction of the roadway parallel to its tracks through Grand View as required, and that sanction of the same was expected at any time. (Nov. 1920, pg. 606.)

Kettle Valley Ry.—It is expected that track will be laid at an early date on the line from South Penticton, B.C., to the north end of Dog Lake, about 2 miles. The railway runs on to a wharf, which has just been completed. A steamboat will be operated from this wharf to a similar one which has been built at the southern end of the lake. From this point a railway will be built to the demonstration farm in the Oliver irrigation district. Later on, a railway will probably be built to connect the two sections of line mentioned.

It is reported that consideration is being given to a proposal for the electrification of the line from South Penticton to Dog Lake. We were advised recently that the West Kootenay Power Co. was preparing estimates, not only for the section of the line now being completed, but also for the section on which it is expected to start construction this year, from the south end of Dog Lake. (June, pg. 305.)

Lacombe Northwestern Ry.—The Premier of Alberta is reported to have announced July 7 the intention of the Government to have the old Lacombe & Blindman Valley Ry., which now has its northerly terminus at Rimbey, extended for a considerable distance during 1922. The Alberta Legislature at its last session authorized the extension of the line from Rimbey northwesterly to Pigeon Lake, thence northeasterly to Edmonton, approximately 125 miles. (June, pg. 305.)

Luscar Collieries Limited.—A contract is reported to have been let to Carleton & Fetter, Prince George, B.C., for building of a line, between five and six miles long, from Leyland siding, on the Grand Trunk Pacific Ry.'s Mountain Park Branch to the Luscar collieries. Construction will, it is said, be started at once, and the line is expected to be com-

pleted in October. The company is reported to have had a force engaged for the last six months in opening up its mining properties. It is claimed that in two seams there are about 9,000,000 tons of coal of the best quality already proved. The property was acquired originally by R. W. Jones, an engineer engaged on the Grand Trunk Pacific Ry. exploration work, and J. J. Gregg. The company holds a provincial charter, A. C. Dunn, R. G. Drinnan, J. C. C. Bremner and J. C. Dunn, Edmonton, being interested, ad the capital is said to have been subscribed in Glasgow, Scotland. R. W. Jones, 708 Taylor Building, Edmonton, Alta., is Chief Engineer. (June, pg. 305.)

Maritime Coal, Ry. & Power Co. Ltd. The Dominion Parliament at its last session declared this company's railway to be works for the general advantage of Canada, and granted an extension of time for its construction. The company owns a railway from Maccan, N.S., on the Intercolonial Ry., to Joggins Mine, 12 miles, and another from Maccan to the Chignecto collieries, 3 miles. (April, pg. 198.)

Montreal Central Terminal Co. — The Board of Railway Commissioners heard at Ottawa on July 6 this company's application for approval of its route map showing the general location of its proposed tunnel and railway. The Canadian National, Canadian Pacific and Grand Trunk Railways, the City of Montreal and the Montreal Harbor Commission were also represented and offered objections, and the application was refused.

Pacific Great Eastern Ry.—A Victoria, B.C., press dispatch states that track was laid on July 22 to Quesnel, completing the railway from Squamish, on the Pacific Coast, to that point.

Pere Marquette Rd.—Hon. F. B. Carvell, Chief Railway Commissioner, visited Sarnia, Ont., recently, to look into the Pere Marquette Ry. station and terminals question. The Northern Navigation Co. is reported to have given permission to use its docks for terminal purposes, but the railway management pointed out the added expense of running tracks to the docks, and expressed its preference for building a new station. The matter is being investigated by one of the Board's engineering staff, and a report is expected shortly. (June, pg. 306.)

Quebec Central Ry.—A press report states that a contract betgeen the Quebec Government and the Q.C. Ry. for the construction of the extension from Scott Jct. to the southern end of the Quebec Bridge, was signed June 21. (June, pg. 306.)

Quebec, Montreal & Southern Ry. — The Dominion Parliament at its last session granted an extension of time for five years within which the company may complete the construction of an extension of its line from the present terminal at Fortierville, Que., to the southern end of the Quebec Bridge, and of an extension of its line from the present terminus at Noyan Jct to the International Boundary line. (Dec., 1919, pg. 655.)

Squamish - Lake Alice Logging Railway.—A British Columbia press report states that construction is about to be started on a logging railway from Squamish to the vicinity of Lake Alice. The new undertaking will, it is stated, have incorporated with it the booming grounds at Squamish, operated formerly by the old Howe Sound & Northern Ry.

Toronto, Hamilton & Buffalo Ry.—The Board of Railway Commissioners has approved plans for the construction of a spur line into By Products Coke Ovens property at Hamilton, Ont., but judgment was deferred on the question of its general use by the railways, and of the right of future acquisition by the city council or the harbor board. (Feb., pg. 83.)

Railway Earnings.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry.. Prince Edward Island Ry., National Transcontinental Ry., and various local lines in the Maritime Provinces and in Quebec, which have been acquired by the Dominion Government.

	1921	1920
January . .	$8,781,839	$7,267,562
February . .	8,150,341	6,516,059
March . .	9,497,740	7,761,326
April . .	8,164,955	7,937,478
May . .	7,794,147	8,305,850
June . .	7,885,548	7,776,539
	$50,284,390	$45,564,824

Approximate gross earnings for two weeks ended July 14, $3,976,039, against $3,933,954 for same period 1920.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$3,527,304	$4,347,728	$ 820,423	$ 508,178
Feb.	3,526,658	4,367,491	840,833	1,205,925
Mar.	3,595,144	4,538,904	943,761	1,235,265
	$10,649,106	$13,254,123	$2,605,017	$2,949,368

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January . .	$5,094,100	$4,200,700
February . .	4,840,500	3,862,300
March	6,119,700	4,587,700
April . .	4,978,500	4,732,623
May . .	4,742,200	4,863,500
June . .	4,606,800	4,427,600
	$30,381,800	$26,611,423

Approximate gross earnings for two weeks ended July 14, $2,446,000, against $2,376,900 for same period 1920.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920. as far as they are available, to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$5,851,220	$ 7,538,786	$1,687,566	$1,672,283
Feb.	5,575,782	6,861,337	1,285,555	1,839,756
Mar.	5,812,790	6,746,912	934,122	1,280,887
	$17,239,793	$21,147,035	$3,907,243	$4,792,926

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar. .	14,705,727	12,254,818	2,405,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
	$69,594,029	$59,748,621	$9,845,408	$1,048,040
Incr.	.....	.....	$1,048,040	.....
Decr.	$5,982,938	$7,031,023	.....	.....

Approximate traffic earnings for June, $13,859,000, and for two weeks ended July 14, $6,837,000, against $15,917,000 and $7,627,000 for same periods 1920.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit 1921	1920
Jan.	$6,187,539	$6,886,931	$699,391*	$624,310*
Feb.	5,468,732	5,439,039	29,693	690,857*
Mar.	6,271,921	5,584,720	687,200	398,859
	$17,528,192	$17,910,690	$17,502	$916,308*
	2,497,750	1,563,940	933,810	.....

*Deficit.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$1,441,225	$1,813,982	$ 372,757	$ 737,357
Feb.	1,013,712	1,872,946	859,234	670,817
Mar.	1,007,499	1,664,227	656,728	655,560
	$3,462,436	$5,351,155	$1,888,719	$2,063,734

Railway Finance, Meetings, Etc.

Grand Trunk Western Ry.—Before the passage of the Winslow Bill in the United States, the Grand Trunk Western Ry., on behalf of itself and a number of other roads similarly situated, applied to the District of Columbia Supreme Court for a writ of mandamus to compel the Secretary of the Treasury to pay it $500,000 as a partial payment on the sum owed it by the U.S. Government, under the guaranty provisions of the Transportation Act. It will be remembered that when the Interstate Commerce Commission certified amounts due to various U.S. railways as partial payments of the amounts due them, Treasury officials refused to pay the sums, and stated they would not pay the railways anything until the accounts were completely adjusted and the total sums due had been decided upon. This attitude by the Treasury officials led to the Grand Trunk Western Ry.'s application, which was refused by the District of Columbia Supreme Court, and when the railway appealed to the District of Columbia Supreme Court, that court also dismissed the application, although action was not taken by it until June 5. In the meantime, however, the railways were able to impress the Government with the seriousness of their financial situation, and to show that the withholding of the partial payments due them was creating business depression. As a result, the Winslow Bill was passed, as mentioned in Canadian Railway and Marine World for April, pg. 190. The effect of this bill is to compel the Treasury to pay the railways sums on account, under the guaranty sections of the Transportation Act, so long as the amounts are properly certified by the Interstate Commerce Commission. Therefore, notwithstanding the dismissal of its application, the relief sought by the Grand Trunk Western has been accorded it by the Winslow Bill.

Kettle Valley Ry.—There has been deposited with the Secretary of State at Ottawa a mortgage deed, dated June 16, mortgaging the Kettle Valley Ry. property to the Royal Trust Co. to secure an issue of bonds.

New York Central Rd.—There has been deposited with the Secretary of State at Ottawa an agreement, dated May 16, between John Carstensen and others, vendors, Guaranty Trust Co. of New York, trustee, and New York Central Rd. Co., amending an agreement of Dec. 15, 1920, supplemental to an agreement of April 15, 1920, establishing the N.Y.C. Rd. Co. Equipment Trust of 1920.

Canadian National Railways Construction, Betterments Etc.

Canadian Government Rys. Contracts. As the Canadian National Rys. Act has not been brought into force by proclamation, contracts for works on the Canadian Government Rys. have still to be approved by the Dominion Government. The preliminary work, including the obtaining of tenders, is done by the Canadian National Rys. management, but contracts have to be authorized by order in council, a red tapeism that should be wiped out without further delay. The following contracts have been authorized during the last few months:—

Construction of bridge at mile 4.2, Pugwash subdivision, the Hamilton Bridge Works, Hamilton, Ont. Contract dated Feb. 26. Schedule of prices.

Construction of bridges over Cocagne, Little Buctouche, and Petitcodiac Rivers, N.B., Dominion Bridge Co., Montreal. Contract dated Feb. 10, 1921. Schedule of prices.

Construction of 350-ton, 3 track, mechanical coaling plant and wet sand bin, etc., at Chaudiere Jct., Williams & Wilson, Montreal. Contract dated Feb. 10, 1921. Amount, $40,800.

Labor only for erection and completion of car repair shop at Mission, Ont. Canadian National Rys., J. H. Simmons, Winnipeg. Amount, $7,228.

Construction of rock fill to protect sliding embankment at mile 73.7 Sioux Lookout Subdivision, Central District, National Transcontinental Ry., John Welch, Port Arthur, Ont. Contract dated Oct. 1, 1920. Cost plus 10%.

Construction of alterations on and additions to passenger car paint shop at Transcona, Man., J. B. Duncan, Winnipeg. Contract dated Dec. 17, 1920. Amount, $22,000.

Halifax Terminals.—Tenders were received to July 18 for paving approximately 2,300 square yards at Halifax deep water freight shed, and approximately 4,500 square yards at Halifax ocean terminals station.

Island Yards, St. John.—The yards at Gilbert's Island, St. John, N.B., having been found too small for the increasing traffic, have been considerably enlarged recently. The original yards were laid out on the northerly bank of Marsh Creek, up to a point where the creek is crossed at the section of the yard leased to the Dominion Agriculture Department. For extension purposes, about 47½ acres were acquired northerly of the main line tracks, practically to the city boundary, and extending from theb oundary of the old yards to where Marsh Creek comes closest to the tracks. It is proposed to straighten out the channel of the creek, by constructing two stretches of straight channel, cutting out two bends, the reclaimed area to be used for general yard purposes. Construction of one of these diversions, 1,000 ft. long has been completed and a double track pile trestle is 90% completed, across the creek northerly from the existing structure, which it is proposed to replace with a new double track pile trestle. Up to the present there has been completed of the track lay out nine body tracks, averaging about 2,700 ft. long, with a combined capacity of 515 cars. The switching lead is 2,700 ft. long at the east end of the new yard. There is one double track ash pit in connection with the present locomotive house, and one 200-ton mechanical coaling plant. Work on the extensions was started May 20, 1920, and ceased March 10, 1921.

McLeod's Wharf Shed, St. John.—In connection with projected developments at McLeod's Wharf, St. John, N.B., the Canadian National Rys. has been asked by the city council to buy or expropriate the existing shed on the wharf. The railway management desires to lease the property at $300 a year, the city to remove the shed, but the city wants the shed to be bought at $9,000, its appraised value, or taken over by expropriation proceedings.

Petitcodiac River Bridge.—The Petitcodiac is a tidal river in New Brunswick, flowing into the northern end of the Bay of Fundy. About 1.4 miles from Salisbury, on the branch line from Salisbury to Albert, is a railway bridge which is now being rebuilt. The old bridge was 432 ft. 5 in. long from face to face of the ballast walls of the abutments, with depths from base of rail as follows: to ordinary high tides, 22.3 ft., to ordinary low tide, 30.7 ft., to bed of stream, 30 ft., and to average rock level, 41 ft. The substructure consists of two masonry abutments, two masonry concrete piers, and one masonry pier, and the superstructure of three wrought iron deck plate girder spans of 100 ft. each in length, and one wrought iron through truss span of 128 ft. 5 in. long. The new bridge is to occupy the same location as the old bridge, and will be approximately 433 ft. between faces of ballast walls. The substructure will consist of two of the old masonry abutments remodeled and extended with concrete, and three new concrete piers resting on a rock foundation. The superstructure will consist of four pony truss spans, each 107 ft. 10 in. long. These spans have been removed from a location on the main line and will be re-erected at this point. The contractors for the substructure are Gorman & Peckham, Halifax, N.S., and for the superstructure, the Dominion Bridge Co., Montreal.

Moncton Locomotive House, etc. — A press report states that considerable progress has been made with the construction of a new locomotive house on the Wilbur property, just west of the Moncton, N.B., city boundary. It is stated that the building will accommodate about 100 locomotives. Considerable track work is being done in connection with it.

Minto to National Transcontinental Ry. A press report states that the Minto Coal Operators' Association has discussed with the C.N.R. management the construction of a spur line from the Minto, N.B., coal fields for 6.50 miles, to the National Transcontinental Ry. At present coal from these fields has to be hauled from Minto over the Fredericton & Grand Lake & Ry. Co.'s line, to Chipman, 12 miles, to reach the N.T. Ry.

St. Lawrence Subdivision Bridges.—In connection with the recent invitation for tenders for bridges on the Quebec District, we are officially advised that only two of the four mentioned will be built at present. These are at the crossing of the Shawinigan River, mile 86.7, and at the crossing of the St. Norbert River, mile 128.8. At the Shawinigan River a steel viaduct will be erected, and at the St. Norbert River a steel bridge will replace the present steel one, which is too light for the power which it is intended to use. At the St. Norbert crossing two concrete abutments will be built to replace the timber which is now supporting the ends of the short girders. We are officially advised that contracts for the erection of the two substructures have been let to Brigadier General C. L. Hervey, D.S.O., Montreal.

C.N.R.-G.T.R. Connection at Pembroke. We are officially advised that a switch has been installed at Pembroke, Ont., to give a connection between the C.N.R. and G.T.R., the work involving only a small expenditure. The construction of the switch will permit G.T.R. locomotives to use the C.N.R. Y at Pembroke for turning purposes.

Timiskaming & Northern Ontario Ry. Connection.—The Board of Railway Commissioners has authorized the C.N.R. to open for traffic its connection with the T. & N.O. Ry. at North Bay, Ont.

Orient Bay Stream Diversion.—Tenders are under consideration for the grading and completing of a diversion of Orient Bay, Lake Nipigon, at mile 43.67 Nipigon Subdivision, Ont. We are officially advised that this diversion is really a small work. The railway crosses Orient Bay several times, and by cutting a channel through on one side of the track two of the existing crossings, each of 90 ft. trestle bridge, will be done away with.

Acadia Valley Branch.—The Board of Railway Commissioners has approved location plans for this branch, in Saskatchewan and Alberta, mile 25.03 to 43.36, and has authorized the construction of the line across highways.

Western District Betterments.—W. A. Brown, General Superintendent, is reported to have stated on returning to Edmonton recently, after an inspection trip, that the betterment work on the Brazeau branch line, now in the hands of contractors, will be completed this year; the trestle work of a bridge across the Blindman River near Burbank, Alta., is being filled in; the trestle work at mile 130, west of Lockearn has been filled in, and the renewals and ballasting are being gone on with. Extra gangs are at work on the Sconn and Battle River subdivisions. The 60 lb. rails on the line between Kindersley and Hanna are being replaced by new 85 lb. rails, and about 60 miles of ballasting have been done. The putting in of a second track between Drumheller and Wayne is nearly completed, and additional passing tracks are being laid at Drumheller to facilitate the coal traffic. Work is reported to have been started on the filling in of the trestle west of the steel bridge at Fort Saskatchewan.

Onoway to Whytecourt Branch. — A line has been in operation for some years from Peace River Jct., on the C.N.R., west of Edmonton,to Sangudo, Alta., 31 miles, and in 1912 grading was completed for an extension of the branch for 22 miles in the direction of the Grande Prairie district. In 1920 this grading was overhauled, and early this year track was laid and operation of trains extended to Robinsons, 3 miles. A recent press report stated that track had been laid to a ballast put in the Athabasca flats, a few miles from the present terminus at Whytecourt townsite. Ballasting of the line as far as the gravel pit was expected to be completed by July 31.

Application for Reduction of Live Stock Freight Rates.

A meeting between railways traffic officials and representatives of the live stock industry was held at Ottawa July 19, to consider proposed reductions in live stock rates. The meeting was presided over by J. G. Rutherford, C.M.G., one of the Board of Railway Commissioners. The C.P.R. was represented by W. B. Lanigan, Freight Traffic Manager, and E. P. Flintoft, Assistant General Solicitor; the G.T.R. by F. J. Watson, General Freight Agent, and W. C. Chisholm, K.C., General Solicitor; the Canadian National Rys. by G. Stephen, Freight Traffic Manager, C. E. Friend, Comptroller, and G. F. Macdonnell, Ottawa, Solicitor, and the Toronto, Hamilton & Buffalo Ry. by R. F. Hill, General Freight and Passener Aennshrdlbghrd Freight and Passenger Agent.; the Eastern Canada Live Stock Union was represented by R. McKay, K.C., M. Smith, M.P. for South Ontario, and Geo. Pepper, Toronto; the Toronto Live Stock Union by O. W. Atwell; the United Grain Growers and Canadian Council of Agriculture by O. Freer, Winnipeg; and the Canadian Livestock Exchange by H. Talbot and C. H. Mabee.

Commissioner Rutherford, in opening the meeting, emphasized that the subject should be discussed without the introduction of controversial factors as to the fairness of the present rates, and the meeting resolved itself into a discussion as to how far the railways could go in helping the live stock industry maintain itself during the crisis with which it is faced. The Eastern Canada Live Stock Union's original application was for a 50% reduction, and in support of this application Mr. McKay stated that the industry as a whole is in the most precarious position in which it had ever found itself, that the prices for live stock at present arel ower than they were in 1914, while costs in the industry are being maintained at high levels. As an illustration, he said that of a carload of cattle sold in Winnipeg and reshipped to Toronto, 24 sold for an average of $37.38 each, of which the railway got $17.90, while $6.57 went for running expenses, leaving the shipper $12.81. The loss of the United States market through the operation of the Fordney emergency tariff bill was emphasized, also the financial inability of a large number of European consumers to buy. Mr. McKay suggested that the railways replace the present rates by those of pre-war times, and leave the new rates in operation till the end of the year, when the condition of the industry could be reviewed and further action taken.

W. B. Lanigan, Freight Traffic Manager, C.P.R., said he was fully aware of the importance of the Canadian live stock industry, not only of itself, but also because of its great place in the whole scheme of agriculture. He agreed that the live stock business is in a worse position at the present time than ever before, and admitted the advisability of railways doing all they can to help it. He thought the good effects of reduced freight rates would be largely of a psychological nature, and the other railway representatives agreed with him when he pointed out that live stock prices were the result of the interaction of supply and demand, but that even though reduced rates would not have much effect in the creation of additional demand, they could not fail to be of some benefit at least. He pointed out ,however, that the live stock business is not a profitable one for railways, and represents only 0.95% of the ton-mileage handled by the C.P.R., while the capital investment for yards and feeding faciities is necessarily large. He stated that the average haul on live stock is only 287.4 miles, as against a much longer haul on most other commodities; that the average car-loading for live stock is 9.53 tons, against an average car-loading for all commodities of 23.77 tons; that the annual earnings from a stock car are $644.61, against $1,689.81 for a box car, and that stock cars are hauled empty for 64.3% of their mileage, while other cars on the average are hauled empty for but 26.12% of their mileage. He added that if the railways expressed a willingness to make concessions for the benefit of the live stock industry, it likely would not be long before the Board of Railway Commissioners would be flooded with applications from all industries for freight rate reductions, based on those applied to the live stock industry as a precedent. He emphasized that any reductions the railways would be willing to make would be made solely because of the fact that the industry is harder hit than any other, and that it must be supported in the national interest. Mr. Lanigan was assured by Chief Commissioner Carvell that reductions in live stock rates would not be looked upon by the Board as a precedent for other rate reductions.

F. J. Watson, General Freight Agent, G.T.R., stated that reductions in the live stock date could not be justified as a matter of transportation policy, but all the railway representatives were agreed that they could be justified as a matter of national policy.

The meeting was suspended from 2.30 till 3 p.m., and on re-assembling the live stock men reported that they had got together and agreed that they would be satisfied with a 25% reduction in rates. In view of the fact that the matter had resolved itself from a straight traffic question into a question of general policy, the railway traffic representatives stated that it would be necessary to take the matter up with their respective managements, to whom they would make recommendations for reductions, with the understanding that they would not be considered as precedents for reductions in other rates. They were asked by Chief Commissioner Carvell to have their decision presented to the Board within a week, and it was felt at the conclusion of the meeting that the railways and the representatives of the live stock industry would be able to come to an agreement without the necessity of an order by the Board.

An Ottawa press dispatch of July 28 says that reductions of rates on live stock had been announced in a letter from the carriers to the Board of Railway Commissioners, to go into effect immediately new tariffs are filed with the Commission. It adds that Western Canada and British Columbia local rates in effect prior to Sept. 13, 1920, are restored, as also are local rates in Eastern Canada prior to the same date, and that the new rate on cattle from Winnipeg to Montreal or Toronto will be 85c. per 100 lb.

Express Companies Consolidation.

In pursuance of the policy of co-ordinating the G.T.R. services with the Canadian National Rys., the Canadian Express Co., which is owned by the G.T.R., will be consolidated on Sept. 1 with the Canadian National Express Co.

John Pullen, President, Canadian Express Co., Montreal, will be appointed President, Canadian National Express Co., and W. C. Muir, General Manager, Canadian National Express Co., Winnipeg, will be appointed Vice President and General Manager.

The location of the head office has not been settled.

Canadian Northern Railway Bond Issue.

The Dominion Government sold recently, to a syndicate of New York bankers, headed by Dillon, Read & Co., $25,000,000 Canadian Northern Ry. Co. 25 year, 6½% sinking fund gold debenture bonds, dated July 1, 1921, due July 1, 1946, interest payable Jan. 1 and July 1, principal and interest payable in gold of the Canadian Bank of Commerce New York agency. The prospectus states that the Dominion of Canada guarantees principal and interest by endorsement and adds that they are the direct obligation of the Canadian Northern Ry. Co., which is owned by the Government of Canada, and forms part of the Canadian National Rys. System, which will consist of over 22,000 miles, extending from the Atlantic to the Pacific Ocean, and reaching every important traffic center in Canada. Canadian counsel advise that these guaranteed bonds are secured by the full credit and taxing power of the Dominion equally with its direct obligations.

The bonds were offered to the public on July 7 at 96½ and interest, to yield about 6.80%, and it was reported that they were all disposed of during the day.

David Russell's Actions re Western Railway Lands.—David Russell has entered another action in connection with his dealings with western railway lands which have been before several courts in Canada of late years. The present action is entered in the Ontario High Court, against Sir Edmund Osler, Hon. William Pugsley, the National Trust Co., executors of the late H. C. Hammond, and C. S. MacInnes as trustee of the late Hon. D. MacInnes's estate. The net amount claimed is $7,799,250 for alleged breach of contract in connection with the delivery of 493,000 acres of land north of Regina, Sask., which formed the Qu'Appelle, Long Lake & Saskatchewan Ry. land grant. The total amount involved is stated to be $8,175,000, from which is deducted $255,000 and $150,750 interest, stated to have been paid March 28, 1920, by Mackenzie, Mann & Co. When the action last came before the Ontario High Court on April 27, 1920, Russell was not in court, and no one appearing in his behalf, the court dismissed it. (July, 1920, pg. 378.)

Public Health Train.—A Montreal press dispatch says that Grant Hall, Vice President, C.P.R., has offered the Child's Welfare Association the use of two railway cars, to be fitted up and operated for public health demonstration purposes, which will be hauled free between points within the Province of Quebec.

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ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, AUGUST, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 415
Birthdays of Transportation Men 402
Board of Railway Commissioners,—
Orders by, Summaries of 417
Traffic Orders 432
Brazilian Railway Systems 409
Canadian National Rys., Construction, Etc... 421
Locomotive House at Hornepayne, Ont..... 412
Canadian Pacific Ry., Construction, Etc. 426
Maintenance Work, Kenora Division 413
Electric Railway Department .....433 to 440
Answers to Questions of Electric Railway Topics 438
British Columbia Electric Ry. Car Painting Methods 439
Minly About Electric Railway People 437
Montreal Tramways Co. Capital Valuation 440
Projects, Construction, Etc. 434
Wages, Working Conditions, Etc. 433
Winnipeg Electric Ry. Low Floor Cars 435
Express Companies, Among the 440
Grand Trunk Ry. Arbitration 427
Mainly About Railway People 414
Marine Department .....441 to 454
Canadian Government Merchant Marine Shipbuilding, Operation, Etc. 443
Esquimalt Drydock 446
Mainly About Marine People 449
Shipbuilding, General 441
Wreck Commissioners' Enquiries and Judgments 450
Railway Development 419
Railway Difficulties in Newfoundland 431
Railway Earnings 420
Railway Mechanical Methods and Devices 405, 406
Railway Operating Revenues, Expenses and other Statistics 403, 416
Railway Problem in the United States 430
Railway Rolling Stock Orders and Deliveries 418
Railway Time Service 410
Railway Wages Question in Canada and the United States 425
Railways, British, Proposed Grouping of.... 429
Railways, Government, A Lurid Example of Difficulties of Operating 423
Railways, United States, Financial Position.. 424
Rates on Live Stock 422
Standard Track Centers for Sorting Yards, Sidings, Etc. 401
Telegraph, Telephone and Cable Matters..... 440

A Lurid Example of the Difficulties of Operating Government Railways.

Events which followed a recent decision by the Canadian National Rys. management, to close the train dispatching office at Sydney, N.S., and to transfer the dispatching of trains on Cape Breton Island from that place to the New Glasgow Division's headquarters, at New Glasgow, should be thoroughly understood throughout Canada, as showing the difficulties that confront the management under present conditions. The New Glasgow Division, of which W. R. Fitzmaurice is Superintendent at New Glasgow, N.S., and which, as a portion of the Maritime District, comes under the jurisdiction of J. C. O'Donnell, General Superintendent at Moncton, has a mileage of 368.01, its main line running 122.35 miles from Truro to Mulgrave, on the south side of the Strait of Canso, which is crossed by a car ferry, and from Point Tupper, on the north side of the strait, to Sydney, 101.84 miles, a total main line mileage of 224.19. The rest of the division, 143.82 miles, consists of branches, of which 112.82 miles are on the Nova Scotia mainland, and 31 miles on Cape Breton Island, so that the total mileage on the mainland is 235.17 and on Cape Breton Island 132.84. New Glasgow is conveniently situated, on the main line, for dispatching purposes, and is near to practically all the branch lines, while Sydney is at the extreme north end of the division. Before the centering of the dispatching for the division at New Glasgow, that office dispatched for 235.17 miles on the mainland, and Sydney dispatched for 132.84 miles on Cape Breton Island. Even since the closing of the Sydney office, New Glasgow is dispatching for only 368.01 miles and is the smallest dispatching district on the whole C.N.R. system, from the Atlantic to the Pacific, with the solitary exception of the Prince Edward Island Ry., which has only 276.77 miles and is dispatched from Charlottetown.

Some years ago, it is said to be over 20, when the Intercolonial Ry. was directly under the Railways Department at Ottawa, a dispatching office was established at Sydney. There could not have been any reason for this, from an operating standpoint, and it must have been done for political reasons, to satisfy local demands. All that the Sydney dispatchers had to do was to handle trains on one main track of 101.84 miles and a branch of 31 miles. The regular train service between Sydney and Point Tupper consists of two passenger trains, and three freight trains, daily except Sunday, and between Point Tupper and St. Peters there is a mixed train each way daily except Sunday. For this a force of a chief dispatcher and four dispatchers was maintained.

The C.N.R. management, in pursuance of its absolutely necessary policy of cutting out unnecessary expenses, decided recently to close the Sydney dispatching office early in July, and to have the whole of the dispatching for the New Glasgow Division done from New Glasgow, thereby effecting a saving of between $8,000 and $9,000 a year. Immediately this was announced some Sydney people started an agitation to try and prevent the change being made. Telegrams which were sent to the mangement, and which have been published in local papers, throw a lurid light on the situation. J. C. Douglas, of Glace Bay, M.P. for South Cape Breton and Richmond, whose services were enlisted, telegraphed President D. B. Hanna on June 25 as follows: "Notice published dispatchers' office Sydney to be closed July 4. This office in existence 21 years. Presume idea is economy in operations, and while appreciating necessity for same, safety of travelling public is vital, and business interests involved important. Kindly have matter further enquired into before definite action is taken and favor me with your advice on subject."

Mr. Hanna replied as follows:—"Change in dispatching office due to business conditions. Chief Dispatcher will continue to remain at Sydney, and any changes which we are making will have no effect whatever on business interests nor can in any way affect safety in operation."

The member of Parliament's telegram was followed by one from the Sydney Board of Trade, asking the withholding of action until "some official competent to deal with the matter" could meet Sydney merchants, and adding that the proposed change was likely to seriously affect the service given by the railway. The fact that the change had not been decided on until the matter had been most thoroughly considered by the very competent officials responsible for the operation of the division, and approved by the higher officials of the operating department, and ultimately by the President, was entirely ignored by the Board of Trade. There was no earthly reason for discussing the matter with the merchants, and very properly no action was taken on the request, the decision to close the Sydney dispatching office being put into effect as scheduled, the Chief Dispatcher, A. Dunn, being retained at Sydney, as General Agent, and the four dispatchers being transferred to other points, where their seniority permitted them to relieve junior men.

Following the action by the member of Parliament, and the Board of Trade, the Mayor of Sydney sent Mr. Hanna a telegram in which he said that the citizens could not see the economy of the move, as they would lose $5,000 a year by it, in other words that the removing of the dispatchers to other points would mean that that much less in wages would be spent in the city. He followed this up with the impudent threat that if the proposed change was carried out, Sydney business men would immediately give instructions that all rail shipments from the west for the Sydneys be routed via C.P.R. to St. John, N.B., instead of via the G.T.R. and C.N.R., and that the C.P.R would be asked to send a "route agent" to Cape Breton to look after the business.

The contents of the telegrams referred to show that Sydney people had no tenable objections to offer. The contentions that because the office had been there for over 21 years, that $5,000 a year less wages would be spent there, that the safety of the travelling public would be endangered and that business interests generally would suffer, were childish in the extreme, but they show the lengths to which people will go in endeavoring to use political influence for their own selfish, local ends. If the Sydney people generally were correctly represented by their mayor's hectic action

which is doubtful, they should be given to understand that the Canadian National Rys. are not being operated for the especial benefit of any particular local community, but for the Canadian people as a whole, who have to foot the bills, and that interference with the management in its endeavors to effect necessary economies, and to get rid of the barnacles which grew during years of direct Railways Department management will not be tolerated.

That the Mayor of Sydney does not represent the views of all his constituents is evident from the Sydney Post's attitude. It is gratifying to note that that paper has taken a very fair position in connection with the matter, as the following extract from a recent editorial will show:—"It is well to bear in mind that the National Rys. lost something like $5,000,000 a month last year in their operations . . . In the circumstances, reasonable people will not criticize the management for changes it may inaugurate, that will effect a saving, or improve the organization, without crippling the efficiency of the service, or unduly curtailing it. Changes in the direction of economy are perforce being made on the C.N.R., all over the country. Employes that can be spared as being dispensed with. Many local trains have been discontinued in several provinces. The argument is heard, in every locality affected by these measures of retrenchment, that the saving brought about thereby is trifling, by contrast with the inconvenience to the people. But the saving, in the aggregate, is by no means trifling. Our national railways comprise a vast system, of some 20,000 miles of road, which is kept in operation at a prodigious cost, which the people of Canada, not the railway management, have to meet. The last C.N.R. statement, which showed a net loss for the year of approximately $70,000,000, provoked keen criticism in Parliament, and widespread criticism in the country. It is illogical to assail the management, in one and the same breath, for extravagance and economy. Some local inconvenience must be the price paid for retrenchment, if the retrenchment is to make any appreciable improvement in the C.N.R. financial statement. And there shall have to be a very substantial improvement in the financial position of our national railways, if they are to continue to carry on. In all the circumstances, it is the part of common sense to make sure that the significance of changes, such as that contemplated with respect to the Sydney dispatching office, is understood, before hazarding any strong comment thereon. It is the management, not employes who happen to be inconvenienced by re-organization, that are responsible to the people of this country for the ordering of the C.N.R. business."

This Sydney episode, unfortunately, is only a sample of what is going on in some other localities, and emphasizes the necessity of placing the C.N.R. management in such a position that it will not be subject to interference by members of Parliament, whether they are ministers for the time being, or ordinary members. No doubt ministers at Ottawa are being appealed to constantly by some of their constituents and by other members to interfere with the C.N.R. management, for the furtherance of local interests. It is stated by a Sydney paper that the member of Parliament for the district is pursuing the Sydney dispatching office matter with the Minister of Railways. That minister, and other ministers, should refuse to interfere, and reply that the C.N.R. management rests entirely with the President and other directors. It would be interesting to know whether they pursue this policy. Canadian Railway and Marine World has grave doubts on the question.

United States Railways' Financial Position.

From the trend of operating returns of United States railways as referred to in previous issues of Canadian Railway and Marine World, and also in this one, it is evident that the railways there have been, and are, experiencing great difficulty financially. While the Transportation Act allows railways to earn 5½%, or, at the discretion of the Interstate Commerce Commission, 6%, on the value of their properties, the rate of return for April, 1921, was 2.2%; for May, 2.41%, and for nine months from Sept., 1920, when the Government guarantee period expired, the rate of return, as based on the valuation furnished by the Interstate Commerce Commission, was but 2.41% also.

As a result of these conditions, many roads have not paid dividends, maintenance of equipment, has been allowed to fall behind, economies, many of which are false but unavoidable, have been made in every direction, over 600,000 railway employes are out of work, and the purchasing power of many of the railways has been curtailed, and in many cases destroyed. As a further result, railway supply manufacturers have had to restrict operations, resulting in more unemployment. Many manufacturers, not able to collect amounts owed by the railways, have had to be carried by banks, resulting in a lack of credit for industries of every kind, and consequently more unemployment. Without tracing further the vicious circle in which industry in the U.S. finds itself locked, due largely to the fact that the operating expenses of railways have been so large as to destroy their purchasing power and deprive invested capital of a fair return, we may at once proceed to the conclusion that industry would be improved, and the economic situation given an impetus toward stability, if the railways' credit could be restored.

President Harding's administration, being aware of this fact, took the stand, for some months, that a large part of the trouble lay in high railway rates. However, deeper study, advice from the Interstate Commerce Commission and information from numerous railway executives, has apparently succeeded in proving to the administration that the movement of traffic would not be materially increased if it were to be carried free. It is now seen, evidently, that lack of confidence, unwillingness to buy more than absolutely necessary in a falling market, and impaired credit, and lack of purchasing power, have combined to bring about the situation which has affected the railways so adversely, and it is also seen that impaired credit and lack of purchasing power on their part is one of the largest contributing factors in the situations which is affecting industry as a whole so adversely.

Negotiations are in progress between Government officials and railway executives at Washington, in an effort to arrange the financial relations between the U.S. Government and the railways in such a way as to restore the latter's credit. The railways' claims against the Government amount to about $1,250,000,000, but even after deducting the amounts claimed for alleged undermaintenance of their properties during the period of Federal control, the Government's debt to the railways is placed at $600,000,000, about $300,000,000 of this arising out of the guarantees made for the period of Federal control, and $220,000,000 from the six months guarantee period immediately following the return of the railways to their owners. The railways stil owe the Government a considerable portion of the $750,000,000 spent by the Railroad Administration in additions and betterments to the roads while under Government control. The railway executives desire that this debt be funded for 10 years at 6%, and that the Government pay its debts to the railways as quickly as a final accounting can be reached. The executives point out that they are utterly unable to get necessary capital, and argue that this action of the Government would provide credit for the railways which is necessary to carry them over the present trying period.

It is stated that President Harding regards the proposition favorably, but the disagreement between the railway executives and the officers of the Railway Administration as to the railways' claims for undermaintenance has been standing in the way of a final agreement. A recent press dispatch stated that an arrangement had been arrived at by which the Government would accept securities of the railways at 6% for their debts to the Government, and would pay the railways at once to the extent of $500,000,000 on their claims, but this dispatch was apparently without foundation. It is stated that only $200,000,000 is available to the Railroad Administration's credit to pay the railways at present, and Congress would have to make an appropriation for the balance. Latest advices indicate that the negotiations are, however, likely to result in the Government agreeing to fund the amounts owed it by the railways, and to make arrangements to pay the railways what it owes them, the basis of the agreement being that the railways reduce considerably their claims against the Railroad Administration for under-maintenance. It has been pointed out that such a procedure, involving the acceptance by the Government of securities issued by the railways, would involve no more preferential treatment for the railway industry than has been accorded to Governments of foreign countries, and in view of the fact that the restoration of railway credit would undoubtedly mark the beginning of the end of the present industrial depression, it may be hoped that the railways' requests will be acceded to, and that a vast improvement in general conditions will result.

There were exported from Montreal during May and June 6,648 cattle and 1,884 sheep, and during the first two weeks of July nearly 1,000 cattle were added, making a total of 7,674 cattle exported since the opening of navigation. Of the cattle, 2,634 are reported to have been taken to Montreal from United States points.

The Railway Wages Question in Canada and the United States.

The United States Railway Labor Board's decision 147, providing for a reduction of railway employes' wages, by an average of about 12%, was given in Canadian Railway and Marine World for July. As was explained in the article on "The Railway Wages Question in Canada and the United States" on pg. 364 of that issue, the decision covered dispute brought before the Board prior to April 18, and as a result only certain of its articles applied to the various railways concerned; that is, only specified classes of employes on these railways were affected. The railways, after April 18, made application to the Board for permission to reduce the wages of classes of employes not specified in their previous applications; and, as a result, the Board issued, on June 25, addendum 1 to decision 147, applying the deductions ordered to practically all classes of employes on all the chief U.S. railways.

Decision 147 stated in part:—"The Labor Board decides: 1. That the rates of wages heretofore established by the Board's authority shall be decreased as hereinafter specified, and that such decreases shall be effective as of July 1, 1921. 2. That the scope of this decision is limited to the carriers named under article 1 herein, to such carriers as may be included hereafter by addenda, and to the specific classes of employes named or referred to under each particular carrier. 3. That the reduction in wages hereby authorized shall be made in accordance with the following articles which prescribe the regulations, designate the employes affected, and establish the schedules of decreases."

Articles 2 to 14, as set forth in addendum, are the same as the corresponding articles in the original decision, as given in Canadian Railway and Marine World for July, pgs. 347 and 348, except that additional sections were added to articles 10 and 12 so as to make the order applicable to certain marine employes, and chefs, restaurant workers, dining car stewards, buffet porters and laundry workers. Article 1 of addendum 1 specifies the articles and section numbers which apply to the different roads specified, to show which classes of employes are affected, and includes a number of railways not dealt with in article 1 of the original decision. The Brotherhood of Dining Car Conductors is added to the list of parties to the dispute which was given in the original decision.

In reproducing decision 147 in Canadian Railway and Marine World for July, the list of railways given in article 1, and the number of articles, and sections of articles, applying to each was not given, on account of its great length. Following is a list of roads, more or less connected with Canada, showing the employes on each affected by both decision 147 and addendum 1 thereto. The articles and sections referred to by numbers were given in full in Canadian Railway and Marine World for July, pgs. 347 and 348. Where sections are mentioned as from one number to another number, both numbers are inclusive:—

Central Vermont Ry.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 1 to 3; art. 9, secs. 1 to 4.

Deleware & Hudson Co.:—Art. 3, secs. 1 to 8; art. 4, secs. 2, 3 and 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 9, secs. 1 to 4.

Duluth, South Shore & Atlantic Ry.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 2 and 3; art. 11, sec. 1.

Grand Trunk Ry., Western Lines:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 1, 2 and 3; art. 9, secs. 1 to 4; art. 11, secs. 1 and 2.

Great Northern Ry., including Brandon, Saskatchewan & Hudson Bay Ry.; Crow's Nest Southern Ry.; Manitoba, Great Northern Ry.; Midland Ry. of Manitoba (Great Northern trains only); Nelson & Fort Sheppard Ry.; New Westminster Southern Ry.; Red Mountain Ry.; Vancouver, Victoria & Eastern Ry. & Navigation Co.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 2 and 3; art. 9, secs. 2, 3 and 4; art. 11, sec. 1.

Michigan Central Rd.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 1, 2 and 3; art 9, secs. 1 to 4; art. 11, sec. 1.

Minneapolis, St. Paul & Sault Ste. Marie Ry.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 2, 3 and 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 2 and 3; art. 9, secs. 2, 3 and 4; art. 11, sec. 1; art. 12, sec. 7. This latter section affects dining car stewards, who were not affected in the original decision.

New York Central Rd.:—Art 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 1, 2 and 3; art. 9, secs. 2, 3 and 4; art. 11, secs. 1 and 2.

Pere Marquette Ry.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 1, 2 and 3; art. 9, secs. 1 to 4; art. 11, secs. 1 and 2.

Wabash Ry.:—Art. 2, secs. 1 to 9; art. 3, secs. 1 to 8; art. 4, secs. 1 to 4; art. 5, secs. 1 and 2; art. 6, secs. 1 to 4; art. 7, secs. 1, 3 and 4; art. 8, secs. 1, 2 and 3; art. 9, secs. 1 to 4; art. 11, secs. 1 and 2.

Action by Railway and Labor Organizations.

Addendum 1 to the Labor Board's decision 147 as quoted above having applied wage reductions to all classes of railway labor, the general chairman and other chief executives of all the labor organizations met at Chicago on July 1 to determine what action to take. A committee of five representatives of the organizations, consisting of B. M. Jewell, President, Railway Employes' Department, American Federation of Labor; F. H. Fitzgerald, President, Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes; L. E. Shepard, President, Order of Railway Conductors; E. J. Manion, President, Order of Railway Telegraphers, and T. Shea, Vice President, Brotherhood of Locomotive Firemen and Enginemen, was formed, to prepare and submit recommendations to the members of the organizations. On July 2, sub-committees of 10 members for each organization were appointed to consult with the above committee. Great differences of opinion were evident as to the procedure which should be adopted, the more radical element being checked by the conservatism of the "big four" brotherhoods. The greatest dissatisfaction was caused by the Labor Board's decision 119, which was supposed to abolish the national agreements, and which it was contended would give the railways opportunity to introduce rules and working conditions which would be much more unfavorable to labor. However, on July 3, all the representatives at the meeting had become informed as to the effect of the various interpretations of decision 119, and of the Labor Board's decision to continue the national agreements for the time being (see below), which served to lessen the dissatisfaction to a large extent. On July 4 and 5 further meetings were held, the result being the adoption of a resolution by the train service brotherhoods providing for a referendum vote, as to whether the wage reductions would be accepted or not. The resolution said, in part, that "the general chairman cannot assume the responsibility of accepting wage reductions, and that not later than Sept. 1 the entire subject matter be referred to the membership, through the various general chairmen, for acceptance or rejection." The other labor organizations have, in effect, followed the lead of the train service brotherhoods, and accepted the reduction under protest. It was also resolved at this meeting that the labor organizations' leaders attempt to arrange a meeting with a committee of railway executives, and ask that the railways go on record as to whether or not they would ask for further decreases in rates of pay, the abolition of schedule rules now in force, and the elimination of time and a half for overtime. The effect of these moves on the part of the labor organizations' leaders is to leave the way open for action against the railways should they attempt to enforce drastic changes in existing rules or working conditions. The reductions in wages, as contained in decision 147 and the addendum thereto, became effective on U.S. railways on July 1.

The Labor Board issued a decision July 2, that Pullman Co. employes will reeive the same wage reductions as were ordered for railway shop employes. The Pullman Co.'s case before the Board was dealt with briefly in Canadian Railway and Marine World for July, pg. 364.

The Labor Board issued another order July 12, reducing American Railway Express Co. employes' pay by 6c. an hour, effective Aug. 1. The saving to the company will, it is said, be about $8,000,000 a year. In July, 1920, express company's employes' wages were increased 6c. an hour by the Labor Board's order, so that the new order leaves their wages 10c. an hour greater than before July 1920.

As stated in Canadian Railway and Marine World for June, pg. 298, the Labor Board, on April 14, by decision 119, terminated the national agreements, effective July 1, and instructed railways and their employes to make individual agreements covering rules and working conditions. However, when this came to be done, the result was complete disagreement in the majority of cases, the

employes striving for the retention of the rules to which the railways objected as arbitrary. The Board was soon flooded with disputes to decide, and on June 28 it issued an order, as an addendum to decision 119, continuing the national agreements in effect until such time as it could consider and decide them. The order also ended the payment of time and one half for overtime except on those railways where such rate was paid for overtime work prior to Federal control. No indication is given as to when the Board will deal definitely with the agreements covering rules and working conditions, nor as to whether it will attempt to draft rules and working conditions to be applied to all railways, to replace the present national agreements.

A very significant decision was rendered by the Board in a dispute between the Missouri, Kansas & Texas Ry., and the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes. The question was whether the railway could make an agreement covering working conditions with its employes, or if it had to recognize, in the agreement, the organization which claimed to represent the employes. The railway conceded that the organization represented the majority of the employes, but declined to have it recognized in the title of the agreement. The Labor Board decided in favor of the organization, and called attention to a portion of decision 119, as follows: "The majority of any craft, or class of employes, shall have the right to determine what organization shall represent the members of such craft or class. Such organization shall have the right to make an agreement which shall apply to all members in such craft or class."

The Pennsylvania System has entered into agreements with its train service, employes, and its shop and other employes, which has given rise to a similar case before the Board. The railway claims it is given power by the Transportation Act to make agreements with its own employes, which right, it further claims, is also given it by the spirit of decision 119. It also claims that the Labor Board had no right to order the continuation of the national agreements. The railway is opposed by the American Federation of Labor's Railway Employes' Department, which claims absolute right to make agreements with the railway on behalf of its employes. The outcome of the case, which involves, in effect, the principle of the closed shop on the railways vs. the open shop, will be awaited with interest. The decision of the Board against the Missouri, Kansas & Texas Ry. would indicate that its opinion will likely favor the labor organization, but, on the other hand, the Pennsylvania employes have entered voluntarily into working agreements with the road's executive, and the railway is determined to maintain its open shop principles.

Between Aug. 1920, and July 1921, the number of railway employes laid off in the United States, according to Interstate Commerce Commission statistics, was 604,756. In the first three months of 1921, the total pay roll for U.S. railways was $38,000,000 less than in the corresponding three months of 1920, despite the increases in wages.

The U.S. Railroad Labor Board has prepared a new classification of railway employes, which was approved by the Interstate Commerce Commission, and became effective July 1. It is to be used in reporting the earnings of employes to the I.C.C., and to supply a standard for the regulation of wage rates by the Labor Board. It classifies employes into 17 distinct services, which are sub-divided into 119 groups, and within the groups are separate grades and distinct class titles.

In Canada, many meetings were held during July between representatives of the railways and of the employes, to consider agreements in connection with wage reductions. Grant Hall, Vice President, C.P.R.; S. J. Hungerford, Vice President, Operation and Maintenance, Canadian National Rys., and W. D. Robb, Vice President, Transportation, Construction and Maintenance, G.T.R., represented their respective companies in negotiating with the employes, and a committee of the Railway Association of Canada, of which Grant Hall is chairman, negotiated with the shop and maintenance of way employes, who have agreements covering all roads. On July 13, representatives of the shopmen reached a tentative agreement with the Railway Association committee, by which reductions averaging 8c. an hour were accepted, this being the amount of the reduction for most classes of shopmen specified in the U.S. Labor Board's decision.

On July 20 a tentative agreement was made between the Railway Association of Canada's operating committee and the United Brotherhood of Maintenance of Way Employes and Railway Shop Laborers, by which the employes represented by that organization agreed to reductions in pay, effective July 16, as set forth in the U.S. Railroad Labor Board's decision. About 40,000 employes are affected.

All classes of employes have been advised by the railways that reductions in rates of pay practically equal to those contained in Labor Board's decision 147 have been adopted by Canadian lines, effective July 16.

It is not known at the time of writing (July 25) what action will be taken by the train service organizations, but it was expected that they would arrive at a decision July 27, a joint conference of all the general chairmen of the running trades having been called for that date. The head of the Canadian Brotherhood of Railway Employes, an organization composed principally of clerks, is reported to have stated in Ottawa on July 24 that that organization had offered to submit the question of wage reductions as they affect that organization to a board of arbitration, but that the Canadian National and Grand Trunk Rys., on which roads practically all of the organization's membership is employed, had refused. He is reported as claiming that this action by the railways constitutes a lockout, and that they are liable to a fine of $1,000 a day until the matter is adjusted. He is also reported as stating that the wage cut is altogether unfair, the lowest paid men receiving the largest percentage of reduction, and that a reduction is not justified on the basis of present living costs. It is stated that employes who are members of this organization have expressed an unwillingness to accept the proposed reductions.

An Ottawa press dispatch of July 26 stated that application had been made on behalf of this organization to the Minister of Labor for a board of conciliation. Although the reduced rates of pay were in effect in the United States in the first half of July, they did not become effective in Canada until July 16, on account of negotiations having started later than in the U.S., and because the contract with the maintenance of way employes, who were not notified of the railways' desire to readjust wages until May 13, calls for 60 days notice. No changes of any importance have taken place in the agreements covering rules and working conditions for the various classes of Canadian railway employes.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John Bridge.—The Dominion Bridge Co. has started work on the erection of the new bridge over the St. John River, at the reversible falls, St. John, N.B.

The height of this bridge above the water line was brought before the New Brunswick Government at St. John on July 5, by a delegation of marine men, who claimed that it would interfere with ships passing up and down the river. This question was previously discussed fully before the Board of Railway Commissioners, and the Dominion Minister of Public Works, without effect, and the company's plans were finally approved.

New Brunswick District.—A press report states that the work to be done this year includes the laying of seven miles of new rails on the main line, principally between St. John and Westfield.

Fort William Coal Dock.—Referring to to the press report mentioned in Canadian Railway and Marine World for June, pg. 306, that a contract had been let to the Hurst Engineering & Construction Co., Fort William, Ont., for the erection of a concrete and steel addition to the C.P.R. coal dock there, at an estimated cost of $250,000, we are officially advised that a contract for the erection of the dock was let in 1920 to a contractor named Bradon, who was unable to complete the work, and the contract has simply been turned over to the Hurst Engineering & Construction Co. The work, which was discontinued some months ago, has since been resumed.

Saskatchewan Water Supply.—A press report states that the C.P.R. is prepared to guarantee $140,000 a year towards the cost of securing a water supply from the South Saskatchewan River, for the area between Regina and Moose Jaw.

Saskatchewan District Stations.—The new station at Moose Jaw, Sask., has been opened for use. A description of the building was given in Canadian Railway and Marine World for May, 1920, pg. 246, and an illustration in June, 1920, pg. 291.

Tenders were received to July 11 for the erection of three frame station buildings at Handel and Blucher, Sask.

Alberta Branch Lines.—D. C. Coleman, Vice President, Western Lines, is reported to have stated in Calgary, July 10, that the line under construction from Acme to Drumheller, Alta., will probably be completed by September, but that he could not give any probable date for the completion of the Lomond-Blackie extension.

Suggested Extension to Fort Norman. D. C. Coleman, Vice President, Western Lines, is reported to have stated recently at Winnipeg, that railway construction to the Fort Norman oil district will certainly not be provided until at least it has been shown conclusively that oil does not exist in paying quantities nearer to existing lines of railway. (June, pg. 306.)

Grand Trunk Railway Arbitration Proceedings.

The proceedings in the arbitration at Montreal before Sir Walter Cassels, President, Exchequer Court, as chairman; Sir Thomas White, representing the Dominion Government, and W. H. Taft, representing the G.T.R., to determine the value of certain G.T.R. capital stocks to be acquired by the Dominion Government, were dealt with in Canadian Railway and Marine World for July up to June 24, when the presentation of evidence was concluded, and an adjournment was made to June 30, to enable counsel to prepare for their arguments. It was arranged that counsel for the G. T.R. should have three days for the presentation of arguments, and the Government counsel the same time, after which rebuttal arguments might be presented.

Eugene Lafleur, K.C., opened the argument for the G.T.R. on June 30, speaking on general matters connected with the case, and presenting a carefully prepared and studious review of the whole situation. He argued that it was the aggregate value of the G.T.R. property which must be considered, as a going concern, and not the value to individual shareholders. As to the "market value," he said no such thing existed, there being no market in the ordinary sense for so vast a railway system. He argued that the arbitrators should not consider stock depreciation consequent on the agreement to turn the G.T.R. over to the Government, nor should it consider depreciation in the value of G.T.R. securities due to financial and business depression. He pointed out the great increases in traffic in recent years on the G.T.R., and said that the company's earning power would be great in the future, when prosperous conditions return and immigration resumes. He claimed that the Government was buying assets rather than stock, and also showed how the unfavorable conditions surrounding the railway industry during recent years had reduced G.T.R. earnings in common with those of all other roads. Through all of his argument ran an undercurrent of reference to the fact that the G.T.R. had offered evidence as to the physical value of the property, which evidence had been rejected by the arbitrators. It was evident that he attached great importance to this feature of the case, and that he wished to make it clear that the G.T.R. counsel had not receded from their attitude in connection with it.

A. W. Atwater, K.C., followed for the G.T.R. on June 30 and July 1, arguing the financial side of the question. He contended that evidence as to physical value should not have been ruled out, stating that it would be practically impossible to form a just appreciation of the value of the properties without the admission of such evidence. This, in his opinion, applied particularly to the G.T. Pacific, as the enormous assets of that road had not been taken into consideration, although they constitute the basis of value. On the other hand, he said, full consideration had been given to liabilities, in order to show decreased value. He dealt at length with the general finances of the G.T.R. and its subsidiaries, pointing out that, while there had been a great growth in traffic, this had been offset by abnormal costs which had not been compensated for by rate increases granted. After showing how rate increases allowed the G.T.R. had been inadequate, he contended that railways, which are regulated by Government agencies, should have their rates fixed so as to provide a reasonable return on invested capital. He pointed out that the G.T.R. net income from 1912 to 1916 inclusive had been sufficient to pay dividends on the guaranteed stock, and provide approximately $2,500,000 a year for dividends on preferred and common stock. He considered the period from 1912 to 1916 inclusive a fair one to take as a test of the earning capacity of the railway, and stated that the ratio of net operating income to revenue was higher on the G.T.R. than on the other roads in the eastern U.S. group operating under similar conditions. After presenting an analysis of the financial condition of the Central Vermont Ry., he dealt with the Grand Trunk Pacific Ry. and the Grand Trunk Pacific Development Co., pointing out the value of their assets in the way of hotels, docks and wharves, steamships and lands. Summing up, he declared that the financial position he had outlined justified him in saying that the G.T.R. and is subsidiary properties have a great potential earning capacity, in view of which G.T.R. counsel would not be satisfied unless the maximum sum mentioned in the reference is awarded the company.

F. H. Phippen, K.C., spoke on July 2, 4 and 5 for the G.T.R. He reviewed the situation caused by the rejection of evidence as to the physical value of the property, contending that the only basis on which the value of the stocks could be determined with any degree of accuracy had been ruled out by the arbitrators. He reviewed the portions of the Drayton-Acworth report dealing with the G.T.R. and G.T. Pacific Ry., pointing out errors in connection with their future financial requirements. He criticized the evidence submitted on behalf of the Government in connection with the physical condition of G.T.R. properties and equipment, and maintained that other evidence submitted demonstrated that the property had been kept in good working order in every department. He admitted that during the wor the G.T.R. had got behind in maintenance work to a certain extent, but explained that every railway had the same experience, on account of labor and material shortages, while since the war deferred maintenance had been caught up. He went into the financial position of several G.T.R. subsidiaries, pointing out that they had passed through a difficult period, but that the future promised an opportunity for all of them to realize on their potential earning capacity. He argued against the Government's right to deduct from the compensation allowed the shareholders the amount of G.T.R. guarantees to subsidiaries. He contended that the Government had not been able to produce a witness who could show that the road is not in first class operating condition. He quoted H. H. Vaughan and W. D. Robb to the effect that the G.T.R. is in first class condition physically, and in connection with Lt. Col. C. N. Monsarrat's evidence concerning the bad condition of bridges, he quoted several G.T.R. engineering officials to the effect that all the bridges require is the usual maintenance work, which they will receive in the usual course of events. He pointed out that in 70 years of operation, there had never been an accident on the G.T.R. due to a bridge failure. He also show that when F. H. McGuigan was appointed to supervise the rehabilitation of the system, the road was only in fair condition, but that since that time the property has been practically rebuilt, relaid with heavy steel, equipped with modern locomotive houses and other facilities, and double tracked to Chicago, making it an enormously valuable system. He stated that labor and other operating problems are approaching a solution, to the end that the G.T.R. would be enabled to make much better returns in future than it had during the past few years. He gave figures showing the great increase in traffic from 1911 to 1920, pointing out that this increase may logically be expected to continue, and stated that the railway could handle an increased traffic of 50% without any material increase in capital investment, which would add to the property's value. He submitted tables showing the average selling price of G.T.R. stocks, both preferred and common, on the London stock exchange, for a number of years past, and reviewed conditions prevailing for the last few years as they affected these stock values.

At the conclusion of Mr. Phippen's argument the chairman, Sir Walter Cassels, brought up the question of the division, among the holders of the various classes of G.T.R. stock, of any award the arbitrators might make. A. W. Atwater, K.C., for the G.T.R., stated that cable communication had been had with the shareholders' committee in England as to the division of any such amount received among the holders of the 1st, 2nd and 3rd preference stock and the common stock, but the information received had been very indefinite. After some discussion, he undertook to cable to England and ask the shareholders' committee for a definite statement of their views concerning a division, by percentages, of any award made.

W. N. Tilley, K.C., for the Government, presented his argument on July 5, 6 and 7. He reviewed the agreement which provided for the arbitration, and expressed the opinion that there had been a good deal of juggling of G.T.R. accounts, and that market quotations for the stock were useless as a basis for fixing values. He declared that the common stock is not worth a dollar. He thought the way in which the award should be divided between the various classes of stock holders should be on the basis of the intrinsic value of the shares, and that voting power should have nothing to do with it. Mr. Taft took exception to this view, saying that voting power gave control, and therefore had value, and considerable discussion ensued. Mr. Tilley devoted a large part of his argument to the G.T. Pacific, stating that when the G.T.R. undertook its western venture, it did so in the hope of improving its position financially, but that the continual hope of future improvement had never materialized. He said that the losses sustained by the G.T.R. were due partly to abnormal conditions, but mainly to the G.T. Pacific venture. However, apart from the growing deficits of its subsidiaries, he claimed, the G.T.R. itself would in time go into liquidation.

H. A. Lovett, K.C., for the Government, followed on July 7, dealing mainly with the value of the G.T.R. rail and river coal mine property in Ohio.

Pierce Butler, of the Minnesota bar, followed for the Government. He analyzed the G.T.R.'s general physical and financial condition, and stated that the arbitrators' work would have been much easier if Sir Alfred Smithers and E. J. Chamberlin had come to give their testimony as to finances. He criticized statements made by President Kelley of the G.T.R., saying they were too broad and sweeping in nature to be of any value, and with no facts presented to support them. In his opinion, the evidence submitted by G.T.R. counsel and supporting witnesses as to physical condition, and in connection with deferred maintenance, had not been at all convincing, and he pointed out that the G. T.R. had come before the arbitrators without a dollar reserve to meet the millions required for maintenance, notwithstanding the assistance rendered by the Government. He claimed that deferred maintenance had been so treated that the accounts were eventually made a charge against capital, and made a severe attack upon the absentee system of management which the G.T.R. had experienced. It seemed to him that the G.T.R. management had been asleep while the period of rapid western development had been going on. Dealing with the Central Vermont and the Grand Trunk Pacific, he claimed that the deficits incurred by these subsidiaries had been much greater than shown, and that many of the assets were largely imaginary.

On July 8, Messrs. Phippen, Lafleur and Atwater spoke in rebuttal for the G. T.R. Mr. Phippen analyzed the arguments advanced by Government counsel, differing with the conclusions drawn by them, notably in connection with the matter of deferred maintenance. He claimed that the G.T.R. had made every effort to get the property into first class shape after the termination of the war, and had succeeded. He pointed out the great increases in traffic which had taken place on the G.T.R. and its subsidiaries during the past 10 years, which, he said, taken in combination with promised reductions in operating expenses, would have the effect of increasing the earning capacity of the properties. E. Lafleur, K.C., dealt with legal points, and A. W. Atwater, K.C., dealt shortly with financial matters.

Argument was closed on July 8 at 4.30 p.m., bringing to a close one of the most important arbitration proceedings ever held in connection with a public utility. It occupied 72 days of actual sittings; the evidence and argument taken by the stenographers covered 8,000 typewritten pages, and 518 separate exhibits were filed. The arbitrators were then faced with the task of studying the evidence and preparing a report to support the finding or findings they may arrive at. While Sept. 1 has been mentioned as the date on which the final award may be expected, it was intimated by Sir Walter Cassels that, in view of the length of the sittings, and the mass of evidence to be reviewed, it may be later than that before the decision is given.

The American Railway Engineering Association's directors met in Montreal, July 13. They were taken over the harbor in the afternoon and entertained at dinner in the evening by a number of Montreal engineers.

Exhaust from Locomotive Booster Engine.

In an article in Canadian Railway and Marine World for June on the locomotive booster tests on the Timiskaming & Northern Ontario Ry., reference was made to the method of handling the exhaust from the booster engine. It was pointed out that the exhaust steam, instead of being carried back through a pipe, to exhaust from the top of the tender, or being carried back to exhaust into the water in the tank, as has been the practice in installations on U.S. railways, is exhausted through the stack. It was also stated that this method would be followed in future applications. We are officially advised that this method has not been decided on as the standard, but that in future applications the method of exhaust will undoubtedly be governed by local conditions, and the preference of the railways ordering the device. As was pointed out in our article, however, the method of handling the exhaust steam as employed on the T. & N.O.R. has given entire satisfaction, and cylinder back pressure has not been increased to any extent by handling the exhaust steam from the booster through the stack.

Grain Inspected at Western Points.

The following table, prepared by the Dominion Bureau of Statistics, Internal Trade Branch, show the numbers of cars of grain inspected at Winnipeg, and other points on the Western Division, for June, and for 10 months ended June 30, 1921 and 1920.

	June 1921	10 mos to June 30, 1921	10 mos to June 30, 1920
Canadian Northern Ry. ..	2,731	66,155	50,608
Canadian Paific Ry.	4,185	100,510	68,434
Grand Trunk Pacific Ry.	856	21,431	19,534
Great Northern Ry. (Duluth)	35	210	579
Totals	7,807	188,306	139,155

The C.P.R. opened a new bungalow camp for tourists at Wapta Lake, near Hector, B.C., July 1. It has 25 rustic bungalows and a central community house.

Grain in Store at Elevators.

Grain in store at public terminal elevators, interior terminal elevators, country elevators in Western Division, and public elevators in east, also at U.S. Atlantic seaboard ports. Prepared by the Dominion Bureau of Sstatistics, Internal Trade Division.

Week ended July 8.	Wheat.	Oats.	Barley.	Flax.	Rye.	Totals.
Fort William	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.
C.P.R.	371,408	647,756	279,048	.....	63,586	1,361,798
Consolidated Elevator Co.	421,794	214,730	78,700	190,499	832	906,555
Ogilvie Flour Mills Co.	271,982	80,161	27,142	.....	3,129	382,414
Western Terminal Elevator Co.	256,265	145,402	18,696	287,152	5,743	713,258
G. T. Pacific	524,440	800,067	57,728	142,143	5,196	1,530,076
Grain Growers' Grain Co.	542,470	376,853	76,544	.....	7,975	1,003,842
Fort William Elevator Co.	45,472	251,297	97,665	187,659	8,347	590,440
Northwestern Elevator Co.	310,362	124,894	79,402	.....	**29	514,629
Port Arthur—						
Port Arthur Elevator Co.	665,120	1,252,318	242,263	78,599	22,967	2,261,267
Sask. Co-op. Elevator Co.	932,407	296,697	42,146	258,286	7,265	1,537,801
Canadian Government Elevator	165,613	758,033	63,667	334,836	22,439	1,344,588
Davidson and Smith	60,497	134,954	36,073	.....	**95	231,429
Private Terminal Elevators	994,709	1,196,427	196,234	249,154	3,351	2,639.925
Total Pub. & Pte. Terminal Elevators.	5,563,091	6,279,589	1,295,308	1,729,308	150,106	15,018.022
Total Pte. Term. Elevators, Winnipeg	50,050	68,518	6,573	789	.....	80,931
Saskatoon: Can. Gov't Elevator	47,813	401,451	3,076	796	.....	453,136
Moose Jaw: Can. Gov't Elevator	22,606	193,283	.....	2,791	81	218,761
Calgary: Can. Gov't Elevator	52,863	1,309,909	12,797	.....	119	1,275.688
Vancouver, B.C., Can. Gov't Elevator..	632	7,360	9,641	.....	.....	17.633
Total Interior Terminal Elevators	123,914	1,812,003	25,514	3,587	200	1,965,218
Midland—						
Aberdeen Elevator Co.	.....	231	.....	.....	.....	231
Midland Elevator Co.	2,693	666,690	6,423	.....	.....	675,806
Tiffin, G.T.P.	.....	208,261	.....	37,831	.....	246,092
Port McNicoll	32,659	549,048	.....	10,000	.....	591,707
Goderich—						
Elevator & Transit Co.	104,987	105,570	10,000	.....	.....	220,557
West Can. Flour Mills Co. Ltd.	163,442	.....	.....	.....	.....	163,442
Kingston—						
Commercial Elevator Co.	.....	522	2,814	.....	.....	3.336
Port Colborne—						
Can. Gov't Elevator	31,168	214,398	.....	.....	.....	245,566
**Maple Leaf Milling Co. Ltd.	104,882	.....	.....	.....	.....	104.882
Montreal—						
Harbor Commissioners No. 1 and 2..	913,561	1,378,875	402,340	.....	53,778	2,748.554
St. Lawrence Milling Co.	90,246	12,985	574	.....	.....	103.805
Montreal Warehousing Co.	8,062	927,379	79,770	.....	14,947	1,030,158
Ogilvie Flour Mills Co.	36,000	.....	.....	.....	.....	36,000
Quebec Harbor Commissioners	.....	141,840	.....	.....	.....	141,840
West St. John, N.B., C.P.R.	5,373	.....	.....	.....	.....	5,373
Total Public Elevators	1,493,073	4,205,799	501,921	47.831	68,725	6,317.349
*Total Country Elevators	3,709,895	5,013,754	1,099,834	477,308	.....	10,300,791
U.S. Atlantic Seaboard Ports—						
Portland, Me.	23,669	.....	27,931	.....	.....	51,600
Baltimore, Md.	31,684	.....	.....	.....	6,044	37,728
New York, N.Y.....	776	369,396	11,236	.....	527	381,935
Total U.S. Atlantic Seaboard Ports	56,129	369,396	39,167	.....	6,571	371,263
Total U.S. Lake Ports						
Duluth, Minn.	50,000	.....	2,000	.....	.....	52,000
Buffalo, N.Y.	73,266	.....	.....	.....	.....	73,266
U.S. Lake Ports—	123,266	.....	2,000	.....	.....	125.266
Total Quantity in Store	11,074,418	17,749,000	2,970,317	2,258,843	226.202	34.278.840

*Week ended July 1. **Overshipped.

The Proposed Grouping of Railways in Great Britain.

In Great Britain, as in Canada and the United States, railway operation, during the past few years, has been marked by operating expenses increasing in greater proportion than operating revenues, and the Government has been called upon to make good the deficits incurred in the operation of the majority of the railways. The British Government has been in control of the railways since the outbreak of the great war, and has guaranteed a stated return to them. They are to be returned to private operation in August. Railway legislation in Great Britain, since the time when railways were first introduced, has been added to in large measure year by year, and it is now proposed to wipe out these accumulated masses of legislation, and start the railways under private operation again under new and radically changed regulative law. To this end, a bill was introduced in the House of Commons on May 12, by Sir Eric Geddes, Minister of Transport, providing for the return of the railways to private ownership, their re-organization, and future regulation.

The bill contains over 700 clauses, and is divided into six parts. Part 1 contains provisions for the compulsory grouping of the railways into six territorial groups, the undertakings in each group being divided into constituent companies and subsidiary companies, the former, generally speaking, being main line companies and the latter tributary companies. The groups are as follows: 1. Southern group, including the London & South Western Ry., the London, Brighton & South Coast, South Eastern, and the London, Chatham & Dover Railways, and 15 subsidiary companies. 2. Western group, including the Great Western Ry., and 35 subsidiary companies. 3. North Western and Midland group, including the London & North-western, the Midland, the Lancashire & Yorkshire, the North Staffordshire and the Furness Railways, and 18 subsidiary companies. 4. North Eastern and Eastern group, including the North Eastern, the Great Central, the Great Eastern, the Great Northern and the Hull & Barnsley Railways, and 19 subsidiary companies. 5. West Scottish group, including the Caledonian, the Glasgow & South Western and the Highland Railways, and 10 subsidiary companies. 6 East Scottish group, including the North British and the Great North of Scotland Railways, and 5 subsidiary companies.

The constituent companies in each group are mutually to agree on and submit a scheme for amalgamation. The amalgamated companies are then to submit schemes for the absorption of the subsidiary companies in their groups. Failing agreement, schemes for amalgamation and absorption are to be settled by a tribunal which is provided for in the bill. Amalgamation and absorption schemes are to be brought into operation on Jan. 1, 1923. A payment to the railways by the Government of £60,000,000 as completion of compensation arising out of the period of Government control, one-half to be paid at the end of 1921 and one-half at the end of 1922, is also provided for in this part of the bill.

Part 2 of the bill deals with the powers of the Minister and of the Railway and Canal Commission, as to the future regulation of the railways, including the gradual standardization of equipment.

Part 3 deals with the regulation of railway rates. Theoretically, the scale of rates is to be such as to yield a net revenue equal to that of 1913, plus 5% on capital expenditures made by the railways during Government control, plus a reasonable allowance for capital expenditures on revenue producing improvements which had not become fully remunerative at the beginning of 1913. Rate regulation is to be in the hands of a tribunal of three members to be appointed by the King, on the joint recommendation of the Minister of Transport, the Lord Chancellor, and the President of the Board of Trade. The chairman of this tribunal is to be a railway men, the second member a business man and the third a lawyer. If the groups, either through falling costs, or improved efficiency, produce a surplus over the standard revenue, they will be entitled to retain 20% of such surplus, rates and fares being adjusted so as to absorb the remaining 80%.

Part 4 deals with management, wages and working conditions. Provision is made that all the directors of the new groups shall be qualified proprietors elected by the proprietors. Any dispute concerning wages or working conditions is first to be referred to a Central Wages Board, which is to be made up of five railway management representatives and five employes' representatives. An appeal will lie from this body to the National Wages Board, made up of four railway management representatives, four employes' representatives, and four public representatives.

Part 5 deals with light railways, and provision is made for the assumption by the Minister of Transport of the existing powers and functions of the Light Railway Commissioners.

Part 6 contains clauses of a general nature, dealing with the question of the preparation of accounts, returns and statistics. The Minister seeks power to regulate the compilation of accounts, and to continue for five years the present system of statistics, after which their continuance may be determined by a committee drawn from a panel set up under the Ministry of Transport Act, 1919, sec. 23.

Irish railway companies are affected by the bill only in so far as the rendering of statistics and returns is concerned.

The second reading of the bill was carried on May 30. The principal opposition during the discussion in the House of Commons came from the Labor party, which wants railway nationalization; there was also some opposition from the Scottish railway companies, who desired a different grouping of their properties. After the second reading, the bill was referred to a standing committee of the House of Commons, and on June 14 it was announced by the committee that the demands of the Scottish railways would be acceded to, the effect of this being that the bill will be changed in such a way that several Scottish railways will be grouped longitudinally with railways in England over which through traffic between the two is run. On June 16, the committee rejected an amendment to provide that any particular area should be served by at least two groups, to preserve competition. On June 21 it rejected an amendment to provide that the railway systems only should be amalgamated, leaving to the several railway companies their canals, wharves, docks, harbors, etc. At the time of our last advice, discussion of the bill in committee was continuing.

Comparing this legislation with the Transportation Act passed in the U.S. for similar purposes in 1920, it is seen that both provide for the consolidation of railways into a few large systems. However, in the U.S., these consolidations are to be optional, and are not expected to take effect for some time, whereas in Great Britain the consolidations are proposed to be compulsory and to take effect in the near future. The consolidations proposed in the U.S. would be such as to make the new large systems competitive, but those contemplated in Great Britain are, apparently, territorial consolidations purely, and non-competitive. Similarity between the two acts is seen in the rate making clauses, the returns in each case to be a direct percentage on the value of the property used in the public service. There is further similarity in the clauses covering the settlement of wage disputes, the public being represented on the final appeal board in Great Britain in the same way that it is on the U.S. Railway Labor Board in the U.S. (See Canadian Railway and Marine World for May, pg. 257.)

Inspector of Railway Safety Appliances at Calgary.

The Civil Service Commission in inviting applications for the position of Inspector of Railway Safety Appliances, Board of Railway Commissioners, Operating Department, Calgary, Alta., at an initial salary of $1,920 a year, which will be increased upon recommendation for efficient service at the rate of $120 a year until a maximum of $2,400 has been reached. This initial salary will be supplemented by whatever bonus is provided by law.

Duties.—Under supervision, to inspect locomotives, cars, and other railway equipment for compliance with legal requirements for safety of operation; to inspect fire prevention appliances; to inspect protective conditions at highway and other public crossings; to investigate and report on accidents and complaints of violation of operating rules; and to perform other related work as assigned.

Qualifications. — Education equivalent to high school graduation; at least three years of experience in mechanical or motive power department of a railway; thorough knowledge of operating safety appliances; good judgment. Preference will be given to candidates between the ages of 21 and 35 on Aug. 4, 1921. A rating on education and experience will be given from the sworn statements submitted by applicants on their application forms. To those who qualify, an oral examination may be given, if necessary.

Baggage Insurance for Travellers.—The Canadian National and Grand Trunk Rys. are arranging for the issue at their city and larger station ticket offices of insurance policies on personal baggage of travellers while journeying by land or sea, also while staying at hotels, etc., and covering fire, theft, pilferage and water damage.

The Railway Problem in the United States.

The U.S. Senate committee's investigation into the conditions surrounding the railway industry in the U.S. has served to bring out many important facts, and has presented the railway executives, who were called upon to testify first, with an opportunity to acquaint the Government with the details of the situation. The investigation was summarized in Canadian Railway and Marine World for July up to the point where L. E. Wettling, Manager, Bureau of Statistics, Western U.S. Railways, and W. H. Williams, Chairman of the Board, Wabash Ry., had begun their testimony. Continuing, Mr. Wettling presented many statistics of the railway business, and pointed out that railway operating revenues in 1920 were the largest on record, but that the net operating income was the smallest ever obtained. Of every dollar earned in 1920, 59.9c. was paid out to labor, as compared with 55.3c. in 1919. Locomotive fuel took 10.9c., as against 9.2c. for 1919; 17.3c. went for material, supplies and miscellaneous, as against 15.6c. in 1919, and 10.9c. for loss and damage, injuries to persons, depreciation and taxes, as against 11.1c. in 1919. Only 1c. was left in 1920 for return on investment, as against 8.8c. in 1919 and 28.9c. in 1916. Speaking of the increases in railway operating revenues and expenses within recent years, he presented statistics to prove that from 1912 to 1920 the increase in total operating revenues was $3,366,000,000, or 120%; the increase in operating expense was $3,809,000,000, or 194%, and the increase in compensation of employes was $2,489,000,000, or 205%. The pay roll was 43.13% of the revenue in 1912, and 59.92% in 1920. In connection with traffic handled, he showed that the railways in 1920 rendered more transportation service than ever before, showing 12.6% more freight ton mileage and 1.2% more passenger mileage than in 1919. Including non-revenue freight, the ton miles handled in 1920 exceeded those handled in 1919 by 13.2%. This increased tonnage was handled with an increase in train miles of only 11.3%.

W. H. Williams, Chairman of the Board, Wabash Ry., presented some interesting statements in connection with maintenance of the railways while under Federal control. He stated that a substantial portion, if not all, of the increase in number of units of material and number of hours of service performed in 1920 as compared with 1919, over and above that necessitated by increased service, was due to the under-maintenance of 1919, and not to any over-maintenance in 1920. He pointed out that the Director General had issued many orders in 1919, and before the roads were turned back in 1920, which had for their purpose the limiting of expenditures, during the period of Federal control, to the amount which the Government was obligated to expend for maintenance of the properties. One order in May of 1919 was that the expenditures for the following months should not be more than the average, but the spring and summer months are those when the greater part of the maintenance work is done, and the effect of this order was to cause serious under-maintenance, which was not made up till 1920. Speaking of the Wabash Ry., he said that during Federal control 1,052,043 ties should have been put in to maintain previous standards; but only 861,794 were put in, leaving a shortage of 412,880.

[Practically all of the railways which were operated by the Government during the period of Federal control have made claims against the Railroad Administration for under-maintenance. The stand taken by the U.S. Government in this connection, and the attitude of the railways, was explained in Canadian Railway and Marine World for July, pg. 374. The total amount of the claims involved in connection with alleged under-maintenance is between $700,000,000 and $800,000,000, most of this sum representing the difference between the railways and the administration on the interpretation of the contract. No indication has as yet been given as to how these claims will be ultimately settled.—Editor.]

Mr. Williams made some suggestions for the relief of the railways, one being that power to order the re-establishment of unprofitable passenger services, the erection of new stations, etc., be taken from the state commissions and vested solely in the Interstate Commerce Commission. He also suggested that freight rates for carload shipments be based on the cars being loaded to capacity, and that the seniority rule of promotion of employes be modified in such a way that a man without the necessary qualifications could not receive promotion.

S. Davies Warfield, President of the National Association of Owners of Railway Securities, who was the next witness, claimed that the big requisite of U.S. railways at present is economy in operation, and advocated the formation of an organization embracing all railway officers, for the purpose of studying all possible economies, and to make available scientifically assembled information for the use of the officers generally. He urged Federal incorporation of the National Railway Service Corporation, which was organized by the association of security owners in July last, and which has been supplying equipment to railways otherwise unable to get it. In his opinion, this corporation should not only supply carriers with equipment under long-time yearly payments, but should also acquire a floating supply of equipment to loan to them on a per diem basis. He also advocated co-ordinated relations between the Interstate Commerce Commission and the U.S. Railroad Labor Board, stating that the present system, wherein one body regulates rates and earnings, and the other, totally independently, regulates wages, representing 65% of operating expenses, is farcical. He stated that his association represents the owners of $11,000,000,000 worth of railway securities, and that it has appointed a Board of Economics and Engineering, which would be glad to co-operate with any railway executives who care to make use of the results of its studies and enquiries.

Forney Johnson, counsel for the Association of Owners of Railway Securities, enlarged upon Mr. Warfield's plan for an organization of railway officers, and urged that such an organization should be authorized to act as an agency of the Interstate Commerce Commission. He proposed a bill entitled "An act to further economies and efficiency in railway transportation," which would bring about such an organization. He also proposed legislation to extend the activity of the National Railway Service Corporation in connection with the securing of equipment for railways.

Edwin Ludlow, President of the American Institute of Mining and Metallurgical Engineers, addressed the committee in connection with proposed economies in the purchasing of coal, and J. F. Wallace, a member of the Board of Economics and Engineering referred to above, pointed out the need for economy in the operation of terminals and terminal facilities. George Brock, President of the National Association of Mutual Savings Banks, told the committee that these banks own $900,000,000 of railway bonds, but that they are acquiring none at present, nor will they until proper safeguards are placed around railway investments. If such were done, he said, these banks could supply the railways with $100,000,000 new capital yearly. L. B. Stillwell, consulting electric engineer, and a member of the Board of Economics and Engineering, pointed out the economies to be obtained in equipment standardization. W. A. Colston, Director of the Bureau of Finance of the Interstate Commerce Commission, expressed his approval of the National Railway Service Corporation's work, and stated that it had been very helpful in financing purchases of equipment for certain railways. He advocated the enlargement of its powers, as suggested by Mr. Warfield. He thought it should have a Federal charter, and that the act of incorporation should provide that the assets and profits of the corporation shall be the assets and profits of the United States. W. L. Fisher, Counsel, Chicago Railway Terminal Association, urged the importance of legislation to compel the better co-ordination of railway facilities, by the unification of terminals and in other ways.

Hearings before the committee have been suspended till about Sept. 1, it having been proposed in the Senate to take a series of recesses in July and August. Shippers, and the representatives of organized labor are yet to be heard, and it is probable that S. Davies Warfield, and other representatives of his association, will be recalled.

North Bay Freight Terminals. — The Canadian National Rys. maintained their own local freight sheds and office on their station grounds at the head of Sherbrooke St., North Bay, Ont., until July 1, when they were closed, and all C.N.R. local freight for North Bay has since been handled at the Timiskaming & Northern Ontario Ry.'s local freight terminal at Regina St., which, although owned and operated by the T. & N.O.R., has always been a joint terminal with the G.T.R.

Civil Service Act does not apply to Canadian Government Railways or Steamships.—The Dominion Parliament, at its last session, enacted an amendment to the Civil Service Act, 1918, providing as follows: "38a. The provisions of this act shall not apply to positions in connection with the Government Railways or any railway owned or controlled by His Majesty, or to any position on any ship of His Majesty, until Parliament otherwise enacts."

Newfoundland's Railway Difficulties.

The question of Newfoundland's railway and steamship transportation interests, in so far as they are a matter of arrangement between the Newfoundland Government and the Reid Newfoundland Co., is the most important one at present under consideration in that island Dominion, as it has been for many years past. The late Sir Robert Reid entered the railway construction field in Newfoundland after he had carried out important contracts on the C.P.R. transcontinental line, and then concentrated the whole of his attention on the provision of transportation facilities for Newfoundland. The railway lines were built and placed in operation under agreements with the Government; a telegraph line was built, steamships were put in operation to connect the island railway with Canada at Sydney, N.S., and various steamship routes were established, under Government subsidy, to connect various ports in different parts of the island with St. John's. A drydock and ship repairing plant, and electric railway were built at St. John's. All these enterprises were operated by the Reid Newfoundland Co., but it has been almost entirely in connection with the railway that the controversy has arisen. After prolonged discussion an agreement was made with the Reid Newfoundland Co. in 1901 under which the company was to operate the line under lease for 50 years, when the line was to pass into the Government's possession, and all claims of a financial nature between the two parties were to be settled. The railway was operated under this agreement, at a loss to the company, until June 30, 1920, when, in consequence of the increasing losses, and the necessity of large expenditures for repairs, which the company was not prepared to undertake, the Government obtained legislative authority to appoint a commission to operate the railway and to supervise the expenditure of $1,000,000 provided out of a Government loan, on track repairs, additional rolling stock and some new terminal facilities at St. John's, and at Argentia, a new port. The commission was to consist of six members, three to be appointed by the Government and three by the Reid Newfoundland Co. Hon. W. F. Coaker, Minister of Finance, was the chairman of the commission.

On April 7, 1921, the Premier informed the Legislative Assembly that the amount paid out by the Government to that time for construction, equipment and operation of the railway from July 1, 1920, was $1,500,000, and that the further amount required to pay for the work, etc., estimated to be completed by June 30 was approximately $1,000,000.

The Government members of the Commission on June 15 presented an interim report, promising a detailed financial statement and other information on the winding up of the year's operations on June 30, when they would cease to have control. As this interim report had not been made public, Sir M. P. Cashin on June 24 asked a lengthy series of questions based thereon, from which it would appear that $300,000 provided for the purchase of fishplates and angle bars, had not been expended; that 100 freight cars ordered had not all been delivered; that work had not been started on the additional freight accommodation provided for at the St. John's terminals, and that work on the new terminals at Argentia had not been completed as promised.

As the result of the operation by the Commission of the railway, and of certain steamship lines, which were also taken over under an order in council of Aug. 23, 1920, showed an increasing loss, the Government directed the abandonment of the operation by the Commission, its disbanding on June 30, and the return of the railway to the company for operation on July 1. The company then notified the Government that unless substantial aid was forthcoming it could not operate the railway.

Sir George Bury's Report.

The Government, early this summer, invited Sir George Bury, ex Vice President of the C.P.R., to visit the island and look into the railway's position, etc., and on June 29 he made the following report:—"I have made a study of the railway situation in Newfoundland, as desired by you, and my suggestions are:

"That a contract be entered into for one year, from June 30, 1921, with the Reid Newfoundland Co., to operate your railway, without prejudice to former agreements. That the company be required to operate the railway with the utmost economy, consistent with safety and reasonable service. That a capable general manager be appointed by the company to operate the railway and that the appointment be subject to your approval. That a commission of three be formed with the powers of the Canadian Board of Railway Commissioners, except where such powers would conflict with any agreement existing between the Government and the compancy. This commission to deal with all public utilities in addition to the railway. That expenditure on capital account be made only upon the written sanction of the Government and that these works be paid for when completed upon a certificate from the Government Engineer.

"The railway since 1904 to date has cost to operate $5,750,000 more than it earned. Of this amount $1,650,000 was lost during the past year when the railway was operated by the Commission appointed by the Government, and $1,325,107.50 the year previous. During the year ending with this month wages of employes were increased, rolling stock, shop force, maintenance men and porters on June 30, 1920, and locomotive men and firemen at the end of September and the station staff and trainmen at the end of the year. The officers of the railway estimated that the loss on the coming year's operations will be over $2,000,000. The earnings are falling and the railway's traffic officers place the decrease to be expected at almost half the present receipts. I believe their estimate is too pessimistic and have made my calculations on a more hopeful outlook.

"To operate the railway at the minimum cost, consistent with safety and reasonable service, certain changes in operations must follow, which have been placed before the Reid Newfoundland Co. in the form of suggestions. That the Government agree to pay the actual loss from operating the railway during the company year, but that should the loss exceed $1,500,000 that such excess should be borne by the company.

"The very large expenditure that was proposed, to place heavier rails on the line, should be deferred. The rails on the Fortune Bay branch (never operated) should be taken up and used for replacing worn rails. For a number of years to come the rails at present on the railway will answer by anchoring them either by substituting angle bars for the fish plates now in use, by rail anchors, or by slotting the rails at the ends to hold the joint on the tie. I recommend that the rails be slotted, which can be done cheaply as they lie, and that only sufficient angle bars for 100 miles of track be bought to substitute fish plates on swamps and such places where the most difficulty is experienced in preventing the rails running.

"A series of light snow sheds, through a side hill, to the extent of about a mile should be constructed west of Avondale. Much delay to traffic would be avoided and economy will result.

"So soon as money is available, a coal handling plant should be built at Argentia, one suitable to the present and prospective tonnage to be transferred.

"If you are unable to enter into a contract with the Reid Newfoundland Co., or believe it undesirable to do so, there is only operation by the Government left. In view of the unfortunate results which have come from government operation of railways in Canada, the United States, Great Britain and elsewhere, I imagine you would prefer to go to some lengths before embarking upon such an undertaking."

Sir George Bury's report has been criticized considerably by the Newfoundland press, one of the chief objections urged being that he did not spend sufficient time there to look thoroughly into the situation. His suggestion for the appointment of "a capable general manager" is particularly resented. In this connection the St. John's News says:—"The present General Manager is both capable and experienced, and given the facilities and the backing that Sir George asks for his proposed successor, would accomplish more than any railway man unacquainted with local conditions could hope to do."

The Government's Action.

In the House of Assembly on July 7 the Premier moved it go into committee of the whole to consider a resolution authorizing the Government to enter into an agreement with the Reid Newfoundland Co. for the operation of the Newfoundland Ry. for 12 months, and submitted a copy of the agreement dated June 30. The house went into committee and without any explanation or information being given the committee rose, and the house then adjourned until July 11, to take the matter up further.

A St. John's press dispatch of July 21 says that the House of Assembly passed the bill, after three days debate, by a vote of 18 to 14.

The agreement, which is to run from July 1, 1921, to June 30, 1922, follows largely the suggestions contained in Sir George Bury's report. It provides for the operation of the railway, at the minimum of cost consistent with safety and giving a reasonable service; the service being specified as follows:—Bonavista branch, 88 miles, tri-weekly instead of daily, up one day and down the next; Heart's Content Branch, 42 miles, tri-weekly instead of daily, up and down the same day; St. John's to Carbonear, 80 miles, one train daily each way, except Sunday, instead of two trains; Baie de

Verde Branch, 52 miles, tri-weekly instead of daily, except Sunday; St. John's to Trepassey, 105 miles, tri weekly, up one day and down the next, as at present, except during severe winter months; St. John's to Port aux Basques, semi-weekly instead of tri-weekly, unless traffic picks up to warrant tri-weekly trains during August. The following lines are to be closed down during the first quarter of 1922:—Humbermouth to Millertown Jct., 94 miles: Shoal Harbour to Bonavista, 88 miles; Carbonear to Baie de Verde and Gratis Cove, 52 miles; Waterford Bridge to Trepassey, 105 miles.

Further provisions are as follows:—The company shall secure the services of a competent person from Canada or the United States as General Manager, the appointment to be subject to the Government's approval. Expenditures on capital account shall be made only on the Government's written sanction. Payment for the work shall be made by the Government upon the Government engineer's certificate, the amount to be charged to the company with 6% interest, and to be brought into the settlement in 1951. The Government will pay the actual loss sustained in operation during the year up to $1,500,000; the loss not to include any claim for interest or provision for depreciation. The Government shall appoint one or more auditors. Except as expressly provided in the agreement, anything done under it shall be absolutely without prejudice to the rights and liabilities of either party under existing contracts and agreements.

Coal Supply.—A press report says that the Reid Newfoundland Co. has bought the Hiawatha coal mine at Foley Bay, N.S., for supplying its railway and steamships. The property was bought by V. J. Cavicchi, of Halifax, about a year ago. After some 5,000 tons of coal had been mined the colliery was closed down.

C.P.R. and G.T.R. Disputes About the Toronto-Hamilton Joint Section.

On July 8, C.P.R. passenger train 792, due to leave Hamilton at 4.25 p.m. and arrive at Toronto at 5.38 p.m., and which is operated over the G.T.R. tracks between Hamilton Jct., mile 37.3 from Toronto and Bathurst St., Toronto, was delayed for about two hours at Burlington Jct., mile 31.72 from Toronto, owing to a dispute between C.P.R. and G.T.R. representatives concerning the C.P.R.'s right to pick up an express refrigerator car, which it had set off there previously, and which had been loaded with fruit and consigned via Dominion Express to Winnipeg. The dispute was caused by a difference as to the interpretation of a clause in the agreement under which the C.P.R. has running rights over the G.T.R. tracks, the G.T.R. agent claiming that the C.P.R. did not have the right to pick up the car, while R. W. Scott, Superintendent, Toronto Terminals Division, Ontario District, C.P.R., and members of his staff, claimed that it had. After considerable discussion, the car was finally picked up by train 792 and taken to Toronto.

The agreement between the G.T.R. and C.P.R. companies for the joint use of the G.T.R. tracks between Bathurst St., Toronto, and Hamilton Jct., about 36 miles, dated May 13, 1896, and which was ratified by the Dominion Parliament in the same year, and published as a schedule to the statutes, 60 Vic., chap. 6, contains the following as a part of sec. 16, the G.T.R. being referred to as the party of the first part, and the C.P.R. as the party of the second part:—"The party of the second part further agrees that it will do freight and passenger business over the said joint section as follows: Pasenger and freight business between the City of Toronto and the City of Hamilton shall be considered through business, and the party of the second part shall have the right to handle it over the said joint section, in competition with the party of the first part and all others, but business between either Hamilton or Toronto and an intermediate station on the said joint section, or business between two intermediate stations on the said joint section, shall be considered local business of the party of the first part, which the party of the second part shall not be permitted to handle except as hereinafter provided. The party of the second part shall have the right to take passengers or freight from or to any station on the said joint section, originating at or destined to any point on its own lines or its connections, beyond the said joint section, in either direction, and it shall be the duty of the agents on the said joint section to waybill such freight and ticket such passengers without discrimination or hindrance, and the party of the first part shall account to the party of the second part therefor, in the same manner as if such agents were the agents of the party of the second part."

The G.T.R. contention is, apparently, that as express business is not specifically mentioned in the agreement, the C.P.R. had not the right to pick up a car of express goods at a station on the joint section. The C.P.R. has, however, been handling through express business over this section.

Another matter in dispute between the G.T.R. and the C.P.R. in connection with the joint section is as to the C.P.R.'s right to use certain industrial sidings on the section, has been referred to arbitration, F. H. McGuigan, formerly 4th Vice President, G.T.R., representing the G.T.R., and J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R., representing the C.P.R., and it is possible that the dispute as to express business will be referred to them also.

Railway Accidents Throughout Canada.

The total number of accidents reported to the Board of Railway Commissioners in June was 130, resulting in 24 persons being killed and 136 being injured. Of the killed, 1 ws a passenger, 6 were employes, and 17 were others. Of the injured, 24 were passengers, 80 were employes, and 31 were others.

Under "others" are included highway crossing accidents, in which 9 were killed and 23 injured. In 16 cases there was no protection, in 2 cases there were bells, in 1 case gates, and in 2 cases flagmen. One pedestrian was killed at a crossing protected by gates. In 9 of the crossing accidents automobiles were concerned, in 4 there were trucks, in 7 horse vehicles and in 1 a bicycle.

A. B. Buckworth, Manager, Pacific Great Eastern Ry., Vancouver, B.C., is reported to have told the United Farmers of British Columbia, meeting at Pemberton Meadows, that a revision of rates will immediately follow the completion of the line into Fort George.

Traffic Orders by Board of Railway Commissioners.

General Interswitching Order Construed.

General order 344. June 27.—Re consideration of ruling of the Canadian Freight Association, as communicated to the Board by letter, June 30, 1921, from W. C. Chisholm, K.C., that section 14 of the Board's General Interswitching Order 252, dated Oct. 26, 1918, is construed to authorize the local road haul scale of 24c. first class as the "ordinary published rate to the interchange." Upon hearing the matter at Ottawa, Dec. 21, 1920, the Canadian Freight Association, Canadian Pacific and Canadian National Railways, and the Toronto and Montreal Boards of Trade being represented, the Board orders that the words "ordinary published rate," as contained in sec. 14 of general order 252, be construed to mean the rate that would be charged for the same movement as a local switching, and not an interswitching, operation.

Express Classification Supplement.

31,217. July 15.—Re application of Express Traffic Association of Canada, on behalf of express companies subject to the Board's jurisdiction, for approval of Supplement 1 to Express Classification for Canada 5 (first submitted as Supplement A to Express Classification for Canada 4). Ppon it appearing that the items covering light and bulky goods, such as millinery, and the proposed item covering liquids, to which objection was taken in the supplement as originally presented, have, by consent, now been eliminated from the revised supplement, and that the other items have been agreed to by the parties interested, the Board orders that the said supplement no. 1, submitted by C. N. Ham, Secretary, Express Traffic Association of Canada, with his letter of July 13, 1921, be approved.

Michigan Central Railroad Tariffs.

31,250. July 11.—Granting application of Michigan Central Rd. Co., under sec. 323 of the Railway Act, 1919, for approval of a bylaw passed June 15, 1921, in so far as it authorizes Carl Howe, Traffic Manager, in respect of both passenger and freight traffic; L. W. Landman, Passenger Traffic Manager, or C. C. Clarke, General Passenger Agent, in respect of passenger traffic; and O. R. Bromley, General Freight Agent, and C. A. Hunt, in respect of freight traffic, from time to time to prepare and issue tariffs of tolls to be charged in respect of the company railway.

Great Northern Railway Standard Freight Tariff.

31,262. July 13.—Granting application of Great Northern Ry., under sec. 330 of the Railway Act, 1919, for approval of its Supplement 1 to Standard Freight Tariff C.R.C. 1630.

Exchange and Surcharges on International Freight and Passenger Business. In accordance with the Board of Railway Commissioners' order of June 14, the rate of exchange in connection with shipments of freight between points in Canada and the United States from July 1 to 14 was 13 15/16% and from July 15 to 31 it was 14%. The rate of surcharge on freight traffic during July was 8%. The rate of surcharge on international passenger business for July was based on 14% exchange.

Electric Railway Department

Electric Railway Wages, Working Conditions, Etc.

Hydro Electric Ry.—Essex Division.—A Windsor, Ont., press report states that the employes have demanded an increase of 5c. an hour in wages, time and a half for overtime and double pay for Sundays and holidays. The present rates are from 45c. to 55c. an hour.

A press report of July 14 stated that an agreement has been reached on 26 of the points in the proposed new contract presented by the men, and that the points about which there was still controversy were the demand for 5c. an hour additional pay; the 8-hour day; time and a half for overtime, and double pay for Sundays and holidays.

The Interurban Transit Co., New York, N.Y., gave notice recently of a 10% cut in wages, to take effect July 24. It was announced July 12 that 27 of the local unions affected had accepted the reduction, and that the other unions were likely to accept also. The reductions are said to affect 19,500 men.

The Montreal Tramways Co. advised its employes on April 25 that the then existing agreement as to wages and working conditions would not be renewed upon its expiration, June 30, and after several conferences the men decided not to press for another agreement unless the company gave notice of changes in wages or working conditions. A press report states that at a recent conference the President advised a committee of employes that the company proposed to make a reduction of 20% in the wages schedule on Aug. 1. This was taken up at a mass meeting of the men on July 14, and a resolution was passed unanimously declining to accept the reduction.

New Brunswick Power Co.—We are officially advised that the company took no part in the recent appointment of a board of conciliation or in the proceedings before it, in connection with the differences with employes as to wages and working conditions. As stated in Canadian Railway and Marine World for July, pg. 378, the company gave notice of a new wage scale, approximately 20% less than the then existing one, with other terms, to go into force on June 15, the old agreement expiring June 14. The local union officials and the company's representatives held several meetings to see if a settlement could be arrived at, but without effect, and the men applied to the Minister of Labor for a board of conciliation, naming W. F. Hathaway, St. John, as their representative. The formation of the board was authorized and the company, declining to have anything to do with it, the Minister appointed C. W. Burpee, of McAdam, N.B., to represent the company, and Judge Chandler, Moncton, was subsequently chosen chairman. A report, dated July 1, signed by the three members of the board, stated that prior to the opening of the sittings on June 15, an attempt was made by the members to effect a settlement, but without result, and a further, ineffectual attempt at settlement was made at the close of the sittings. The board states that the three points of difference between the parties were rate of wages, working agreement and operation of one-man cars. The board, after hearing the statements of the men and the representations of the company's officers, recommends that the agreement dated June 15, 1920, remain in effect until June 15, 1922, except as to wages; that the wages of motormen and conductors be reduced from 55c. an hour to 52c., with 5c. an hour extra for men operating one-man cars, and that the wages of all other employes be reduced in the same proportion as the wages of the men who have served for more than two years; that certain specified decises for the rear emergency doors of the one-man cars be provided, that air brakes be substituted for hand brakes, and that air emergency brakes be provided in place of the present hand emergency brakes. The board calls attention to certain sections of New Brunswick statutes, under which it appears that the St. John City Council has control over the company's rules and regulations; that the city council may appeal against any regulations made by the company to the Board of Commissioners of Public Utilities, which has power to overrule, modify or vary them.

Pending the report of the board of conciliation, the company continued the operation of its cars, electric and gas plants, and on June 28 the men by a vote of 214 to 2 agreed to accept the conciliations board's findings. The company refused to accept the report on the ground that the reduction of wages proposed was not sufficient, and that it provided for impossible clauses regulating the company's affairs. A conference was held with the men and the civic authorities, at which the company offered to compromise on a 15% reduction of wages instead of the 20% which it is contended is justified by the reduction in the cost of living.

This the men would not accept, consequently the cars ceased operating on June 29, work being continued at the power plant with a relief gang. The company stated it was prepared to operate the gas plant and the street cars if the Dominion Government would give adequate protection through the Royal Canadian Mounted Police. This was refused, but later, owing to representations by the city council and the New Brunswick Government, 75 of the R.C. M.P. were sent from Ottawa to St. John for the purpose of maintaining law and order in case necessity demanded their interference. We were officially advised July 6 tht the gas plant was closed down for one day only, and resumed work with a full force, while the electric light and power plant had been carried on without interruption with a temporary force. We were subsequently advised that partial operation of the street railway service was started July 10, about one-third of the regular service being given. The motormen and conductors operating the cars were obtained from eastern points. Some little trouble was experienced in the operation of the cars on the outskirts of the city, rowdies breaking car windows. The outside service was withdrawn, and attention concentrated on providing a service in the center of the city. This will be increased as new motormen are trained. During the night of July 11, about 100 ft. of track on Queen Square, West St. John, were torn up by a crowd. The old single truck cars are being operated as one-man cars, the rear door being closed up. The company proposed to remodel the present cars in due course.

An attempt at settlement was made July 7, when the men offered to take 48½c. an hour with recognition of the union, but this latter point was refused by the company. Five one-man cars were reported to be in operation on July 13, and additional numbers of men were reported to be offering themselves for service. Former conductors nad motormen have applied to the city council for licenses to operate jitneys.

Toronto & York Radial Ry.—Allan Purvis, chairman, and F. H. McGuigan, representing the company on the board of conciliation which recently considered differences between the company and its electrical employes, represented by the Canadian Electrical Trades Union, have presented a majority report recommending that no change be made at present in working conditions or rates of pay. They refer to the fact that no agreement has hitherto existed between the company and its employes, and state that it is gratifying to note that although recent requests for increases have not all been complied with, the relations between the company and the men have not been affected, but remain as amicable and friendly as heretofore. It is pointed out that the ownership of the property is about to be changed, which was the reason given by the company for not desiring to enter into an agreement, a reason concurred in by the Secretary of the Hydro Electric Power Commission of Ontario. L. Braithwaite, the men's representative, in a minority report, recommended the adoption of the rates of wages in force on the Toronto

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.
Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.
President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.
Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.
Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.
Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.
Auditor, H. E. Weyman, Manager, Levis County Railway.
Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.
Official Organ, Canadian Railway and Marine World, Toronto.

Suburban Ry., which vary from 45c an hour for general laborers and winders' helpers, to 79c. an hour for wire and repair men; $120 a month for section foremen, and $160 a month for dispatchers. In this connection it may be noted that the same workmen's union is demanding increases over and above this scale from the Toronto Suburban Ry., as referred to farther on.

Toronto Suburban Ry. — A board of conciliation was appointed recently by the Minister of Labor to consider differences as between the company and certain of its employes, who are members of the Canadian Electrical Trades Union, Toronto Branch. The company has appointed G. Kelly, Ottawa, as its representative, and the men have appointed H. E. Manning to represent them, and U. E. Gillen, General Manager, Toronto Terminals Ry. Co., has been appointed chairman by the Labor Department.

The union asks for an agreement with linemen, operators, wiremen, bonders, winders, groundmen, helpers, troublemen and repairmen, and asks wages of $180 a month for linemen foreman, $150 a month for operators, 75c. an hour for linemen and bonders, 80c. an hour for troublemen and repair men, 85c. an hour for winders and wiremen, and 60c. an hour for all helpers, with an 8 hour day, 4 hours overtime worked in 5 days to be paid at time and a half; all other overtime, all Sunday and holiday work to be paid double time. We are advised that the union referred to is a new one and that the company's previous agreements were with the International Electric Brotherhood.

The Ontario Hydro Radial Railway Enquiry.

After 106 sittings, extending over many months, the examination and cross examination of witnesses before the Royal Commission appointed by the Ontario Government to enquire into the Hydro Electric Power Commission of Ontario's proposals to build and acquire a system of electric radial railways, came to an end on June 27, and the following sittings up to July 2 were occupied by counsel's addresses which were very lengthy. R. S. Robertson, K.C., representing what are termed the anti hydro radial municipalities, spoke first, concluding by submitting a number of reasons why the Royal Commission's report should be adverse to the proposal. Robert McKay, K.C., for the Hydro Electric Power Commission, took exactly opposite ground, and I. F. Hellmuth, K.C., counsel for the Royal Commission generally criticized the Hydro Commission's proposals and opposed their adoption. Since then the Royal Commission has sat almost daily, examining and discussing evidence and preparing its report, which, it was announced on July 23 would probably be submitted to the Government by the end of July.

Cornwall St. Ry., Light & Power Co.— On July 8, Cornwall, Ont., ratepayers, by a vote of 799 to 540, carried a bylaw extending the Stormont Electric Light & Power Co.'s franchise for another 10 years. The extension was strongly opposed by the Hydro Electric Power Commission of Ontario. The company is owned by the Sun Life Assurance Co., Montreal, which also owns the Cornwall St. Ry., Light & Power Co., and it is

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—The Brantford, Ont., City Council is reported to have approved of proposed extensions of the railway in Eagle Place and the North Ward. The city council recently authorized the issue of $80,000 of debentures to cover the extension of lines serving Mohawk Park, West Mill St., West Oxford St., Holmedale and Terrace Hill, and Eagle Place. (June, pg. 322.)

Calgary Municipal Ry.—We are officially advised that the city council has ordered from Canadian Steel Foundries, Montreal, one double diamond and one double track Y, and from an English company one single track diamond for renewals. (July, pg. 381.)

Dominion Power & Transmission Co. During a violent thunderstorm on July 8 the company's substation on Victoria Ave., North Hamilton, Ont., was struck by lightning and damaged to an amount estimated at between $75,000 and $100,000. Although considerable power for the operation of the Hamilton St. Ry. and the company's radial railways is taken through this station, the car service was only interrupted for a short time, the necessary power being obtained through other substations. Repair work at the substation was put in hand at once.

Grand River Ry.—Lake Erie & Northern Ry.—The Board of Railway Commissioners is reported to have made an order, on the application of the Galt, Ont., City Council, directing these two railways to build a branch line from the southerly limit of the city to Walnut St., thence westerly crossing the Grand River Ry. bridge, across West Main St., and along Malcolm St., to the corner of Glebe St., thence southerly along Glebe St. and along Middleton St. to its southerly end. With the exception of a short piece of line on Middleton St., in North Dumfries Tp., the whole of the line is in Galt. (July, pg. 381.)

Hamilton St. Ry.—We are officially advised that the track on York St., Hamilton, Ont., is to be relaid, and that work is expected to be started early in August. (July, pg. 381.)

Hydro Electric Ry.—Essex Division.— In connection with a recent press report that the Windsor City Council had authorized the expenditure of $900,000 for the improvement of the local electric railway system, the council has passed a bylaw authorizing the issuing of debentures and the depositing of them with the Hydro Electric Power Commission of Ontario to the amount of $457,500, this being Windsor's proportion of the total expenditure of $900,000 being raised to pay the cost of extension, additional works and equipment of the Hydro Electric Ry.'s Essex Division, formerly the Sandwich, Windsor & Amherstburg Ry.

We are officially advised that the following improvements, etc., are proposed for this year by the Hydro Electric Power Commission of Ontario, which operates the lines:—Rehabilitating present rolling stock and buying 20 new cars. Installing additional rotary converters at Windsor and Amherstburg, with an automatic sub-station at Amherstburg. Double tracking Ouellette Ave., from London St. to Erie St., and repairing Ouelette Ave., from Erie St. to Tecumseh Road. Double tracking and repairing Wyandotte St., from Ouelette Ave. to Devonshire Road. Building loop at Ferry St. New car barn entrance layout on London St. Double tracking London St., from end of present double track to Michigan Central Rd. bridge. Ballasting suburban lines, extending feeder system and bonding.

London & Port Stanley Ry.—The terminal improvements which are reported to have been completed at Port Stanley, Ont., are said to have cost $8,000. An enclosure has been built around the two tracks on the beach to prevent accidents, and concrete platforms have been built alongside the tracks. A ticket office and other conveniences have been built close to the gates of the enclosure. On the south side of the enclosure is a large concrete platform 400 x 20 ft., on which have been built two shelters, each 70 ft. long, and provided with seats for waiting passengers.

Considerable improvements are about to be made at Port Stanley town station, including the putting in of a concrete foundation and the remodelling of the interior. (July, pg. 381.)

Montreal Tramways Co.—About 1,500 men were reported to be at work recently upon the renewal and extension works in progress on the company's various lines. (July, pg. 381.)

Ottawa Electric Ry. ordered recently 200 tons 82 lb. T rail, and two Westinghouse transformers. It is relaying 1½ miles of track with 80 lb. T rail and is building and equipping a transformer room at a sub-station.

Saskatoon Municipal Ry.—We are officially advised that orders have been given to Davidson Bros., Melfort, Sask., for 1,300 ties, and to J. McKay, Prince Albert, Sask., for 4,000 ties for replacements on the lines in Saskatoon,, Sask. (Feb., pg. 92.)

Washburn, Me., to Frontier Lake, Que. We are advised, in connection with a press report that an electric railway is to be built from the Aroostook Valley Ry., Washburn, Me., to the International Boundary at Frontier Lake, Que., 111 miles, that A. R. Gould, Presque Isle, Me., is interested in the project. He controls the Aroostook Valley Electric Ry., running from Presque Isle to Washburn, New Sweden and Caribou, together with a hydro electric plant at Aroostook, Me., and it is said he proposes to extend the railway westerly from Washburn to Frontier Lake, if he can finance it, but we are advised that nothing will be done this year.

Windsor, Essex & Lake Shore Rapid Ry.—We are officially advised that it is proposed to change the location of about 2,850 ft. of track in Windsor, Ont., from the center to the side of a street which is now being repaved, and that orders have been given for the material. (July, pg. 381.)

Detroit United Rys.—A press report states that the Detroit, Mich., Street Railway Commission has agreed to offer $388,000 to the D.U.R. for the Foot and Woodward lines, involving about 21 miles of tracks. An arbitration board, consisting of W. E. Davis, Cleveland, Ohio, chairman; W. H. Mabury, representing the city, and H.E. Riggs, representing the company, has been formed to name a price for what are known as the day to day lines, which it is proposed to take over and add to the municipal street railway system.

Winnipeg Electric Railway's Low Floor Cars.

The Winnipeg Electric Ry. placed in service recently 20 low floor cars, which embody most of the latest features in city transportation rolling stock and replace those lost in the fire at the company's Main St. barns on April 7, 1920. Following the destruction of the cars by fire, tenders for new cars were asked for, but immediate delivery could not be promised. It was imperative that the rolling stock be increased in order to take care of the winter rush and so the company bought 20 passenger car bodies, without trucks or motors, from the Twin City Traction Co., Minneapolis, Minn., in July 1920, and rehabilitated them in its own shops. The accompanying photographs show the Minneapolis cars as they appeared in the Winnipeg Ry. Co.'s shops before rehabilitation. The features embodied in these cars adapted themselves to the company's rolling stock standards.

Winnipeg Electric Railway Low Floor Cars.

The upper illustration shows one of 20 cars bought from Twin City Traction Co. The lower illustration shows the same car, after rehabilitation in the Winnipeg Electric Ry. shops.

In the process of rehabilitation, the cars were first stripped of their rear vestibules and interior fittings, front and rear bulkheads; all to be replaced by the features which make up the company's standard, single end, double truck, p.a.y.e. low floor car, with front and rear exit and rear entrance. In order to incorporate these features it was found necessary to lengthen the rear vestibule 30 in. This was accomplished by placing on each side of the car one ½ x 5 x 5 in. angle iron vestibule knee 8¾ in. from outside of car body, extending back, parallel with the sides of the car to a point of intersection on the ½ x 7 in. steel bumper, these vestibule knees being supported by carrier bolts and plates held by the steel body truss under the bulkhead. These, in addition to extensions on old vestibule knees and lateral braces, old the vestibule firmly in position. The original vestibule was then replaced and posts securely bolted to crown head and the intervening space in the floor and roof filled in. This gives ample room for the conductor's compartment, also for the entrance and exit double folding doors. Owing to the front vestibule floor being on the same plane as the car floor, it was found necessary to drop a pit, the size of the front passenger vestibule, in order to have the one step from the vestibule floor to the pavement. The steps on these cars are, from pavement to first step, 15 in.; from first step to vestibule floor, 14 in.; from vestibule floor into car, 6 in.

The interior of the car has six rattan cross seats on each side, with longitudinal seats on both sides in front and rear of car, giving in all a seating capacity of 42 passengers. The front bulkhead has a double acting door, leading into the passenger vestibule, thereby closing off the cold and draft when the front vestibule door on the outside is open. This door is operated jointly with the step from the motorman's compartment. All steps in and out of the car are equipped with lead filled safety tread, reducing to a minimum accidents due to passengers slipping on the steps. The rear entrance and exit doors are operated by the conductor; the same mechanism and similar features as applied to front door being used. The entrance to the car is the last door on the rear, thereby giving ample standing room for passengers, while the conductor is making change or issuing transfers.

The destination signs are placed in three locations. There are 47 route names on each, and they are located as follows: One one the right side of the front vestibule in gothic sash, and one on each side in the last gothic sash on the car body. These signs are of the roller type and are worked from the inside of the car body.

The cars are equipped with hot water heating system and are fitted throughout with new equipment of the latest design, comprising no. 46 arch bar trucks with 26 in. steel wheels; C.G.E. 258 C, air cooled ball bearing motors, inside hung; K.6 controllers; compressors; type G Westinghouse governors; circuit breakers; 3 bank type C.G. resistance 8 in. brake cylinders; no. 45 drop brake handle.

Every consideration has been given to the safety and convenience of the passengers, the cars being equipped with a door signal system, the operation of which notifies the motorman, by means

of a small lamp placed in front of him, when the doors are closed or open. The high tension buzzer system is used with buzzer in front and rear vestibules. The lighting system of the car comprises one 23 watt, five light system, with trouble light, as follows: Headlight, front exit light, front destination sign light, two lights in rear vestibule, also one 56 watt, five light system in car body with selector system in conjunction with same. All the lights in the car body and vestibules are fitted with large opal shades. The conductor's cab is equipped with individual heater (run from the trolley), folding seat, foot rest, etc.

The dimensions of the cars are as follows:—

Overall length	45 ft. 7 in.
Car body	33 ft. 3 in.
Front vestibule	4 ft. 4 in.
Rear vestibule	6 ft. 10 in.
Overall width	8 ft. 6 in.
Overall height	8 ft. 4½ in.
Rail to top of roof	10 ft. 8½ in.
13 windows to side of car body.	
Approximate weight	36,000 lb.

In the painting of the cars the enamel system has been used for the exterior and headlinings, the color scheme being, tan color below belt rail, ivory above belt rail, with the exception of sash and doors, which are of cherry, while the roof is oxide red. The interior is of natural cherry oiled and varnished with ivory headlinings.

Electric Railway Freight and Passenger Rates.

Edmonton Radial Ry.—A press report states that it has been decided to abolish the after midnight fare of 15c. and to return to the 10c. rate, also to return to the former regulation and allow children's tickets to be used by children under 14, instead of under 12, as at present.

Montreal & Southern Counties Ry.—The St. Lambert, Que., City Council proposes to apply to the Board of Railway Commissioners in regard to the fares on the Macauley Ave. section of this line. This section of St. Lambert was not included in the city when the franchise was granted, and as it is only 200 yards beyond the last stop on the line within the old boundary, the residents object to having to pay an extra 5c. fare. There is also the matter of a roadway involved, as people have to go over the company's right of way to get into the city.

Port Arthur Civic Ry.—The Port Arthur, Ont., ratepayers voted on July 27 on a bylaw for putting in operation of the following fares:—Regular fare, 7c. cash or four tickets for 25c.; child's fare, 10 years and under, 3c. cash or 10 tickets for 25c., good at all times; pupils' fare, under 17 years, 5c. cash or eight tickets for 25c. Tickets sold only at office. Pupils must present certificate (that they are bona fide pupils), signed by their principal teacher. Pupils' tickets good only between 8 and 9.30 a.m., and 3.30 and 5 p.m., and then only for going to and returning from school. Children in arms carried free. The result was not available when this went to press.

Winnipeg Electric Ry.—Winnipeg press dispatch, July 23.—"The city council and the Winnipeg Electric Ry. have come to an agreement over car fares and the following schedule, which is a reduction from the present rates, goes into effect on Aug. 1. Cash fares, 7c., week days, 7c. Sundays, good at all hours; 4 tickets for 25c, good at all times; 9 tickets for 50c., good at morning and evening rush hours and on Sunday; and 8 school children's tickets for 25c., good at all times. The appeal to the British Privy Council from the decision rendered by the Manitoba Court of Appeal, granting the company the increase in rates allowed by the Public Utilities Commission, will be withdrawn. The new agreement provides that the original agreement between the city and the company, which gives the city control of its own streets, will be maintained in its entirety, with the exception that the fares provided by the original agreement are changed; an annual revision of fares is provided for by arbitration if necessary; all agreements and dealings between the city and the company are placed beyond the jurisdiction of the Public Utilities Commission; the rights of the city at the termination of the franchise in 1927 are in no way affected and all matters still outstanding can still be discussed by the city and the company."

Electric Railway, Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Apr. 1921	Apr. 1920	10 mos. to Apr. 30, 1921	10 mos. to Apr. 30, 1920
Gross	$791,688	$749,081	$7,978,641	$7,306,918
Expenses	591,779	544,276	5,845,617	5,146,419
Net	199,909	204,805	2,133,024	2,160,499

Calgary Municipal Ry.—A press report states that the total receipts of the Calgary Municipal Ry. during the annual fair week were $19,277, against $20,339 for the corresponding period of 1920.

Cape Breton Electric Co.:—

	Apr. 1921	Apr. 1920	4 mos. to Apr. 30, 1921	4 mos to Apr. 30. 1920
Gross	$51,464	$47,111	$210,986	$186,058
Expenses	43,026	41,116	198,406	168,786
Net	8,348	5,995	12,580	17,272

Edmononton Radial Ry.—A press report gives the following figures for the week ended June 25:—

	1921	1920
Earnings . .	$13,011.37	$12,617.86
Wages . .	$6,690.00	$8,609.00
Power . .	$1,764.00	$2,196.00
Passengers carried	214,426	215,884
Cars in service	32	37

Montreal Tramways Co.—E. A. Robert, President, is reported to have stated July 7, that the company was preparing to place a new issue of stock, but that nothing would be done until market conditions were more favorable. The company had been expending heavily on improvements and extensions, as ordered by the Montreal Tramways Commission, and the new issue would partly reimburse the company for these expenditures. An issue of $3,000,000 of the company's bonds matures in 1922, and provision will have to be made for it. The total issue to be made will probably be between $5,000,000 and $10,000,000, and the issue price will probably be par. The company does not owe anything to banks; its dividends of 10% are guaranteed; earnings are good, and the management intends to accumulate a good surplus.

On July 12 the directors declared the regular dividend of 2½% on the common stock, payable on Aug. 1. No action was taken with regard to the remaining deferred dividends, which amount to 5%, but it is said that the directors hope to clear these off during this year. If this is done, the regular and deferred dividends paid to the shareholders during the present year will amount to 15%.

Nipissing Central Ry. — The annual meeting of this company, which is owned by the Ontario Government, the line being operated by the Timiskaming & Northern Ry. Commission, was held at North Bay July 21. The following commissioners and officials of the T. & N.O.R. are the directors for this year:—G. W. Lee, Chairman of the Commission, President; Col. J. I. McLaren and Lt. Col. T. L. Martin, D.S.O., Commissioners; S. B. Clement, Chief Engineer; W. A. Griffin, Superintendent of Traffic.

Toronto Civic Ry. — The passenger earnings for six months ended June 30, were $404,513.83, against $258,169.33 for the same period 1920. The passengers carried during the same periods were 18,128,244 and 15,354,543 respectively.

Toronto Ry., Toronto & York Radial Ry., and allied companies:—

	Apr. 1921	Apr. 1920	4 mos. to Apr. 30, 1921	4 mos. to Apr. 30, 1920
Gross	$1,259,933	$1,211,708	$5,081,179	$4,711,579
Expenses	871,241	799,048	3,440,168	3,098,732
Net	388,692	412,660	1,641,011	1,612,847

Winnipeg Electric Ry. and allied companies:—

	May 1921	May 1920	5 mos. to May 31, 1921	5 mos to May 31, 1920
Gross	$433,836	$404,742	$2,357,777	$2,237,052
Expenses	307,018	293,671	2,703,443	1,679,105
Net	126,818	111,071	654,334	557,947

The surplus, after fixed charges for May 1921, was $56,176.

Uniform Coinage Advocated.—At a recent meeting of the Canadian Electric Railway Association's executive committee, R. Mayne-Reade, Superintendent, Quebec, Railway, Light & Power Co., pointed out that a number of English pennies are in circulation in Canada. In some places they are accepted as 2c., and in others as only 1c. With the introduction of the new Canadian 1c. piece, there are now three coins of various sizes used as 1c. pieces. It is also proposed to establish a new 5c. piece. Mr. Reade suggested that the Finance Department should be asked to take early steps to call in all coins which differ from the new standards. The Association's President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co., took the matter up with the Deputy Minister of Finance, who has advised him as follows:—"On the adoption of the new 1c. piece, we immediately stopped the issue, for circulation, of the old 1c. piece. We will do the same in connection with the new nickle coin, when issued. We are anxious to have the old coins out of circulation as soon as possible, and will do all that we are empowered to do towards that end."

British Columbia Electric Ry. Franchise.—The Vancouver Board of Trade, on June 28, discussed the terms of the proposed new franchise for the British Columbia Electric Ry., a summary of which was given in Canadian Railway and Marine World for June, pg. 320. and passed the following resolution by 79 to 24, a large number of members refusing to vote:—"That this board is of the opinion that the proposed agreement between the City of Vancouver and the B.C.E. Ry. is not in the best interests of the city and thinks the same should not be completed by the city council. This board recommend the city council to take no further action toward the execution of the proposed agreement, and we are strongly in favor of the B.C.E.R. Co. going under the control of the Board of Railway Commissioners."

Arbitration of Price to be Paid for Toronto Railway.

The arbitration to determine the price to be paid, by the City of Toronto, for the Toronto Ry., which is to be taken over on Sept. 1, opened in Toronto July 18, before Hume Cronyn, M.P. for London, Ont., Chairman; Sir Thomas White, for the company, ond Sir Adam Beck for the city. The company was represented by Hon. N. W. Rowell, K.C.; Wm. Laidlaw, K.C.; F. H. Phippen, K.C.; and Robt Mackay, K.C. The city was represented by W. N. Tilley, K.C.; G. R. Geary, K.C., Corporation Counsel, and A. C. MacMaster, K.C. R. C. Harris, City Works Commissioner, sat with the city counsel. I. S. Fairty appeared for the Toronto Transportation Commission. N. R. Butcher, chartered stenographer, was appointed Secretary.

Chairman Cronyn announced that, although the property is to be transferred on Sept. 1, the company wanted to postpone the arbitration until September, but that the city objected to this, and wanted to go on at once. After considerable discussion, during which the city representatives did not object very strenuously to a postponement, the next sitting was fixed for Sept. 13.

R. J. Fleming, General Manager, Toronto Ry., was the only witness called, and was examined for a few minutes, testifying that he had occupied his position for 16 years, that the franchise would expire Aug. 31, and that the city had given notice of its intention to take the property over. On Sir Adam Beck's suggestion it was decided that the arbitrators inspect all the company's property.

The Nova Scotia Tramways & Power Co. and the N.S. Government's Hydro Electric Power.

The Nova Scotia Government, through a Power Commission, is developing a water power in the vicinity of Halifax to supply electric energy in Halifax and other places, and has under consideration the question of its distribution in Halifax. The City Engineer stated in a recent report that the aggregate requirements of 52 prospective and actual consumers in the city amounted to 6,802,000 kilowatt hours a year, but to make the figures conservative 1,000,000 k.w. hours are deducted from prospective consumers who estimated their probable requirements. This would leave a total consumption, including the shipyards and the city service, of 5,802,000 k.w. hours, of which 2,366,762 k.w. hours are under contract with the Nova Scotia Tramways & Power Co. The cost of equipment to take care of the available supply, exclusive of street lighting equipment, is estimated at $315,000, and on the basis of an estimated sale of 5,802,000 k.w. hours, the cost would be about 4.1c. per k.w. hour.

The Nova Scotia Tramways & Power Co. has stated its position in a letter to the Premier of Nova Scotia. The company expresses the belief that if the Power Commission is willing to contract with the company for its output of hydro electric power, or that part of it which may not be desired by the city for the purpose of lighting its streets, the company in turn can distribute it to the citizens of Halifax at less cost than it can be distributed through any other agency. The company is prepared to undertake to deliver and sell the current so obtained to the Halifax citizens at cost, such cost to be determined generally upon the same principles as the cost of the hydro electric power to be sold to the company by the Power Commission, following an actual independent appraisal of that part of the company's undertaking used and useful in furnishing electric energy. The company, however, would prefer to be placed under the Public Utilities Commission by proclamation of the act passed at the Legislature's last session, and that a valuation of its property be promptly made. It is pointed out that the Power Commission is not prepared to sell this power to the company, there will be required a heavy capital expenditure to construct distribution lines, duplicating the company's, and that such distribution lines cannot be provided by August, or indeed this year. In the event of the Power Commission determining not to sell the power to the company, which is in a position to undertake its immediate distribution, it is suggested that the company's entire property be taken over by the Power Commission by arbitration or in some other fair way.

Electric Railway Notes.

The Guelph, Ont., Radial Ry. started Sunday operation on July 25.

The Moncton, N.B., City Council, members of the Moncton Board of Trade and other business men, met recently to discuss the electric railway and electric light services given by the Moncton Tramways, Electricity & Gas Co.

The Hamilton St. Ry., owing to damage by storm to the Victoria Ave. N. substation on July 8, had to operate its cars on a 10 minute schedule; to reduce the number of cars on the belt line and the James St. South line, and to cut off the James St. North line, for several days.

The Hydro Electric Railway, Essex Division, is going to rehabilitate is present rolling stock, and buy 20 new cars. Additional rotary converters are to be installed at Windsor and Amherstburg, Ont., with an automatic sub-station at Amherstburg.

The special civic sub-committee which has been negotiating with the Winnipeg Electric Ry. for a settlement of all matters at issue between the company and the Winnipeg City Council, was reported on July 14 to be preparing a report for early presentation.

F. Hoover, Vice President of the International Street Railwaymen's Union, is reported to have stated at a meeting of the Winnipeg Trades and Labor Council recently that the local union had been permanently re-established and that there was nothing to prevent it regaining its former strength.

The Alberta Legislature at its last session authorized Edmonton City Council to assess the several municipally owned public utilities for taxation as if they were operated by private corporations. The public utilities owned by the city include the Edmonton Radial Ry., which is assessed as follows: land, $30,280; improvements, $1,307,648, at 6%, $784,888; total, $815,168.

The Moncton, N.B., City Council discussed the Moncton Tramways, Electricity & Gas Co.'s franchise on July 13, when representatives of several public organizations were present. It was stated that there is nothing in the franchise to compel the company to operate the two miles of railway all the year, and nothing to compel it to discontinue operating. The discussion was adjourned to obtain some information as to the plans of the Government hydro electric development plant.

The valuation of the Ottawa Electric Ry.'s property, which the Ottawa City Council arranged to have made by the Hydro Electric Power Commission of Ontario's staff, is reported to have been started on July 12. T. U. Fairlie, of the Commission's railway staff, is in general charge of the work, and it is reported that Alex. McDougall, another of the Commission's railway engineers, is at the head of the working staff. The report is expected to be ready in about three months.

The Kingston, Portsmouth & Cataraqui Electric Ry. Co. has the right to operate cars on its railway on Sundays, but ceased to do so about 10 years ago, as it did not pay. A car service was put in operation over the lines on Sunday, July 10, to enable people to get to Lake Ontario Park, and will, we are advised, to continued temporarily. A cash fare of 5c. is charged, with 5 tickets for 25c., same as on week days, and children's tickets are sold 2 for 5c.; workmen's tickets are not accepted. The cars are being operated on Sundays from 10 a.m. to 10 p.m. H. C. Nickle, who is General Superintendent of the company, is also Mayor of Kingston, Ont.

Mainly About Electric Railway People.

C. H. Boire, of the Secretary-Treasurers' staff, Montreal Tramways Co., was given a cabinet of silver by his colleagues in the office on June 1, on his marriage.

C. W. Carson, heretofore Relief Inspector, Ottawa Electric Ry., has been appointed Assistant Superintendent (Car Service).

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co., received the congratulations of the staff and many outside friends on July 12, on entering his thirty-second year of continuous service with the company and its predecessors, having started work as messenger boy in 1890.

George C. Graham, who has been appointed Superintendent of Rolling Stock and Shops, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., was, prior to his present appointment, engaged in commercial business in Hamilton, Ont., and before that was, for six years, Superintendent of Rolling Stock, International Ry., Buffalo, N.Y.; three years, Master Mechanic, United Traction Co., Albany, N.Y., and three years, Superintendent of Rolling Stock and Shops, Los Angeles Pacific Co., Los Angeles, Cal.

C. E. Taylor, a former superintendent of the Edmonton Radial Ry., Edmonton, Alta., and latterly in Imperial Oil Ltd. service, committed suicide by shooting on the s.s. McMurray, July 14, while en route to McMurray, via the Athabasca River.

R. G. O. Thomson, of Mackenzie, Mann & Co.'s staff, Toronto, who is also President of the Chatham, Wallaceburg & Lake Erie Ry., has left Toronto, with Mrs. Thomson, on a trip to England.

Answers to Questions on Electric Railway Topics.

The following answers have been sent, by Canadian electric railway officials, to questions addressed to the American Electric Railway Association's question box:—

Armature Removals.—How many man-hours are required to remove armatures from box frame motors, including time of taking motor from under car; what method of removal is used?

Winnipeg Electric Ry., Winnipeg.—Two man-hours are required to remove armature from G.E. 258 box frame motor. This is the only class of box frame motor we have. The motor is dropped from car by a lift jack, and armature removed on the floor.

Car Painting Systems. — Have any member companies employed the enamel system of painting cars in place of the flat color varnish method? If so please describe same briefly and indicate the comparative durability and general appearance. Is it possible to make the change from the old style to the enamel system? What effect have climatic conditions on the enamel system?

Winnipeg Electric Ry., Winnipeg. — "Comparative durability" is a question in our minds so far, as we have not been using enamel to any considerable extent except for a short period. Enamel on interior car head linings, which has been on for nearly two years, is standing up well. General appearance we think favorable, providing cars can be washed and cleaned regularly on a basis of about 1,000 miles. A combination of circumstances enters into this question, in regard to material used, enamel, state and class of wood enamel is put on, length of periods between painting of cars, etc. We think it is possible to change oil and varnish system to enamel system. Makers of enamel recommend that all old varnish be removed, especially if in cracked condition. We are at present, however, enameling over varnish that is in fairly good condition.

Life of Car Wheels.—(a) What mileage are you making with your car wheels? (b) Please state whether wheels are steel or cast iron, and type of equipment used. (c) Please state the limiting conditions which determine the useful life of a wheel on your property. (d) What is the cost of wheels per 1,000 miles on the above basis?

Winnipeg Electric Ry., Winnipeg. — (a) 50,000 miles out of cast wheels; 150,000 miles out of steel wheels. (b) Western Wheel & Foundry cast wheels. Carnegie steel wheels. (c) The motor clearance governs the wear of wheels. (d) On the actual cost of wheels, i.e., factory cost, the cost per 1,000 miles is approximately 40c. a wheel. (Cast) 26 in. steel wheels approximate 26c. per 1,000 miles.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., Vancouver.:—

Type of wheel	Size & flange	Average	Maximum
Chilled iron	33 in. ¾ x 1 in.	46,000	116,000
Rolled Steel	34 in. B	195,000	320,000
Steel tire (29 in. Ctr)	34 in. B	176,000	221,700
Rolled steel	33 in. A	150,000	276,000
Rolled Steel	33 in A	150,000	276,600
Steel tire 29 in. Ctr)	36 in. A	112,700	134,600
Steel tire (28 in. Ctr)	35 in. A	146,000	199,600
Steel tire (Loco.)	36 in. ARA	69,500	74,900

(c) Iron wheels, 85% are scrapped for broken or chipped flanges; others for flat spots or broken tread; steel wheels, 100% for worn or sharp flanges. (d) See answer to a previous question, given in Canadian Railway and Marine World for Dec. 1920, page 672.

Traffic Checks.—(a) Is it the practice of your company to make characteristic traffic checks of the riding on each route? (b) What is the average length of ride per passenger on a typical route? (c) Based on such typical checks, have you calculated the annual passenger miles on your system; that is, the average actual length of ride per passenger multiplied by the total annual passengers carried? (d) What is the ratio of passenger miles to car miles for your system? (e) What is the ratio of the passenger miles to the seating miles, furnished on your system? (Seating miles being the sum of the actual seating capacity of each type of car, multiplied by its car miles.)

Winnipeg Electric Ry., Winnipeg. — (a) It is not the practice of this company to make checks of this nature. (b) From data available we are justified in assuming the average passenger car ride on a typical route to be approximately 2 miles. (c) 130,497,680 passenger miles. (d) 13.44. (e) 0.336.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., Vancouver.—(a) Periodical checks are made by special census men placed on streets. Last point of loading is selected on lines to be checked, and number of passengers on car after leaving that point is noted and recorded. Maximum car requirements are thus learned—this last loading point showing heaviest loads carried. Lines are regularly checked, approximately every two months — excepting when special check is desired oftener. (b) 2½ miles. (c) 119,105,000 passenger miles for year 1920. (d) 15.30 passenger miles to 1 car mile. (e) 2.8 seat miles to 1 passenger mile.

Toronto Electric Railway, Light and Power Matters.

The Toronto Board of Works has approved the Works Commissioner's report recommending an expenditure of $365,000 for laying tracks on Yonge and Teraulay Streets. It is proposed to lay tracks on Yonge St. from Farnham Ave. to the north city limits, and on Teraulay St. from College St. to Davenport Road.

The City of Toronto's application for immediate judgment against the Toronto Ry., for $1,209,960.90, for overdue percentages, has been dismissed by the Master in Chambers, the company having counterclaimed for damages, alleged to have suffered owing to the city's neglecting to lay pavements properly, and to keep them in repair.

The Toronto Transportation Commission will receive tenders to Aug. 3, for building extensions to the St. Clair Ave. car houses, to consist of three new reinforced concrete car houses, with provision for offices and stores, and including plumbing, heating, wiring, and rolling steel doors, together with alterations to to existing buildings.

The Toronto Transportation Commission and the Toronto Hydro Electric Power Commission have bought the old Board of Trade building at the corner of Front and Yonge Sts., Toronto, and some properties adjoining it on both those streets, giving a frontage of 170½ ft. on Front St. and 123 ft. on Yonge St., for $372,500. The building will be used by the two commissions for offices, etc.

The Toronto Transportation Commission, as stated in our July issue, ordered some six solid manganese steel intersections from Canadian Steel Foundries, Montreal, at a cost of about $55,000. Two more intersections have since been ordered from the same company at a cost of about $10,000, and three intersections and a series of special work for the Danforth and St. Clair Ave. car houses, have been ordered from the U.S. Steel Products Co., at a cost of about $90,000.

Sir Adam Beck has been named as the city's representative on the arbitration to fix the value of the Toronto Suburban Ry.'s lines, etc., on the streets in Ward 7, etc., which the city is to acquire under the franchise terms. The lines include a section from Humberside Ave. to Keele St., which for some years has been operated, under an agreement, by the Toronto Ry. In preparation for the transfer of the Toronto Ry. to the city, the question of a new agreement between the Canadian National Rys., of which the Toronto Suburban Ry. is a part, and the city is being considered by the city council.

The Hydro Electric Power Commission of Ontario was expected at a meeting called for July 19 to deal with a number of matters connected with the closing up of the purchase of the electric power and radial railway interests owned by the Toronto Ry. Co. The agreements in connection with the matter have been under consideration since Nov. 1920, and the delay in reaching a final settlement has been due, to a large extent, to the negotiations necessary in adjusting matters between the Commission, the City of Toronto, the County of York, and the Ontario Government.

Nipissing Central Railway Operation, Fares, Etc.

A recent press report stated that G. W. Lee, Chairman, Timiskaming & Northern Ontario Ry. Commission, and President, Nipissing Central Ry., replying to a delegation from Liskeard, respecting railway matters, had offered to hand over the operation of the N.C. Ry. to the municipalities through which it runs and that as an alternative the railway might be placed in the hands of the Board of Railway Commissioners for operation.

The N.C. Ry. was built and is being operated by the T. & N.O.R. Commission under a Dominion charter, and its rates, etc., are controlled by the Board of Railway Commissioners. An application was made to the Commission recently for power to increase the fares and to reduce the service, but the Board has not given its decision up to the time of writing. The railway being operated at a heavy loss, and we are advised that it is not thought likely that the T. & N.O.R. Commission will continue to do this. The suggestion made to the Liskeard delegation was that the municipalities interested could take over the operation of the line, or that if there was dissatisfaction with its present management the Board of Railway Commissioners could be asked to name a manager. Of course that Board could not operate it.

Car Painting Costs Reduced by British Columbia Electric Railway.

Canadian Railway and Marine World has been favored by W. G. Murrin, Assistant General Manager, B.C.E.Ry., with the following description of the company's car painting methods, by which costs have been halved:—On the mainland divisions, comprising 144 miles of city and 158 miles of interurban tracks, the Mechanical Department has the care of 250 city cars, 73 interurban passenger and express cars, 13 locomotives, over 400 standard freight cars, and a number of service and construction units, totalling 805 cars. These are maintained in four car houses and one freight repair yard, the general shops being in the car house at Prior St., Vancouver. Painting is done to freight equipment at the repair track in New Westminster, which is the center of the interurban systems, and to all other equipment in the paint shops at Vancouver, which have a capacity of six cars.

Passenger Equipment Painting. — Up to the middle of 1915, when the effects of the war, combined with the peak of the jitney craze, brought the railway revenue down to the lowest point in the last 10 years, passenger cars were painted about every two years, the whole car being repainted, as outlined in the schedule below; but the need for stringent economy led the Master Mechanic and paint shop force to study the work more closely, as a result of which they developed a method of treating the cars, which practically cut the cost of ordinary periodical painting in two. It was found that while cars require revarnishing comparatively often, the ground work would be in good condition for about 10 years, and so, until the varnish began to show signs of peeling off, it could be used as a ground, and need not be entirely removed at each time of painting. Since the method was changed, six consecutive wage increases have brought the cost back to what it was under the old method, but in view of this, the actual saving is the more noticeable.

The old method of doing passenger cars, taking city equipment for example, was as follows: 1, washing; 2, varnish removed where necessary; 3, sandpapering, puttying up nail holes, joints, etc., where repairs had been made, and priming over new work; 4, two coats of body color; 5, lettering and striping put on; 6, two coats of varnish; 7, painting trucks, ironwork, etc. The average cost of this work, per city car, was about $28 for material, $46 for labor, a total of $74. In some cases this reached $85 or more. Interurban cars were proportionally higher.

The revised method was simpler, as follows: After washing, the body is sandpapered, where necessary, such as around repairs, over scratches, or where the varnish shows cracks, and new work is primed. The light color is given one coat, and the dark color touched up, where necessary, to an even base for the next coat, with one coat over new work. Then, after retouching the gold leaf work where required, one full coat of dark color is applied, "cutting in" around the lettering and striping with a fine brush. Then follow the usual cost of rubbing and finishing varnish. The cost of this method averaged at first about $16 for material, and $28 for labor; total, $44. The interior painting was not materially altered, except to substitute paint for where the original natural finish was becoming discolored from age.

The color standards for city equipment are: red roof, dark green on fascia, corner posts, dash, sides below belt rail, vestibule ceilings; light corn color for window posts; light red on sash, doors, vestibule wainscots, truss planks, etc., and seat frames; drop black on mouldings, and black asphaltum for trucks and ironwork. For interurban cars, the corn color is replaced with dark green, with a little striping on mouldings of vermillion. Locomotives have Pullman green, with yellow lettering instead of gold leaf.

The following comparison of the average cost of painting city cars shows the effect of rising labor rates:—

	Material	Labor	Total
1915-16	$16.65	$26.10	$42.75
1916-17	14.70	30.75	45.45
1917-18	15.00	32.60	47.60
1918-19	15.65	35.25	50.90
1919-20	20.00	42.25	62.25
1920-21	20.30	53.60	73.90

Had the old method been still in use, this last figure would be about $125 a car; the saving, therefore, has been over 40%.

Freight Equipment Painting.—As most of the freight equipment was bought in 1912 and 1913, repainting on an extensive scale was not begun till early in 1919, and in July of that year a Dunn type AA painting machine was bought, with a capacity of 10 gall. The saving effected by this machine was such that it was paid for before 12 box cars had been done. To paint and letter a 40 ft. box car by ordinary means required 8 to 12 hours for lettering, and about 36 hours for painting, practically all of which was done by a first class freight car painter, and the average cost for material was $18.50, and labor $27, a total of $45.50 a car. The standard color is green, with lettering in white lead, put on with stencils. About 6 gall. of mixed green, 1 gall. of red roof paint, and ½ pint of white lead were used to a car. After a few cars had been done with the machine, and the men had acquired experience in operating it, it was found that better work was being done with 1½ gall. less paint per car. The average time for applying the green paint on all four sides was about two hours; one hour was plenty for the roof, and the time for lettering about eight hours. The machine does not require a regular painter, and can be operated by a brush hand. The actual cost of the first 24 box cars done with the machine was $14.55 for material, and $6.80 for labor, a total of $21.35 a car. The saving was therefore about 51%.

British Columbia Electric Ry. Car Painting Methods.

The accompanying photographs show the machine in operation, and an idea of the rapidity with which it does the work can be got by noticing how far the work had progressed while the photographer was changing plates and taking three exposures. The paint is laid on in two coats, the amount to a coat being determined by the distance from the surface at which the nozzle is held. Rough spots, cracks, nail holes, etc., are penetrated more thoroughly than can be done with the brush, and the finish is all that could be desired. At first some difficulty was found from the spray being carried by air currents, till all the surrounding scenery was being painted, as well as the operator, but experience has enabled this to be reduced to a negligible amount, and, as already stated, the actual amount of paint used is less than with the brush. A flat car will require about ½ gall. of paint, and ¼ pint of lead, one hour with the machine, and four and a half for stencilling, the total cost being about $8.

The machine is operated by compressed air, at 60 lb. pressure, supplied from a pipe line, through a feed valve, with outlets convenient to the painting track, and since, in order to avoid clogging of valves and atomizer, it is better to clean out the machine after using, the work is arranged so as to keep the machine in operation all day, a sufficient number of cars being done at a time, thus reducing the extra labor for cleaning the machine to a minimum per car. The success attained in painting cars has suggested the use of the machine for painting shelters, and other structures along the right of way, such as telephone booths,

Montreal Tramways Co.'s Capital Valuation.

Under the act creating the Montreal Tramways Commission the value of the Montreal Tramways Co.'s property used in connection with the operation of its lines, and upon whihc a 6% revenue is to be received, had to be fixed. This value was placed at $36,286,295. The Montreal Tramways Commission on Aug. 25, 1919, deducted $534,055.68 from the value of the property on which the company had the right to receive 6% interest, on the ground that the amount should not have been included, but should have been under another heading. The company appealed to the Quebec Public Service Commission, and the late Chairman gave judgment upholding the Tramways Commission's finding. The Montreal Tramways Commission also refused to approve of the company's application to add to the value of the property upon which the 6% interest is to be received, $243,516.11, in respect of supplies, etc., ordered before Dec. 31, 1917, but subsequently received. An appeal was also made against this finding, but the Quebec Public Service Commission also upheld it.

The company then appealed both these decisions of the Quebec Public Service Commission to the Quebec Court of Appeal, which gave judgment June 28, dismissing both appeals with costs, the court holding that if the amounts were included in the valuation the company would be receiving a double payment, as in the one case the amount was never intended to be included in the valuation, and in the other the amount was already included, although the goods had not been received.

Telegraph, Telephone and Cable Matters.

C. T. Barber, night chief operator, C. P.R. Telegraphs, Toronto, died there in St. Michael's Hospital, July 18, aged 42, from acute septicemia and pneumonia. He had been in C.P.R. Telegraphs service for nearly 30 years.

J. McMillan, Manager, C.P.R. Telegraphs, with Mrs. McMillan and two daughters, sailed from Montreal, July 1, on the C.P.R. s.s. Melita, for a tour through England, Scotland and France. W. J. Camp, Assistant Manager, is acting Manager during his absence.

What is stated to be the largest submarine cable in the world was laid, July 12, in the bed of the Detroit River, between Windsor and Detroit. It carries 408 pairs of telephone wires, enabling 600 conversations to be carried on simultaneously between the two points. It is operated jointly by the Bell Telephone Co. of Canada and the Michigan State Telephone Co. The cable weighs 50,870 lb. and is 3,000 ft. long and 10½ in. diameter.

Canadian National Telegraphs have opened offices at Kedgwick, St. Quentin and Upsalquitch, N.B.; Abenakis Springs, Cap Rouge, Les Eboulements, Little Metis Beach and Portage du Fort, Que.; Kilrush and Royal Muskoka Hotel, Ont., and Colinton, Alta.; and have closed offices at Becancoeur, Gentilly station and St. Yvon, Que.: Birch River and Broad Valley, Man. The name of the Stanley Jct. office, Ont., has been changed to Stanley.

Replying to questions in the British House of Commons recently, the Postmaster General stated that he did not agree with the statement of the Chairman of the Imperial Press Union, that "the first link in the Imperial chain of wireless telegraph stations is not yet fashioned, and that it may be a dead end for some years after it is complete." The stations at Leafield, near Oxford, Eng., and at Abu Zabal, near Cairo, Egypt, which are to form the first link, will be ready for use by the end of the year. An expert commission has been appointed to consider the design of the other stations recommended by the Imperial Wireless Telegraphy Commission. In regard to wireless communication between Great Britain and Canada, conversations, which constitute the necessary first step, have been proceeding.

Sunday Cars in Oshawa.—The Oshawa, Ont., Town Council has renewed an agreement with the Oshawa Ry. Co. for the operation of a Sunday car service. An agreement had been in force for the last two years, under which the cars were operated on Sundays at the same fares as on week days, between 7 and 10.45 a.m.; 12.30 and 6.45 p.m., and 8.15 and 11 p.m. In discussing the renewal of the agreement a suggestion that permission be given to operate the cars continuously on Sundays during June, July, August and September met with some support, but was not adopted, the majority contending that the cars would disturb the congregations in the churches along the car line. The Sunday car service has, we are advised, been much appreciated by the public, who have been enabled to visit the new park at Oshawa-by-the-Lake in large numbers with their families at very little expense. A press report states that 7,500 persons were carried to the park on July 10.

Among the Express Companies.

The United States Railroad Labor Board, on July 12, ordered that wages of American Railway Ex. Co.'s employes be reduced 6c. an hour from Aug. 1.

The Board of Railway Commissioners passed order 31,271, July 13, approving Supplement 1 to Express Classification for Canada, No. 5, which was submitted originally as Supplement A to Express Classification for Canada No. 4, the items covering light and bulky goods, such as millinery, and the proposed item covering liquids, to which objection was taken in the Supplement as originally presented, having been eliminated from the revised Supplement, and the other items having been agreed to by the parties interested.

Canadian National Express Co.

The office at Birch River, Man., was reopened for business, July 11.

The Canadian National Ex. Co. has opened an office at Libau, on its Victoria Beach Subdivision, Man.

The Canadian National Ex. Co. announces that the name of the station heretofore known as Lochearn, Alta., has been changed to Rocky Mountain House and the name of the station Rocky Mountain House has been changed to Lochearn Rocky Mountain House will be an open office to Lochearn a prepay point.

Dominion Express Co.

E. R. Cadwallader has been appointed cashier, London, Ont., vice W. B. Knott, promoted.

W. B. Knott, heretofore cashier, London, Ont., has been appointed agent, there, vice T. H. McGarrell, promoted.

T. H. McGarrell, heretofore agent, London, Ont., has been appointed acting route agent there, vice O. A. Sharp, transferred.

R. Murray, heretofore route agent, North Bay, Ont., has been transferred to the Niagara fruit district, with headquarters at Hamilton, Ont.

J. A. Parker, heretofore depot agent, Ottawa, Ont., has been appointed acting route agent, North Bay, Ont., vice R. Murray, transferred.

E. W. Richardson has been appointed depot agent, Ottawa, Ont., vice J. A. Parker, promoted.

O. A. Sharp, heretofore route agent, London, Ont., has been transferred to the Leamington fruit district, with headquarters at Leamington, Ont.

George Mott, special agent, Ottawa, Ont., was in charge of the race horse traffic handled by the company during the racing season in that district.

T. E. McDonnell, Vice President and General Manager, accompanied by George Parker, Superintendent, Toronto, made a trip of inspection over the company's lines in Western Ontario recently.

J. T. Riley has been appointed agent of the recently opened fruit office at Summerland, B.C. The small fruit crop is reported to be exceptionally good, and the movement in refrigerator car lots is unprecedented on the division.

Prior to the coming into effect of the total prohibition of importation of intoxicating liquors into Ontario, at midnight, July 18, the company handled considerable quantities from St. John, N.B., to different points in Ontario, the amount of traffic necessitating the use of extra cars. The last consignment left St. John July 14, to allow of delivery being made before July 19.

Marine Department

General Shipbuilding Matters Throughout Canada.

B.C. Marine Engineers and Shipbuilders Ltd., Vancouver, B.C.—The Hudson's Bay Co.'s motor auxiliary schooner Lady Kindersley, built at this yard, and illustrated in this issue, has the following dimensions:—Length over all 200 ft., length loaded water line 188½ ft., beam 36 ft., moulded depth 15 ft., draft loaded 12 ft. She is rigged as a 3-masted, bald headed schooner, with a jib headed mizzen and top sail for running purposes, and carries a large square sail forward, with a triangular shaped top sail. The total area of fore and aft sails is about 10,960 sq. ft., and the approximate total area of all sails is 15,610 sq. ft. She is equipped with a 350 b.h.p. semi-Diesel engine, for a speed of about 7 knots an hour. The order for building this schooner was given early in 1920, and it was intended to have her ready for service by Oct. 1920, but considerable delay was caused owing to the non delivery of the engines, which were ordered in England. She was launched March 27, and underwent her trials June 6, making two runs past Point Atkinson, registering 8½ knots. She sailed from Vancouver, early in July, and after calling at Prince Rupert, sailed direct to Herschel Island, whence she will proceed, conditions permitting, as far as Banks Sound, returning late in the autumn. Her cargo consisted of 200 tons of coal for various Hudson's Bay posts and settlements, general supplies, trading materials, etc., 2 knock-down scows, 5 knock-down houses, about 1,000 ft. of lumber, 6 schooners ranging from 26 to 43 ft. long, several canoes and trappers' supplies, etc., totalling over 1,000 tons. She is expected to average about 7 knots an hour on the trip.

Collingwood Shipbuilding Co., Kingston, Ont.—A Kingston press dispatch of July 3 stated that the daily working hours in this shipyard had been increased from eight to nine, and that wages had been decreased 15%.

Dominion Shipbuilding & Repair Co., Toronto.—As mentioned in our last issue, a deputation of employes engaged at this company's yard, by the Collingwood Shipbuilding Co., which is completing the two steel cargo steamships which were under construction for Canadian Government Meerchant Marine, at the time of the Dominion company's bankruptcy, waited on the acting Premier and the Minister of Marine recently, to urge that the Government take over the plant with a view to making it a permenancy, and in the meantime proceed with the construction of two steel cargo steamships, the keels of which were laid at the plant some time ago, for Norwegian interests. It is announced that the ministers stated that the Government will not proceed with ship construction at this plant after the completion of the steamships Canadian Pathfinder and Canadian Engineer.

The Manitowoc Shipbuilding Corporation has been authorized to do business in the Province of Quebec, its chief place of business in the province being at Montreal, and Arnold Wainwright, advocate, its principal agent.

National Shipbuilding Co., Goderich, Ont., which builds marine boilers and other shipbuilding equipment, had its machine shop destroyed by fire recently, the loss being estimated at $100,000. It is stated that it will be replaced.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—A press report states that an order in council has authorized the payment of 50% of the approved claims of certain of the creditors, in the bankruptcy of this company. It is stated that this decision follows the decision of the British Columbia Court of Appeals dismissing the Dominion Government's appeal against the creditors. Under this decision, it is said that the materials and fittings in the yard at Prince Rupert, outside of the ships, remain in the liquidator's possession, and that the creditors are thus protected, with the likelihood that they will receive payment of their claims in full, through their hold on the yard.

Three Rivers Shipyards Ltd., Three Rivers, Ont.—The tank steamship Capitaine Damiani, the launching of which was announced in our last issue, was in course of construction at the time of the bankruptcy of the builders, and was the subjct of considerable litigation before being handed over in an unfinished condition to the owners, La Societe Naphtes Transports, of Marseilles, France. The owners subseuently rented the shipyard plant from the liquidator and proceeded to complete the ship. She is considered a unique ship of her class, and is stated to be the first tanker of her type to be built in Canada, and the first to be built in eastern Canada on the Isherwood system. She has been built to carry benzine, is equipped with oil burning furnaces and is designed for a speed of 11½ knots on 22¾ ft. draft. She has a block co-efficient of 0.77. Her dimensions are,—length b.p. 380 ft., beam 52 ft., depth to deck moulded 28½ ft., capacity, 6,500 d.w. tons. The machinery consists of a triple expansion engine, with cylinders 27, 43 and 72 in. diar. by 48 in. stroke, and has a modified type of the British standard engine, the crank shaft being in three interchangeable pieces. There are 3 boilers of the Scotch marine type, each 15½ x 12 ft., and one donkey boiler 11¼ x 10 ft., all supplied by Canadian Allis-Chalmers Ltd., Toronto. The switching engine is of the Brown type, by Clayton, Neil & James, and the windlass and other deck machinery were built

Motor Auxiliary Schooner Lady Kindersley, built for Hudson's Bay Co.'s Pacific-Arctic Service

by Canadian Vickers Ltd., Montreal. The work is being carried on under the direction of Capt. Quedrue, representing the owners, and the French Government, which is financially interested. The design and construction of the ship is under the supervision of A. J. Murray, naval architect.

Transportation & Shipping Co., Sorel, Que., which acquired the Sorel Shipbuilding Co.'s plant from the receiver in bankruptcy, has, since operating it, built 3 schooners and is completing 2 more of a similar type. In addition to these, 3 steel trawlers, which were built during the war for war patrol purposes, are being converted into seagoing tugs. The plant was originally operated by the Leclaire Shipbuilding Co., which built some trawlers during the war, and it was subsequently reorganized with the Leclaire Bros., and C. Hannevig, of New York interested. After the failure of this company the plant was sold to the present owners. The headquarters of the new company are at Quebec, Que., where the Manager, J. L. Lechance, is located, the Local Manager at Sorel being J. Simard, with whom is associated F. Brydges as Naval Architect.

Vancouver Shipyards Ltd., Vancouver, B.C., has done the following repair work recently. Overhauling of steam tugs Berquist, Elsie, Glenboro and Moonlight; cleaning and painting one of the Dominion Public Works Department's dredges; changing propeller on s.s. Westham; and painting and overhauling some small gasoline boats.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—As indicated in our last issue, the Dominion Government has decided to take over and complete the four wooden barkentines, which this company was formed to build, under special aid from the Dominion Government, for the relief of unemployment during and immediately following demobilization. Owing to financial difficulties, and to the excess of cost of building over the estimates, the company has found it impossible to proceed. The first of the four ships was launched some time ago, and named S. F. Tolmie. It was reported to have been completed, but owing to the falling off of freights, she had not been placed in service. As a matter of fact, she is not ready for sea, and a contract is reported to have been awarded to Victoria Machinery Depot Co., by the Marine Department, for the finishing work to permit of her being used. This consists of rigging, finishing, cleaning and painting. It is announced that tenders will be called for shortly, for the completion of the remaining three ships, which are in various stages of construction at the Cholberg shipyard. The four ships were designed with a cargo capacity of 2,400 tons each, or 1,500,000 ft. b.m. timber.

Capt. Montague Harbord, heretofore Vice President, has been elected President, Victoria (B.C.) Shipowners, Ltd., vice C. Hoard, resigned.

Victoria Machinery Depot Co., Victoria, B.C.—See Victoria (B.C.) Shipowners Ltd.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C. — J. W. Troup, Manager, British Columbia Coast Steamship Service, C.P.R., is reported to have stated recently that it is expected that the steel passenger steamship which this company is building for the C.P.R. will be ready for launching during August. All the steel work is reported completed, and the date for the launching is dependent on the completion of the machinery, as it is intended to send her into the water with boilers and engines installed. The ship has been built to conform to the requirements of the British Corporation Register, under special survey, to class B2X, with freeboard. The machinery is being built by the shipbuilding company, under the supervision of James McGown, Superintendent Engineer, C.P.R. steamship lines, and the boilers are being manufactured by the Vulcan Iron Works, Vancouver. Her dimensions are,—length b.p. 317 ft., beam 48 ft., depth of hold 18½ ft. She has a cellular double bottom, and the hull is divided by 8 transverse bulkheads. She will have a single screw, driven by reciprocating engines, balanced on the Yarrow, Schlick and Tweedie system, for a speed of 16 knots. There will be accommodation for about 200 first class passengers, and cargo capacity for about 600 tons. The furnaces will be arranged to burn oil as fuel, but will be easily convertible for coal burning. The ship will be amply lighted, and all staterooms will be provided with hot and cold water, and every modern convenience.

Yarrows, Ltd., Victoria, B.C., did the following repair work during June:—C. P.R. s.s. Princess Adelaide, 2,061 gross tons, docked for cleaning, painting and repairs; C.P.R. s.s. Princess Alice, 3,097 gross tons, docked for cleaning, painting and repairs; C.P.R. s.s. Princess Charlotte, 3,844 gross tons, docked for cleaning, painting and repairs; Canadian Government Merchant Marine s.s. Canadian Inventor, 5,500 gross tons, docked for bottom repairs due to stranding; Pacific Construction Co.'s dredge John A. Lee, docked for cleaning, painting and repairs; Producers Rock Gravel Co.'s scow No. 11, docked for cleaning, painting and repairs.

Steamship Idefjord, 6,400 d.w. tons, built by Canadian Vickers, Ltd., for Norwegian interests.

Steamship Service, Plus.

"In ten minutes, gentlemen, our siren will blow," announced the captain of an ocean liner to a crowd in the smoking room.

"Anything wrong, captain?" asked a timorous passenger.

"No, everything is all right. That will be the highball signal. We are nearing the three-mile limit."—Birmingham Age-Herald.

H.M.C.S. Niobe.—On account of the failure of the New Brunswick Rolling Mills Ltd. to complete the purchase of H.M.C.S. Niobe and 2 submarines, sold to it by tender some time ago, the Dominion Government has entered action against the company at St. John, N.B., for the recovery of $115,000, the balance claimed to be due. The company, whose tender of $135,000 for the purchase of the ships as scrap, was accepted, paid $20,000 on account, and has since endeavored to get out of its contract, on account of the heavy fall in price of scrap metal.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Launchings of Steamships.—We have been advised of the launchings of the following steel cargo steamships for Canadian Government Merchant Marine in addition to those mentioned in previous issues.

June 30, s.s. Canadian Engineer, Marine Department contract 49, builder's yard no. 11, approximately 3,500 d.w. tons. The contract for this ship was given the Dominion Shipbuilding & Repair Co., Toronto, and, after that company became bankrupt, the Collingwood Shipbuilding Co., Collingwood, Ont., was given a contract to complete her on a cost plus basis at Toronto.

July 7, s.s. Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, Davie Shipbuilding & Repairing Co., Lauzon, Que.

July 9, s.s. Canadian Cruiser, Marine Department contract 38, builders' yard no. 3, approximately 10,500 d.w. tons, Halifax Shipyards Ltd., Halifax, N.S.

Delivery of Steamship.—In addition to the ships mentioned in Canadian Railway and Marine World previously, the following has been delivered to Canadian Government Merchant Marine for operation.

July 18, s.s. Canadian Pathfinder, Marine Department contract 48; builder's yard no. 10; approximately 3,500 d.w. tons. The contract for this ship was given the Dominion Shipbuilding & Repair Co., Toronto, and after that company became bankrupt the Collingwood Shipbuilding Co., Collingwood, Ont., was given a contract to complete her on a cost plus basis at Toronto.

Change of Ship's Name. — A prince Rupert press dispatch of July 21 states that the name of the second steel cargo steamship, of 8.390 d.w. tons, which is being built there for Canadian Government Merchant Marine under Marine Department contract 43, has been changed from Canadian Trasher to Canadian English.

Officers of Steamships.—In addition to appointments mentioned in previous issues, the following captains and chief engineers of steamships have been appointed or transferred: — Canadian Beaver, chief engineer, W. Geddie; Canadian Commander, chief engineer, J. J. R. Pringle; Canadian Conqueror, captain, G. Foy, heretofore captain, Canadian Raider, chief engineer, R. H. Murphy; Canadian Cruiser, chief engineer, J. M. Roche; Canadian Gunner, chief engineer, G. Smith; Canadian Logger, chief engineer, E. G. Rankin; Canadian Mariner, chief engineer, D. Cameron; Canadian Observer, chief engineer, G. Stephen; Canadian Pathfinder, chief engineer, W. L. Hunter; Canadian Raider, captain, H. E. Webb, heretofore captain, Canadian Conueror, vice G. Foy, transferred to Canadian Conqueror; chief engineer, G. V. Brown; Canadian Sealer, captain A. E. LeBlanc, vice J. A. Hiltz; Canadian Seigneur, chief engineer, F. W. Cunningham; Canadian Settler, chief engineer, F. Todd; Canadian Squatter, chief engineer, C. Lilburn.

Ships Names and Signals—A daily press wiseacre with a penchant for hunting trouble, states that "a practical difficulty with Canadian Government Merchant Marine names must be the signalling of such names as Trapper and Trooper, Rancher and Ranger and Sailor and Sealer, since a dot or a dash in either case may cause error as to name." When ships are placed in service, code letters for signalling purposes are assigned to each, so that names having any similarity in sound cannot be confused. The call signal letters of each of the ships names are as follows: Canadian Trapper V.G.M.C.; Canadian Trooper, X. V.M.; Canadian Rancher, X.W.O.; Canadian Ranger, X.V.F.; Canadian Sailor, X.V.R.; Canadian Sealer, X.W.K.

Paper from British Columbia.—Canadian Government Merchant Marine is reported to have secured a contract for carrying of paper from Ocean Falls, B. C., to San Francisco, Cal.

Cargoes from Sicily.—The s.s. Canadian Miller sailed from Messina, Sicily, on June 10, and arrived at Montreal on June 28, discharging there, in perfect condition, a cargo of lemons, lemon extract, filberts and liquor, for many points in Canada. The great bulk of the cargo consisted of Messina lemons. Forwarding instructions were in the hands of Canadian National Rys. agents within three hours after the arrival of the ship at Montreal, and a trainload of lemons consisting of 22 cars, for points in Ontario and the west, reached Toronto on the morning of July 1. Quantities of the fruit were on sale in stores throughout Ontario on July 2, or within 22 days from the date of loading in Sicily. The rail portion of the transaction was done over C.N.R. rails with the exception of the consignments to Sherbrooke and Medicine Hat, and the C.N.R. lines handled the latter as far as Port Arthur. The points served by this shipment were Montreal, Quebec, Sherbrooke, Toronto, Guelph, Brantford, Hamilton, London, Ottawa, Kingston, Belleville, Port Arthur, Brandon, Moose Jaw, Medicine Hat and Edmonton. The s.s. Canadian Ranger, which cleared from Messina, June 22, is also bringing a large shipment of lemons to Canada.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Collingwood Shipbuilding Co., Collingwood, Ont.—See Dominion Shipbuilding & Repair Co.

J. Coughlan & Sons, Vancouver, B.C., advised us July 5 that no dates had been fixed for the launching of the steel cargo steamships Canadian Transporter and Canadian Freighter, Marine Department contracts 62 and 63, builder's yard nos. 20 and 21, each approximately 8,390 d.w. tons, which are being built for Canadian Government Merchant Marine, and the keels of which were laid Jan. 6.

Davie Shipbuilding & Repairing Co., Lauzon, Que., launched the steel cargo steamship Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, July 7, the christening being performed by Mrs. R. B. Teakle, wife of the Manager, Canadian Government Merchant Marine, who was presented with a cluster ring of diamonds and sapphires, set in plantinum, as a souvenir. The contract for building this ship was signed Feb. 2, 1920, and the keel was laid May 14, 1920.

Dominion Shipbuilding & Repair Co., Toronto, which went in to liquidation, July 31, 1920, had under construction for Canadian Government Merchant Marine, two single screw steel cargo steamships, Canadian Pathfinder and Canadian Engineer, Marine Department contracts 48 and 49, builder's yard nos. 10 and 11, each approximately 3,500 d.w. tons, the water bottoms of both ships being about 75% complete, and the hulls about 60% framed. As stated in previous issues, the Collingwood Shipbuilding Co. was given a contract by the Marine Department to complete the ships at the Toronto yard on a cost plus basis. The Canadian Pathfinder was launched May 12, made her trial trips July 15, was delivered to the Marine Department July 18, transferred to Canadian Government Merchant Marine and sailed the same day, light, for Montreal, whence she proceeded to St. John, N.B., to load a full cargo of sugar for a United Kingdom port. The Canadian Engineer, which was launched June 30, and christened by Mrs. J. H. Porter, is built for ocean service and is canal size; length over all, 261 ft.; breadth moulded, 43 ft.; depth moulded, 24 ft.; draft loaded, 21 ft.; deadweight carrying capacity, approxlmately 3,500 tons. The engines and boilers are the usual triple expansion type with cylinders 20, 33 54 x 40 in. stroke, taking steam from two Scotch boilers 14½ ft. diameter by 11 ft., working under forced draught, working pressure 180. The ship has one hold forward and one aft, with machinery space. She is of the single deck type, with poop, bridge and forecastle. Four large hatches are provided and 7 winches and 8 derricks, for handling of cargo. The ship is in an advanced state of construction and will soon be ready for sea. The boilers were built by the John Inglis Co., and the machinery, which was partially built by the Dominion Shipbuilding & Repair Co., prior to liquidation, is being finished by the John Inglis Co. She is expected to be delivered about the middle of August.

Halifax Shipyards Ltd., Halifax, N.S., The steel cargo steamship Canadian Cruiser, Marine Department contract 38, builder's yard no. 3, approximately 10,500 d.w. tons, for Canadian Government Merchant Marine, the keel of which was

laid Oct. 2, 1919, was launched July 9, the christening being performed by Mrs. G. H. Murray, wife of the Premier of Nova Scotia. The Canadian Cruiser is said to be the largest ocean going ship ever built in Canada, her dimensions being 430 ft. long, 56 ft. beam and 38 ft. depth of hold from spar deck. She will have a load displacement of 15,000 long tons. She will be driven by triple expansion engines of about 4,000 i.h.p. with steam supplied from 4 Scotch boilers, oil burning. She will have a speed when loaded of about 13 knots. She is being built to Lloyd's highest class 100-A-1. We are informed that she will be able to carry over 350,000 bush. of wheat, which, taking 20 bush. to the acre as an average, would represent a crop off 17,500 acres, and would embrace a strip of land a mile wide and 27 miles long. This ship is being built entirely by Canadian workmen, and with Canadian materials, the steel plates, shapes, angles, etc., having been rolled by the Dominion Iron & Steel Co., at Sydney, N.S., the rivets, heavy forgings, etc., being made by the Nova Scotia Steel Co., New Glasgow, N. S. The engines, boilers, winches, auxiliaries, etc., were also made in Canada.

The steel cargo steamship Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, which is also being built by Halifax Shipyards Ltd. for Canadian Government Merchant Marine, and the keel of which was laid Oct. 6, 1919, is expected to be launched about the middle of September.

Midland Shipbuilding Co., Midland, Ont., has under construction, for Canadian Government Merchant Marine, a steel cargo steamship, Canadian Logger, Marine Department contract 54, builder's yard no. 10, approximately 3,890 d. w. tons, the keel of which was laid June 9, 1920, and which was launched June 8, 1921, the delay in launching having been caused by the non delivery of the engines.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—When the company went into bankruptcy in 1919, it was building for Canadian Government Merchant Marine two steel cargo steamships, Canadian Scottish and Canadian English, Marine Department contracts 42 and 43, builder's yard nos. 1 and 2, respectively, each approximately 8,390 d.w. tons, the keels of which were laid Sept. 27, 1919, and Oct. 20, 1919. When work on the ships was suspended by the Prince Rupert company, the Canadian Scottish was about 90% completed, and the Canadian English about 60%. They are being completed at Prince Rupert, by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., on a cost plus basis, the work being supervised by H. A. Butt, Overseer for the Marine Department. The Canadian Scottish was launched May 12, and at the time of our last advice was expected to be ready for delivery about the end of August. The Canadian English was then expected to be launched about the middle of August.

The Hudson's Bay Co.'s steamships Baychimo and Nascopie arrived at Montreal recently from London, Eng. The Nascopie took on additional cargo at Montreal, and sailed July 9 on her annual trip to Hudson Bay. The Baychimo was expected to follow later.

Ocean and River Service Estimates.

The estimates for the year ending March 31, 1922, passed at the House of Commons' last session, contain the following items:—

Maintenance and repairs to Dominion steamships and icebreakers	$1,750,000
Examination of masters and mates	20,000
Investigation into wrecks	12,300
Expenses of schools of navigation	8,000
To provide for temporary relief of distressed seamen and to cover expenses of shipping forms	3,000
Registration of shipping	6,000
Removal of obstructions in navigable waters	18,000
Inspection of live stock shipments	3,000
Subsidies for wrecking plants, Quebec and British Columbia	35,000
Unforeseen expenses	5,000
Life saving service, including rewards for saving life	90,000
	$1,950,300

The further supplementary estimates for the year ended March 31, 1921, contained the following items:—

Maintenance and repairs to Dominion steamships and icebreakers, further amount required	$304,000
To provide for temporary relief of distressed seamen and to cover expenses of shipping forms, further amount required.	$3,500

U.S. Seamen's Strike.—A. D. Lasker, Chairman, U.S. Shipping Board, is reported to have announced, June 13, that the marine strike, affecting the whole of the U.S. Merchant Marine, and which had been in effect since May 1, had been settled at a conference he had with the U.S. Secretary of Labor, and representatives of the labor organizations.

Ships Registered in Canada During April, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. N.h.p.	Owner or Managing Owner
94807	Alert(1)	Victoria	Victoria, B.C. 1889 1921	62.0	15.4	6.2	46	23	13½ Sc.	John Walters and Ingval J. Johnson, Vancouver, B.C.
141382	Canadian Commander*	Montreal	Montreal, Que. 1920	400.0	52.4	28.5	5493	3347	266 Sc.	Minister of Marine and Fisheries, Ottawa, Ont.
141833	Canadian Leader*	"	Montreal, Que. 1920	400.3	52.4	28.5	5492	3342	266 Sc.	" " " "
150233	Con Lynch	Midland	Port Robinson, Ont. 1920	62.9	16.3	7.9	59	34	20 Sc.	Canadian Dredging Company, Ltd., Midland, Ont.
141667	Linden	Toronto	Port Huron, Mich 1895	206.0	35.2	12.2	938	567	80 Sc.	The Ontario Transportation & Pulp Co. Ltd., Thorold, Ont.
150246	Mary Patricia	Halifax	Montreal, Que. 1917	84.0	19.2	11.0	122	52	24 Sc.	Mrs. Rosanna Gelbert, Halifax, N.S.
143084	Phillip T. Dodge(2)*	St. John, N.B.	Vegesack, Germany 1910	384.0	51.7	26.8	5047	3691	270 Sc.	Henry A. Powell, St. John, N.B.
141395	R. W. Hendry	Digby	Port Gilbert, N.S. 1921	139.0	28.4	11.4	479	353	50 Sc.	Bernard N. Melanson, Port Gilbert, N.S.

(1) Restored to register. (2) Formerly Clare Hugo Stinnes I. *Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length.	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
150403	Annie B. Gerhardt	Lunenburg, N.S.	Schr.	West La Have. N. S. 1920	124.6	27.6	11.1	185	115	A. B. Gerhardt Co., Lunenburg, N.S.
150404	Bluenose	"	"	Lunenburg, N.S. 1921	130.2	27.0	10.1	154	97	Bluenose Schooner, Ltd., Lunenburg, N.S.
141773	Canadia	La Have, N.S.	"	Shelburne, N.S. 1921	127.4	25.2	12.3	183	130	Canadia Ltd., La Have, N.S.
107455	E.C.E. 1	Vancouver, B.C.	Scow	Vancouver, B.C. 1893	76.0	27.2	6.5	116	116	G. Coleman, Vancouver, B.C.
150405	Jennie Elizabeth	Lunenburg, N.S.	Schr.	Shelburne, N.S. 1921	113.7	26.1	10.7	142	103	M. M. Gardner, M.O., Lunenburg, N.S.
141774	Joan Kielberg	La Have, N.S.	"	Milbridge, Me. 1917	177.1	36.8	13.5	654	557	J. L. Publicover, Dublin Shore, N.S.
141700	Lois J. Thomas	Lunenburg, N.S.	"	Lunenburg, N.S. 1920	124.0	27.2	10.5	170	113	M. M. Gardner, M.O., Lunenburg, N.S.
150424	N.V.S. 1	Vancouver, B.C.	Scow	New Westminster, B.C. 1921	86.0	30.0	7.8	170	170	City of North Vancouver, B.C.
150384	St. Christophe	Quebec, Que.	Schr.	Quebec, Que. 1920	98.4	26.4	7.8	128	118	Eastern Canada Stevedoring & General Contracting Co., Quebec, Que.
141618	Transfer No. 8	Victoria, B.C.	Brge.	Victoria, B.C. 1921	270.0	42.1	11.4	1136	1124	C.P.R. Co., Montreal.
150402	Viccolo	Lunenburg, N.S.	Schr.	Lunenburg, N.S. 1920	124.0	27.4	10.6	175	113	W. E. Knock, M.O., Lunenburg, N.S.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

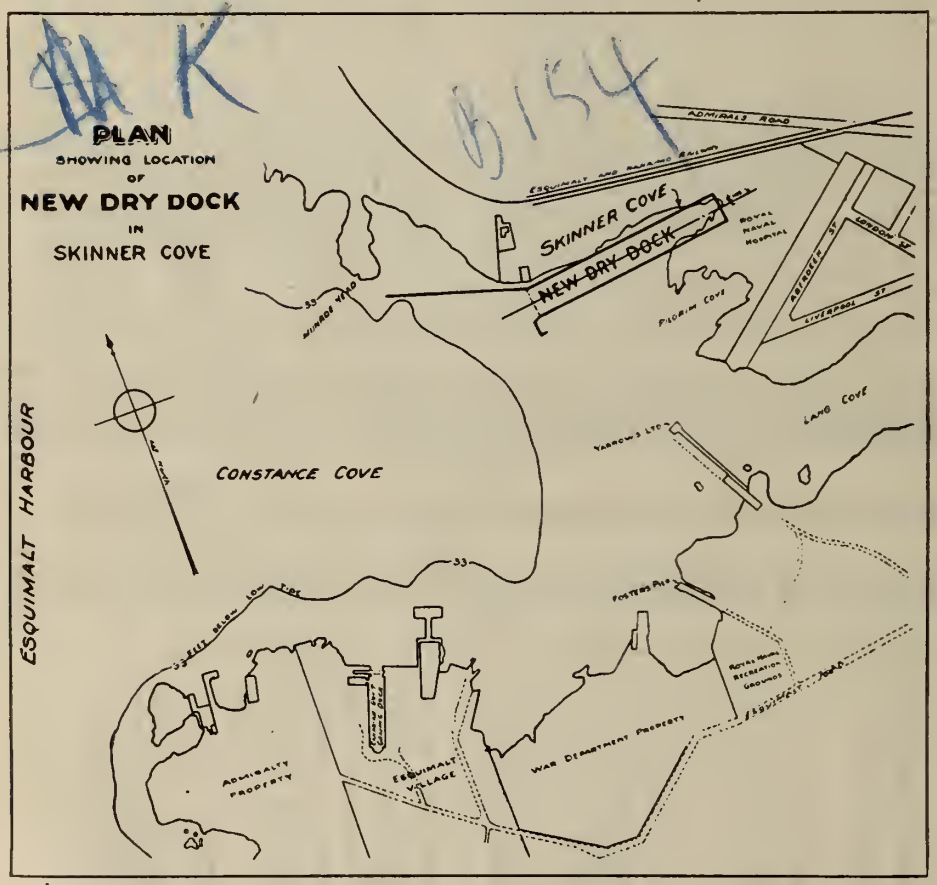
Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" " "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*8,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Brl. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 8, 1919	May 8, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.80	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	Apr. 9, 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	Aug. 8, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Aug. 19, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	July 9, 1921	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 3, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Brl. Corp.	11	Sept. 27, 1919	May 12, 1921	.....
43	Feb. 21, 1919	Canadian English	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	May 12, 1921	July 18, 1921
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	June 30, 1921	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	Apr. 26, 1921
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	May 6, 1921
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	June 8, 1921	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,825	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	Mar. 17, 1921	May 16, 1921
57	Mar. 13, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	8,390	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	8,390	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	Mar. 24, 1921	May 5, 1921
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	July 7, 1921	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	8,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	May 17, 1921
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
63	April 7, 1920	Canadian Freigbter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
							$79,296.80						
							$72,818,073.19						

Additional Drydock at Esquimalt, B.C.

The accompanying plan shows the site of the new drydock being built for the Dominion Government at Skinners Cove, Esquimalt, B.C., also the sites at the existing Government drydock at Constance Cove and Yarrows Limited shipyard. The drydock will have the following dimensions: total length from outer caisson to head wall, 1,150 ft., divided into three compartments, two end compartments being 400 ft. each, and the central one 350 ft.; width of entrance 125 ft., width of coping 157 ft., width on floor 107 ft.; depth on sill, at high water spring tide, 40 ft.; depth on sill, ta low water spring tide, 30 ft., spring tide rise 10 ft., coping of side wall above high water spring tide 4½ ft., floor at outer sill 4½ ft., depth in entrance channel at low tide 33 ft.



The contract, which was given the P. Lyall & Sons Construction Co., Montreal, includes the construction of a substantial cofferdam to enclose the area within which the works are to be built; the unwatering and keeping free from water of the enclosed area during construction; excavation, both earth and rock, over the area to be covered by the dock, part of entrance pier and channel, and excavations for pump well, drains, culverts, etc.; dredging entrance channel, and other areas, to a depth of 33 ft. below low water, construction of dock complete, with concrete walls, bollards, keel blocks, etc.; two sets of stairs in walls of dock at each end, 16 galvanized ladders on the side walls, and ladders in each sump; two timber slides longitudinal with, and at each end of, the north side wall, with sliding faces of granite 18 in. thick; a roadway 50 ft. wide on both sides of the dock and round the head; elevator shaft and tunnels, with elevator and enclosed stairway, the elevator to be of drum type with capacity of 4,000 lb., or about 25 passengers; landing wharf 750 ft. long. west of the dock entrance, and bulkhead 100 ft. long, south of the entrance, built of timber cribs, sheathed with reinforced concrete, filled with stone ballast and mass concrete superstructure; standard gauge railway track on each side of the dock and along the landing wharf, to be laid with standard sections 80 lb. rail.

Construction was commenced in March. The false work for the inner cofferdam has been built, and the filling for the cofferdam is in progress. Material excavated above high water level on the dock site is being used for the dam, the outside of which is being sheeted with clay, which is obtained from the dredging being done on the site of the landing stage. A railway spur is being built from the Esquimalt & Nanaimo Ry. to the drydock site, ¾ mile, grading on which was completed at the end of June. A contract has been entered into with the British Columbia Electric Ry., by the contractors, for the supply of 750 h.p. of electrical energy, for the operation of compressors, pumps, hoists, etc., during the work, and the company is building about a mile of transmission line. The power will be delivered at 2,200 volts a. c., 3 phase. On the completion of construction, the company will supply all the electrical energy for the operation of the drydock plant, which will be approximately 3,000 h.p., used on three main centrifugal pumps, drainage pumps, mislaneous motors, lighting, etc.

The subcontractors for the dredging and excavation work are Pacific Construction Co., Vancouver. The cofferdams for the landing stage are being built by Yarrows Ltd., Victoria. J. P. Forde, Victoria, is District Engineer in charge for the Public Works Department, Hew M. Scott is Superintendent, and G. H. Pethick is Resident Engineer, for the contractors.

Accident to s.s. Rapids King at Long Sault Rapids.

Canada Steamship Lines' s.s. Rapids King, while passing through the Long Sault Rapids, about noon, July 16, met with an accident to her steering gear, and was driven, stern on, on the rocks at Barnhart Island, about 7 miles west of Cornwall. As the island is practically isolated, some difficulty was experienced in obtaining assistance for landing the passengers and their transfer to the mainland. During the afternoon, the captain and purser had one of the ship's lifeboats launched, and eventually landed on the mainland near Cornwall, where they communicated with headquarters. It was not, however until the next day that the 329 passengers could be landed. This was accomplished by means of two lines between the ship and Barnhart Island, one of the ship's lifeboats being used for the transfer, being hauled back and forth with each load. After a climb of about 60 ft. up the bank, the passengers were motored arcoss the island and ferried to the mainland at Maple Grove, and then motored to Cornwall, whence they continued their journey, either by steamship or by train. For the night spent on board, the officers of the Rapids King gave up their staterooms to the women and children among the passengers, and the male passengers distributed themselves in the saloon and at convenient points on deck, so that there was no actual discomfort. After the removal of the passengers and baggage, the ship was worked off the rocks, and as the steering gear damage had been repaired, she proeeeded to Montreal. W. E. Burke, Director of Transportation, Canada Steamship Lines, and other of the company's officials were present to superintend the removal of the passengers and to look after their comfort.

British Corporation Classification.—It is announced that in connection with the agreement between the British Corporation for the Survey and Registry of Shipping and the American Bureau of Shipping, providing for technical co-operation and dual classification under equally effective rules, that a new agreement has been entered into whereby the British Corporation's organization in Canada will be utilized for classification in Canada of ships which are classed, or are intended to be classed, with the American Bureau of Shipping. W. I. Hay is the principal surveyor for the British Corporation in Canada.

The Brantford Navigation Co. Ltd. has been incorporated under the Dominion Companies Act, with 500 shares of no nominal or par value, provided that it shall carry on business with a capital of $2,500, and head office at Montreal, to carry on the business of shipbuilder, ship agent, forwarder, carrier by land and water, etc. The incorporators are: F. B. Common, F. G. Bush, H. W. Jackson, G. R. Drennan, and W. P. Creagh, Montreal.

Atlantic and Pacific Ocean.

The Quebec Steamship Co.'s steamships Fort Hamilton and Fort Victoria have been removed from the Canadian register and registered at Hamilton, Bermuda.

The International Petroleum Co.'s s.s. G. Harrison Smith was launched at Sparrow Point, Baltimore, Md., July 12, the christening being performed by Mrs. G. Harrison Smith, Toronto, wife of the President, International Petroleum Co., and Vice President, Imperial Oil Ltd.

The name of the s.s. Speedy II, sold recently by Kirkwood Steamship Co. to International Paper Co., New York, has been changed to Canipco. It is stated that she will be operated out of Three Rivers, Que., to points on the north and south shores of the St. Lawrence, Gaspe, Labrador and New York.

The former German s.s. Clare Hugo Stinnes I, which was bought by H. A. Powell, St. John, N.B., has been placed on the Canadian register and renamed Philip T. Dodge. She was built at Vegesack, Germany, in 1910, and is screw driven by engine of 270 h.p. She is equipped for wireless telegraphy and has the following dimensions,—length 384 ft., breadth 51.7 ft., depth 26.8 ft., tonnage 5,047 gross, 3,691 net.

The Baltic American Line, which has succeeded the Russian-American Line, operating a steamship service between Russian and German ports on the Baltic Sea, and New York, has resumed service, and will, it is stated, make calls at Halifax, N.S. The steamships engaged are named Baltamar, Baltara and Baltida, having been named formerly, Czar, Czarine and Kursk respectively. Pickford & Black have been appointed local agents at Halifax.

The White Star Line (Oceanic Steam Navigation Co.) has bought the former German s.s. Columbus from the Reparations Committee, and it is announced that she is to be placed in the company's service between Southampton, Eng.; Cherbourg, France; and New York. She is a new steamship of about 35,000 tons gross, and was built at Danzig by F. Schichau & Co. She is driven by twin screws, at about 19 knots, and has accommodation for 2,700 passengers. She is 775 ft. long overall, with 83 ft.. beam.

The C.P.R. s.s. Empress of Canada, built by Fairfield Shipbuilding & Engineering Co., Glasgow, Scotland, for the C.P.R. trans-Pacific service, underwent her trials in the Clyde during the latter part of June. All tests were reported to have been satisfactory and she returned to the builders for the finishing touches. The completion of this ship has been very much delayed owing to labor difficulties. A full description of her was given in Canadian Railway and Marine World for Sept. 1920, pg. 511, and an illustration in Nov. 1920.

The C.P.R. s.s. Montreal sailed from Antwerp, Belgium, July 12, for Montreal, to open the company's new service between Montreal, Naples and Genoa, in conjunction with that being given by the Navigazione Generale Italiana, with the s.s. Caserta. The s.s. Montreal was formerly the German steamship Koenig Friedrich August, and was bought from the Reparations Committee by the C.P.R., after which she was thorough overhauled at Antwerp. She was built at Hamburg in 1906, her dimensions being, length 476 ft., breadth 55 ft., depth 31 ft. The s.s. Caserta was built in 1904, by Sir W. G. Armstrong, Whitworth & Co., Newcastle-upon-Tyne, Eng.

Maritime Provinces and Newfoundland.

The Emma Belleveau Shipping Co. Ltd., St. John's, Nfld., is being wound up. Tasker Cook is liquidator.

A Dominion order in council has been passed making it an offence to discharge oil, tar or other similar substances into Halifax harbor and providing a penalty of $1,000 for each offence.

The Eskasoni Steamship Co. Ltd., St. John's, Nfld., is being voluntarily wound up, in accordance with a resolution of an extraordinary general meeting of shareholders. A. J. Harvey is liquidator.

The St. John's, Nfld., longshoremen, who went on strike a few weeks ago, returned to work July 12, on the understanding that the difficulties would be adjusted by the end of the month.

The Dominion Atlantic Ry. s.s. Prince Albert was towed into Parrsboro, N.S., July 14, having broken her tail shaft. It is stated that she struck an obstruction, probably a sunken log, near Cape Blomidon, and broke the shaft, eventually being taken in tow by the tug Onawana.

The s.s. Ruby L. II, which was launched by J. A. Balcom & Co., Margaretsville, N.S., recently, was fitted with boilers and engine by Union Foundry Co., West St. John, N.B., and left for Margaretsville, July 15, where she is to replace the s.s. Ruby L. on the Margaretsville Steamship Co.'s bay route.

The U.S. fishing schooner Esperanto, which won the International fishing schooner race last year, and which foundered off Sable Island towards the end of May, was raised early in July, but before she could be completely salved she again sank. Four other attempts to keep her afloat after raising having failed, she was abandoned July 16.

The s.s. Roseina B., owned by C. & G. Brister, Halifax, N.S., was practically destroyed by fire at the owners' wharf at the Northwest Arm, Halifax, at the end of June. She was built at Mahone Bay, N.S., in 1917, and was screw driven by engine of 54 h.p. Her dimensions were,—length 123.2 ft., breadth 21.7 ft., depth 9.3 ft., tonnage, 320 gross, 181 net.

The s.s. Bassam, at one time owned by the U.S. Shipping Board, which met with a series of mishaps off Newfoundland and Miquelon, a short while ago, was towed into Halifax, N.S., early in July. She is a wooden steamship of about 3,500 tons, and ran ashore on the Newfoundland coast, and, after being refloated, again went ashore at St. Pierre, Miquelon, where she was abandoned. Further efforts by outside parties were successful in floating her and taking her to Halifax. It is estimated that repairs will cost about $20,000, and it is reported that a contract for them has been awarded to C. A. Huntley, Parrsboro shipyards, Parrsboro, N.S.

Province of Quebec.

The Dominion Public Works Department received tenders to July 26 for the reconstruction of training and landing piers at Poupore, Que.

Ha Ha Bay harbor has been proclaimed as a port to which the Canada Shipping Act, part 12, shall apply. Its limits include all the waters of Ha Ha Bay and the Saguenay River, southwest of a line drawn from the point where the division line between Bagot and Otis Tps. meet high water mark, due northwest astronomically to the shore at Cape West.

The Dominion Government has appointed Mr. Justic Panneton, of the Quebec Superior Court, as a commissioner to investigate and report in respect to the amount required to pay the Park St. Charles Co. Ltd., for land occupied by the Quebec Harbor Commission as per the arbitrator's verdict, which has been sustained by the Superior Court in the company's favor, for $60,000.

The Quebec Harbor Commissioners entered action recently against the Frenhc Government s.s. Bouzonville, and caused its seizure, on a claim for $30,000 for damage to the lift bridge at the Louise docks, where the ship was being towed to its winter berth by the steam tug J. S. Thom. The French Government protested the seizure, claiming that, according to custom, usage and law, a ship belonging to a sovereign state, which is an ally of Great Britain, cannot be seized in time of peace. The judge in Admiralty has been asked to annul the seizure on these grounds.

A claim by the Societe Maritime et Commerciale, France, against Webster Steamship Co., and Levis Ferry Ltd., for $240,000, was dismissed at Quebec, Que., June 30. From the evidence it appears that the French company, three days before the armistice, bought the s.s. John S. Thom from Levis Ferry Ltd., for $240,000, and paid $180,000 to that company, and $60,000 to Hon. L. C. Webster, President, Webster Steamship Co. The intention was to operate the steamship in transporting troops across the Eng-

Ships Added to and Deducted From the Canadian Register During April, 1921.

	Steam. —Tonnage—			Sailing —Tonnage—		
	No.	Gross	Net	No.	Gross	Net
Added.						
Built in British Possessions	8	11,690	7,156	14	2,602	2,250
Purchased from foreigners	2	988	601	1	654	557
Transferred from U.K. ports	1	5,047	3,691	....	.....	.....
Other ships	4	202	166	1	116	116
Added without re-registry	1	46	23	....	.....	.....
Totals	16	17,973	11,637	16	3,378	2,923
Deducted.						
Wrecked or otherwise lost	3	1,499	855	9	1,874	1,722
Broken up or unfit for use	14	630	423	13	1,582	1,520
Sold to foreigners	....	.....	.....	1	63	63
Transferred to U.K. ports	....	.....	.....	1	53	53
Transferred to British Possessions	3	13,349	7,455	....	.....	.....
Registered anew	2	22	19	3	157	155
Totals	22	15,500	8,752	27	3,729	3,513

lish Channel. Subsequent to the signing of the armistice, the French company claimed that it found the ship unsafe for navigation, and asked a return of the purchase money.

Cross actions for damages, sustained in a collision between the Canada Steamship Lines' s.s. Maplehurst, with barge brookdale in tow, and the George Hall Coal Co.'s steam tug Margaret Hackett, with the barge Gladys H. in tow, in Lake St. Peter, July 16, 1920, came before the Admiralty Court at Montreal, recently. The damages claimed for the Maplehurst are $6,000, and for the Margaret Hackett, $58,000. Judgment was reserved. In the Wreck Commissioner's enquiry, which followed the collision, the master of the Margaret Hackett was exonerated from blame, as were those on the barges Brookdale and Gladys H., but the officers were advised to keep a better lookout in future. The Maplehurst was also exonerated, but the master was found in default for not carrying properly constructed lights, in accordance with International Rules of the Road, article 5, and he was severely reprimanded. In addition, the pilot and the mate of the s.s. Maplehurst were cautioned.

Ontario and the Great Lakes.

Canada Steamship Lines' s.s. Mapleboro, en route from Montreal to Toronto with package freight, ran ashore about 5 miles below Prescott, July 11.

Canada Steamship Lines' Mapledore, downbound, from lake ports to Montreal, went aground on shoals near the Cardinal Canal, July 12, and was reported to be badly damaged.

Canada Steamship Lines' s.s. City of Hamilton, while upbound from Montreal to Toronto with package freight, ran ashore near Iroquois, July 13. She was released July 19 by a wrecking company.

The Queen Victoria Niagara Falls Park Commission is reported to be considering the operation of passenger steamships between Toronto, Niagara-on-the-Lake and Queenston in the summer excursion trade.

The movement of grain from Lake Superior ports, during the early part of July was reported to be light, with little chartering. For the first week of the month, 2,866,494 bush. of all kinds of grain were shipped from Fort William and Port Arthur, the receipts for the same period being 2,922,734 bush. At the end of that period the elevators at those ports held 15,018,022 bush.

The Cleveland Cliffs Iron Co.'s s.s. Andaste is being shortened by 20 ft., to allow her to pass through the Welland Canal. The work is being done by the Great Lakes Engineering Co. at its Ecorse yard, where she was towed after having been laid up at Cleveland for some time. She was expected to be ready for service during July. It is stated that owing to a good demand for tonnage in the lower lakes trade, more steamships may be reduced to Welland Canal size.

The U.S. s.s. William P. Palmer, with a cargo of corn from Buffalo, N.Y., for Montreal, while passing down through the Welland Canal, July 3, had some difficulty in getting over the miter sills at lock 6, having sprung a leak. She lay below lock 6, until July 6, when she was taken to Port Dalhousie, after having been lightered somewhat. The leak was repaired there, and she was further lightered, and on July 7 she went up the canal, bound to Buffalo for repairs. It is said that the leak was caused by the loosening of 5 rivets. There was no damage to the canal, and no delay to navigation.

The steam tug Wahnapitae, owned by C. Beck Mfg. Co., Penetanguishene, Ont., which struck a rock near Clapperton Island, in June, and sank, was salved by the Georgian Bay Shipping & Wrecking Co., Midland, and taken to port for repairs, July 15. A large hole was torn in her bow, but she was expected to be ready for service before the end of the month. An attempt to raise her by another wrecking company was abandoned, owing to the death of diver Godfrey, whose helmet became partially dislodged. The Wahnapitae was built at Penetanguishene in 1904, and is screw driven by engine of 37 h.p. Her dimensions are,—length 91 ft., breadth 18.6 ft., depth 10.2 ft.; tonnage, 153 gross, 95 net.

The Ontario Transportation & Pulp Co., Thorold, Ont., has bought the s.s. Linden, and transferred her from the U.S. to the Canadian register. She was built at Port Huron, Mich., in 1895, was rebult there in 1908 and underwent large repairs in 1913. She has an oak hull and is of the well deck type, with diagonal strapping on frames, steel arches, steel boiler house, steam pump wells, and with bow sheathed for operation in ice. Her dimensions are,—length b.p. 206 ft., breadth moulded 36 ft., depth moulded 13 ft. 8 in., tonnage, 894 gross, 708 net. She is equipped with fore and aft compound engine, with cylinders 22 and 44 in. diar. by 30 in. stroke, 490 i.h.p. at 90 r.p.m., supplied with steam by a firebox boiler 10½ x 13 ft. at 125 lb.

A steamship company is reported to be in process of organization in Detroit, Mich., to operate steamships between Detroit and Montreal. It is stated that the ships to be utilized were built originally for the lakes trade, were transferred to salt water service some time ago, and have now been returned to the lakes. It was expected that the first sailing would take place from Detroit during July, and that other sailings would be arranged as business offered. Docking facilities are reported to have been arranged for near the entrance to the Lachine Canal at Montreal, and at the Great Lakes Engineering Co.'s wharves at Detroit. It is stated that freight rates will be 20% below the all rail rates, with 5% discount for prepayment.

Manitoba, Saskatchewan and Alberta.

The Northern Trading Co. launched the tow barge Belle Rock at Fort Smith, during June, after which she left, in tow of the s.s. Northland Trader, for the north. The boat Northland Pioner, to burn oil, was also launched at Fort Smith, and left for Fort Norman, July 2. This boat was built at a more southerly point and shipped in knock-down shape to Fort Smith, where she was assembled.

The Alberta & Arctic Transportation Co., Edmonton, Alta., recently announced its steamboat services to the Fort Norman oil fields and other northern points. A steamboat service is given via the Peace River route, from the terminus of the Edmonton, Dunvegan & British Columbia Ry., and via the Athabasca River route from Lynton, the terminus of the Alberta & Great Waterways Ry. The steamboats D. A. Thomas, Slave River, B. C. Express and Distributor are being used. The company also operates the gasoline boats Canadusa on the Athabasca and Lower Peace Rivers, and Lady Mackworth on the Slave River and Lake and the Mackenzie River. Caterpillar tractors are operated across Smith portage, each having a capacity of 30 tons of freight.

British Columbia and Pacific Coast.

The C.P.R. steamship service by the s.s. Tees, between Vancouver, Ocean Falls, Swanson Bay, Prince Rupert and way ports, has been discontinued temporarily.

The Marine Department has announced that a survey of Ripple Rock, in Seymour Narrows, will be made to determine the approximate cost of its removal, in the interests of navigation.

The small s.s. Gunner, which was bought from the British Government recently by Capt. C. O. Polkinghorne, Vancouver, has been taken to the Pacific coast by him for operation in the north coast trade. She has a steel hull, was built in 1915, and used during the war as a submarine chaser. She took 56 days on the voyage from Cardiff, Wales, to Vancouver, via the Panama Canal.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during June, 1921:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B. M.	1,134	35,377	36,511
Flour	"	Barrels	453,800	696,440	1,150,240
Wheat	"	Bushels	1,448,700	8,969,733	10,418,433
Grain, other than wheat	"	Bushels	4,419,325	6,939,604	11,358,929
Copper	"	Short tons	973	2,477	3,450
Iron Ore	"	Short tons	.....	3,892,791	3,892,791
Pig Iron	"	Short tons	526	.....	526
Stone	"	Short tons	650	2,800	3,450
General Merchandise	"	Short tons	1,166	6,188	7,354
Passengers	"	Number	2,821	1,558	4,379
Coal, soft	Westbound	Short tons	17,785	3,009,392	3,027,177
Coal, hard	"	Short tons	.....	247,048	247,048
Iron Ore	"	Short tons	.....	.....	.....
Manufactured Iron and Steel	"	Short tons	210	2,763	2,973
Salt	"	Short tons	283	9,008	9,291
Oil	"	Short tons	1	48,165	48,166
Stone	"	Short tons	.....	59,184	59,184
General Merchandise	"	Short tons	21,652	35,918	57,570
Passengers	"	Number	2,964	1,360	4,324
Summary					
Vessel Passages		Number	496	1,324	1,820
Registered Tonnage		Net	427,786	4,325,086	4,752,872
Freight—Eastbound		Short tons	176,790	4,451,277	4,628,067
Westbound		Short tons	39,931	3,411,478	3,451,409
Total Freight		Short tons	216,721	7,862,755	8,079,476

Mainly About Marine People.

Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and of the Naval Service, after being in England, with Mrs. Ballantyne and their two sons, for some weeks, made an automobile trip with them in Belgium and France and is expected to sail for Canada Aug. 4.

E. H. Beasley Memorial.—In connection with the death of E. H. Beasley, General Manager, Union Steamship Co. of British Columbia, Vancouver, B.C., in an aeroplane accident last year, a local committee, consisting of C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co.; George Kidd, General Manager, British Columbia Electric Ry.; F. W. Peters, General Superintendent, British Columbia District, C.P.R.; K. Houlgate, B. Wilson, C. Spencer and W. G. Payne, with C. S. Meek as Chairman, was formed to carry out a suitable memorial. Mr. Meek, who was a son in law of the late Sir William Whyte, formerly Vice President, C.P.R., died in March, but the committee continued the work and decided to equip a ward for sick mariners in St. Pauls Hospital, Vancouver. This has been completed and is reserved exclusively for sick mariners. A brass plate indicates the situation of the ward in the hospital and another is placed over the door. In the ward is hung a large steel engraving of a life sized portrait of Mr. Beazley.

Capt. W. H. Crossley, a shipmaster of the Grace Steamship Lines, New York, on leave of absence through ill health, died at Windsor, N.S., his birthplace, on July 14, aged 56.

M. P. Fennell, Secretary, Montreal Harbor Commissioners, has been invited by the Mayor of St. John, N.B., to speak there on the commission method of governing harbors.

E. Hawken, Assistant Deputy Minister of Marine, and his family, are spending a little time at Victoria, Prince Edward Island.

Frederick S. Isard, whose appointment as Managing Director, Canada Steamship Lines, Ltd., Montreal, was announced in a recent issue, was born at Hamilton, Ont., Aug. 4, 1888, and educated there. He commenced his business career with the International Harvester Co. at Hamilton. He entered transportation service in 1911, and has been, to 1913, Comptroller, Canada Interlake Line, Toronto; 1913 to 1919, Comptroller, Canada Steamship Lines, Montreal; 1919 to May 1921, Director of Finance, Canada Steamship Lines, Montreal. He is a director of the latter company and also of the Collingwood Shipbuilding Co., Halifax Shipyards Ltd., of which he is also Treasurer, Cluff Ammunition Co. and Canadian Chadwick Metals Co. He is a member of the Engineers' and Albany Clubs, Toronto, Hamilton Club, Hamilton, Ont., and Montreal Club.

C. Gardner Johnson has been appointed agent at Vancouver for the Williams Line steamships, the head office of which is at Seattle, Wash.

Wm. Lockerbie, for 25 years chief engineer, C.P.R. upper lakes steamship Athabasca, until he retired in 1914, died at Edmonton, Alta., July 15, aged 72, and was buried at Collingwood, Ont.

A. B. Mackay, formerly of R. O. & A. B. Mackay, steamship owners, etc., Hamilton, Ont., is spoken of by the Liverpool Journal of Commerce, Southampton, Eng., correspondent, as "the great Canadian shipping magnate" in connection with a statement that he has taken a long lease of Kent House, East Cowes, Isle of Wight, from the Marquis of Milford Haven. The correspondent adds that "Mr. and Mrs. Mackay propose to make their home at East Cowes, for, at any rate, a few years, while Mr. Mackay will make some three or four business trips to Canada and the United States each year." The fact that Mr. Mackay had leased Kent House was mentioned in Canadian Railway and Marine World several months ago.

Charles F. Mason, heretofore Assistant Manager, White Star Line (Oceanic Steam Navigation Co.), Winnipeg, has been appointed Assistant Passenger Manager of the line at Montreal.

F. S. Isard,
Managing Director, Canada Steamship Lines, Ltd.

Sir Frederick Orr-Lewis, President, Canadian Vickers Limited, who has been spending some time in Montreal, sailed from New York, on July 15, on his return to England.

Jas. B. Stewart, Toronto, has been appointed Inspector of hulls and equipment of steamships, there, with the title of Steamship Inspector (General).

F. C. Thompson, agent, Ulster Steamship Co., (Head Line), and marine insurance broker, Toronto, died suddenly, aged 46, while on business at Boston, Mass, July 11. He was buried at Toronto, July 15.

Welland Canal Contracts.—The Railways and Canals Department has given the Canadian Dredging Co., Midland, Ont., a contract for placing stone protection on the Welland Canal summit level between Thorold and Port Colborne. The Department will receive tenders to July 25 for the completion of sections 1 and 2 combined.

Suction Dredge Tornado.

J. H. Sinclair, Antigonish and Guysborough, N.S., asked a number of questions in the House of Commons recently, which were passed as an order for a return, which has been supplied, the questions and answers being as follows:—

Q. "Was suction dredge Tornado employed in dredging in Courtenay Bay, or St. John Harbor, N.B., during 1920?" A. "Yes, employed by St. John Drydock & Shipbuilding Co. in performing its contract for harbor improvements in Courtenay Bay."

Q. "If, so who is the owner?5' A. "St. John Drydock & Shipbuilding Co."

Q. "Where was the dredge built?" A. "Toronto."

Q. "From what port did it sail and at what date did it arrive at St. John?" A. "From Norfolk, Va., arrived Aug. 5, 1920."

Q. "What was the total expenditure to Dec. 31, 1920, in connection with the work done by this dredge?" A. "$140,-440."

Q. "Were certain pontoons lost when the dredge was taken to St. John, and if so were they recovered?" A. "No information."

Q. "Where is the dredge Tornado now?" A. "At Courtenay Bay."

The Dominion Line, now associated with the White Star Line, as the White Star-Dominion Line, celebrated its 50th anniversary during July. The Dominion Line commenced business in 1871 as the Mississippi & Dominion Steamship Co., its fleet during its early years consisting of the steamships Memphis, Mississippi, St. Louis, Texas and Vicksburg. Summer sailings were made to Montreal, the winter ports then being Boston, Mass., and Baltimore, Md., and later changed to Portland, Me. The steamships Dominion and Ontario were added in 1874, and in 1879 other ships, named Montreal, Ottawa, Toronto, and City of Dublin, were used, the last named being changed later to Quebec. In 1883, the steamships Sarnia and Oregon were added, and were the first of the company's steamships to have first class accommodation amidships. The s.s. Vancouver was added in 1884, and the s.s. Labrador in 1891. In 1896 was commenced the building up of the fleet as it is at present, with the arrival of the s.s. Canada at Montreal. The company became associated with the White Star Line in 1899, and has since maintained a combined and extended service on the St. Lawrence route.

The Gaspe Coast Co. Ltd. is reported to be under organization, with office in Merger Bldg., Quebec, Que., to take over the s.s. Brumath, and operate her between Montreal and Quebec, and a number of small ports on the Gaspe coast below Matane. The Brumath is one of the five full powered wooden barges built by Three Rivers Shipyards Ltd., Three Rivers, Que., last year, for the French Government, and, as mentioned in Canadian Railway and Marine World for July, she was sold recently to Capt. Jos. Rioux, Gaspe County, Que., for $36,750. It is stated that this ship, which was built originally to carry freight only, has been fitted with passenger accommodation for 21 first class, and from 50 to 60 second class passengers. She took her first cargo at Montreal, at the end of June, and is operating on a fortnightly schedule.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held, and judgments delivered in connection with the following casualties:—

Stranding of s.s. Keyingham.

Held at Quebec, Que., recently, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. C. Lapierre and T. McGough, as nautical assessors, into the stranding of the s.s. Keyingham, owned by Preston Steam Navigation Co. (England), bound from Port Alfred, Que., to Great Britain, with pulpwood, on the Bar Reef at the mouth of the Saguenay River, May 14. After hearing the evidence, the court decided that neither the master, officers, nor pilot, was in default, but that the casualty was due to the fact that the pilot expected to hear the bell of buoy 95, which failed to sound its warning, and to an act of God, and exonerated the ship's officers and pilot from all blame. The following was added as a rider to the finding:—The court being composed of men who have had extensive experience in the navigation of the Saguenay River, and in view of the evidence adduced respecting the usefulness of aids to navigation at the mouth of that river, is of unanimous opinion that the bell buoy mentioned in the course of this enquiry, is useless for the purpose for which it is placed. A bell buoy can be effective only when it stands in a perpendicular position, when the hammer can strike both sides of the bell. Its efficiency is decreased on account of the force being reduced when the buoy is at an angle, which happens at the beginning of flood and ebb; but when, through the strength of the tide, it is forced into a horizontal position, it becomes absolutely useless, and it is at the strongest of the tide it is most needed, as the eddies near that vicinity are more numerous and the race strongest. The court cannot suggest a substitution, but intimates that if a lightship is thought useful in June and July and until the end of the navigation season, the same necessity exists at the opening of trade in that river, which is now very extensive. The court is also of opinion that a powerful whistle and light should be installed on the lightship, and is submitting the above for the serious consideration of the Marine Department. If a buoy is to be maintained, it can only be effective and useful if guyed or stayed, if such is possible, to keep it upright. This suggestion is made with all reserve, and is only submitted tentatively.

Grounding of s.s. John Rugee.

Held at Montreal, recently, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. C. Lapierre and A. Lefebvre as nautical assessors, into the grounding of the George Hall Coal Co.'s s.s. John Rugee on Pointe Noire in the Saguenay River, June 1. The evidence showed that early in the morning of June 1, the pilot retired from the bridge, leaving orders to keep the ship in position, which he stated was n.w. by w. During his absence a green light and masthead light were seen on the starboard bow (the wheelman said it was a red light). Two blasts of the whistle were given, and the wheel was ordered starboard, by the mate, who was on the bridge, the master being on the lower bridge. The oncoming ship had not given an immediate reply, so the helm remained starboard, with a strong wind blowing from the northward, and tide ebbing at about 6 or 7 miles. The ship must have swung rapidly under wind and tide, and on the pilot's return he found her heading s.e. by e. and gave an order full speed ahead and hard aport. The evidence on this point seemed conflicting, and the court concluded that the pilot had been on deck for a time before he gave an order. The hel mand the anchor were let go and the order given, full speed astern. The ship immediately grazed land for a good distance and evidently dragged her anchor, as she was about 2 miles southward before the anchor caught. The evidence showed that the pilot exercised poor judgment in attempting to bring a light ship to the wind under such conditions, and as there was no particular haste, it having been decided to await daylight before entering Tadousac, the most sensible thing to have done was to hard a starboard and bring her up port side to the wind. Under the circumstances it is to be wondered that the hawse pipes were not torn off and the anchor lost. The master should not have abstained from offering a suggestion, but he seemed to have been under the impression that as the pilot was supposed to know more than he of Saguenay navigation, it would have been wrong to interfere, though he admits that the reverse of the pilot's order would have been the proper way. He therefore failed to exercise his prerogative in suggesting or ordering a different manoeuvre. The pilot, H. Lachance, committed a grave error of judgment and the court expressed the opinion that he was too long absent from the bridge. The court therefore found that the master, Capt. A. R. Barrett, was in default for not having asserted his authority,, reprimanded him and cautioned him to assert himself when a question of seamanship is involved. The pilot, H. Lachance, was also found in fault, but owing to the climatic conditions and the ship being light, thus affording less facility in operation, the court decided to deal leniently with him, fined him $50, to be paid by June 30, and cautioned him that should he be called before the court in future and found in default, he would be more severely dealt with.

The Donaldson Line's s.s. Gracia, which arrived at Montreal, July 13, from Glasgow, Scotland, on her maiden trip, was completed recently at Greenock, Scotland, and has the following dimensions, length 425 fet., breadth 54 ft., depth 33½ ft., with a carrying capacity of 8,000 d. w. tons, or 490,000 cu. ft. She has been specially designed for handling cargo, and her high 'tween decks of 9 ft. make her an exceptional ship for carrying perishable freight. There are 14 winches, and in no. 2 hatch there is a derrick tested to 14 tons. Special attention has been paid to ventilation. The propelling machinery consists of a set of double geared turbines, for a speed of 12½ knots at sea with full cargo. Steam is supplied by 4 Scotch boilers equipped for burning oil fuel, and so arranged that the furnaces can be changed to burn coal as required. Oil fuel is carried in the double bottom and side tanks. She sailed from Montreal, on her return trip, July 16.

The Champion-Corcoran Collision.

An action brought by the U.S. Shipping Board against the s.s. Champion, owned by La Cie. Maritime et Industrielle de Levis, Levis, Que., for damages sustained by the s.s. Corcoran, in a collision between the two ships, just below Quebec, June 26, 1919, came before the Admiralty Court at Montreal, July 5, when judgment with costs was given against the Champion. The Corcoran was built on the Great Lakes, and was taken down to Quebec, whence she was to sail for France. The Corcoran and Champion both left their docks about the same time, the latter to go to St. Joseph de Levis, to pick up passengers, and thence to the Isle of Orleans. As there were no passengers at St. Joseph, the Champion did not stop, but put her helm to starboard and proceeded diagonally across the river, which at that point is about ¾ mile wide. The Corcoran was going down in mid channel, with the Champion on her starboard quarter, and it was stated that when the Champion starboarded they were about 500 ft. apart, and a few minutes afterwards they collided, each blaming the other. The evidence on this point was conflicting, the officers of the Champion claiming that they did not see the Corcoran at the time of starboarding, although, as stated, 500 ft. apart. Mr. Justice Maclennan, in giving judgment, stated that they ought to have seen the Corcoran, if a proper lookout had been kept. The Champion was the overtaking ship, and it was her duty to keep out of the Corcoran's way, and in starboarding across the channel, she had committed a breach of article 24 of the International Rules of the Road. No signal was given, as required by Article 28, but that did not contribute to the accident. The difficulty, and hazard of collision, were created by the improper navigation of the Champion, and at the last moment it was clear that there was no possibility of the Champion avoiding the collision by keeping out of the Corcoran's way, and this justified the Corcoran in putting her helm hard a port, but she did not give the whistle signal called for by article 28, and though she was considered blameable for this omission, it was held that it did not contribute to the collision. The Champion was held to be solely responsible for the accident, through failure to observe articles 24, 27 and 29 of the International Rules of the Road, and the Corcoran was not held responsible through any fault on the part of those in charge of her.

Capts. A. L. Starratt and H. Kjerland acted as nautical assessors at the trial.

United Transit Co. Ltd. has been incorporated under the Dominion Companies Act with $24,000 authoized capital and office at Montreal, as a private company, to carry on business as merchant and carrier by land, air and water; ship, tug, lighter and barge owner; wharfinger, storekeeper, dockowner, ship, freight and insurance broker and kindred business. The provisional directors include L. P. Crepeau, K.C., Montreal.

Rafting Logs by Electricity. — The Nashwaak Pulp & Paper Co. is reported to have adapted electricity to the rafting of logs on the Nashwaak River in New Brunswick. The raft is equipped with a two-phase motor of 20 h.p., and this, with a crew of 70 men, will, it is claimed, do the work which formerly took a crew of 200.

Harbor and River Estimates for 1921-1922.

The Public Works Department estimates for the year ending March 31, 1922, passed at the House of Commons' last session, contain the following items:

Chargeable to Capital.

Port Arthur and Fort William, improvements	170,000
Quebec Harbor, Champlain dock to complete	136,000
St. John Harbor, improvements	1,250,000
Toronto Harbor, improvements	1,000,000
Toronto Island, breakwater protection	175,000
	$2,731,000

Chargeable to Income.

NOVA SCOTIA.

Bailey's Brook, extension to pier	$6,000
Bass River, wharf	20,000
Digby, repairs to pier	5,000
East Sheet Harbor, repairs to wharf	1,200
Harbors and rivers generally, repairs and improvements	60,000
Lower West Pubnico, repairs to breakwater	1,000
Maitland, completion of extension of ferry wharf	1,000
Newport Landing, repairs to wharf	1,600
Noel, repairs to wharf	2,900
Nyanza, repairs to wharf	1,200
Parrsboro, repairs to wharf	1,050
Parker's Cove, repairs to breakwater	1,200
Port Hood, wharf repairs and extensions	7,000
Scotch Cove, (White Point), breakwater extension	9,800
Seaforth, rebuilding part of breakwater	7,100
Soldier's Cove, wharf	2,500
Summerville, repairs to breakwater wharf	7,000
Sydney, wharf	100,000
Three Fathom Harbor, repairs to breakwater	9,000
Watt Settlement, repairs to wharf	2,000
West Arichat, repairs to breakwater	3,000
West Chezzetcook, repairs to breakwater	15,000
Western Head, repairs to breakwater	1,500
Whycocomagh, repairs to wharf	4,000
Yarmouth Bar, repairs and improvements	4,000
	$274,050

PRINCE EDWARD ISLAND.

Annandale, repairs to wharf	$1,400
Belfast, repairs to wharf	2,100
Haggerty's wharf, repairs	1,150
Harbors and rivers generally, repairs and improvements	14,000
Naufrage Harbor, repairs to breakwaters	1,000
North Lake, boat harbor	17,000
Port Selkirk, repairs to wharf	1,100
Pownal, repairs to wharf	1,500
Vernon River South, repairs to wharf	2,250
Victoria, repairs to pier	1,900
	$43,400

NEW BRUNSWICK.

Cape Bald, repairs to breakwater pier	$6,500
Harbors and rivers generally, repairs and improvements	40,000
Lord's Cove, wharf	14,000
North Head, Grand Manan Island, repairs to breakwater, wharf	1,600
Quaco (St. Martin's), reconstruction of of breakwaters.	29,800
Richibucto Cape, completion of pier and breakwater	1,000
St. Andrews, repairs to wharf	7,500
Wilson's Beach, repairs to breakwater, wharf	1,700
	$102,100

QUEBEC.

Anse aux Gascons, wharf	$49,000
Aylmer, repairs to wharf	1,800
Contrecoeur, repairs to wharf approach	5,400
Cross Point, repairs to wharf	3,800
Deschambault, repairs to wharf	1,095
Gaspe, wharf repairs and reconstruction	34,000
Grande Mechines, repairs to wharf	1,350
Grosse Isle Quarantine station, extension of and repairs to wharves	50,000
Harbors and rivers generally, repairs and improvements	75,000
Ile Perrot, wharf repairs and improvements	1,100
New Richmond, repairs to wharf	2,500
North Timiskaming, wharf	8,800
Notre Dame des Sept Douleurs (Isle Verte), completion of western wharf	5,800
Pointe aux Trembles, repairs to wharf	2,800
Point Shea, Amherst, repairs to pier	6,500
Rimouski, harbor improvements	17,900
Riviere dup Loup (en bas), repairs to wharf	4,100
Riviere du Lievre, lock and dam, reconstruction of protection walls	14,400
Ste. Famille, wharf repairs and reconstruction	4,000
St. Francois Sud, repairs to wharf	9,000
St. Jerome, repairs to wharf	1,000
St. Mathais, wharf repairs and improvements	1,700
Tadousac (Anse de l'Eau), repairs to wharf	1,125
Thurso, repairs to wharf	1,650
	$303,820

ONTARIO.

Bayfield, repairs to pier	$4,600
Collingwood, breakwater reconstruction	25,000
Depot Harbor, repairs and renewals to wharves	15,000
Dyer's Bay, repairs to wharf	1,400
French River, Dams, repairs and main-maintenance	3,500
Goderich, repairs to docks	6,600
Harbors and rivers generally, repairs and improvements	65,000
Kenora, repairs to wharf	1,000
Kingston, maintenance and operation of combined wharves and bridges	17,900
Kingsville, repairs and renewals to piers	11,000
Leamingston, repairs to pier	8,500
Little Current, rebuilding wharf	31,000
McLaren's Landing, wharf	6,600
Midland, repairs to wharf	2,000
Owen Sound, wharf reconstruction	70,000
Pelee Island, repairs to piers	4,400
Port Colborne, repairs to breakwaters	55,000
Port Dover, repairs to piers	11,000
Providence Bay, repairs to wharf	4,400
Rondeau, harbor repairs and improvements	10,000
Sheguiandah, wharf reconstruction	4,700
Thessalon, to complete reconstruction of wharf	12,250
	$370,850

MANITOBA.

Harbors and rivers generally, repairs and improvements	$15,000
Selkirk, repairs to wharf	15,000
Pas, wharf	7,000
	$37,000

SASKATCHEWAN AND ALBERTA.

Harbors and rivers generally, repairs and improvements	$20,000

BRITISH COLUMBIA.

Alice Arm, wharf, conditional on Provincial Government building road	$18,500
Albion, repairs to wbarf	1,150
Boswell, floating wharf	8,500
Carroll's Landing, wharf	11,000
Fraser River, (lower), operation of snag boat	30,000
Graham, wharf	7,700
Harbors and rivers generally, repairs and improvements	95,000
Hope Bay, North Pender Island, repairs to wharf	3,600
Ioco, wharf	9,200
Kincolith, wharf renewal	11,000
Kuskanook, wharf	5,800
Ladysmith, wharf	12,000
Manson's Landing, wharf	6,500
Mission, repairs to wharf	1,000
Nanaimo, repairs to wharf	2,150
North Gabriola Island, repairs to wharf	1,750
Princess Creek, floating wharf	2,300
Proctor, floating wharf	1,700
Sandspit Point, reconstruction of wharf	11,500
Skidegate, repairs to wharf	1,700
South Gabriola Island, wharf	3,500
South Pender Island, repairs to wharf	2,300
Stickine River, removal of obstructions	5,000
Thetis Island, reconstruction of wharf	1,600
Tofino, repairs to wharf	4,600
	$259,050

GENERALLY.

Harbors and rivers generally	$30,000

DREDGING.

Maritime Provinces	$500,000
Ontario and Quebec	450,000
Manitoba, Saskatchewan and Alberta	90,000
British Columbia	400,000
	$1,440,000

Working Expenses, Etc., Chargeable to Collection of Revenue.

East River, lock and dam	$2,000
Burlington Channel bridge	5,800
Montreal River, dam at Latchford	3,000
Riviere du Lievre, lock and dam	25,800
St. Andrew's Rapids, lock and dam	25,800
Selkirk, repair slip	5,200
	$44,800

The further supplementary estimates for the year ended March 31, 1921, contained the following Public Works items:

Nova Scotia, Owls Head, repairs to wharf, further amount required	$1,110
Nova Scotia, Port Lorne, breakwater repairs and renewals, further amount	
British Columbia, Moresby Island, wharf renewal, further amount required	1,250
required	1,260

The further supplementary estimates for the year ending March 31, 1922 contain the following Public Works item, chargeable to capital.

Port Arthur and Fort William, harbor improvements, further amount required	$1000,000

The further supplementary estimates for the year ending March 31, 1922 contain the following Public Works items, chargeable to income:—

Nova Scotia

Belliveau's Cove, breakwater renewals	$3,900
Big Pond, repairs to wharf	2,800
Black Rock, breakwater improvement	3,500
Blanche, breakwater repairs	1,500
Bluff Head, replace damaged break water	10,600
Canada Creek, rebuilding part of breakwater	2,800
Canning, freight sheds and repairs to wharf	1,200
Cheticamp, enlargement of freight shed	500
Cow Bay (Port Morien), repairs to breakwater	8,000
Diligent River, repairs to wharf	900
Fourchu, wharf extension	2,200
Hall's Harbor, repairs to wharves and sluice gates	1,500
Ingonish ferry, repairs to wharf	1,400
Iona, repairs to wharf	700
Kraut Point, repairs to wharf	1,000
Long Cove, repairs to breakwater	1,300
Malagash, wharf extension	1,750
Malignant Cove, wharf repairs	1,800
Mira River, to repair and extend jetty	2,000
New Campbellton, wharf repairs	3,500
New Glasgow, wharf reconstruction	9,000
Petite Riviere, repairs to breakwater	2,700
Port Hawkesbury, repairs to wharf	1,200
Poulamond, repairs to wharf	1,200
Prospect, reconstruction of wharf	3,400
Ray's Creek, repairs to wharf	1,500
Sandford, breakwater repairs	3,600
Salmon River, repairs to breakwater	3,000
Sandy Cove, breakwater repairs and renewals	7,000
Smith's Cove (Port Hood Island), breakwater extension	1,400
Trout Cove, repairs to breakwater	5,000

Prince Edward Island.

Bay Fortune, wharf repairs and enlargement	1,700
Belle River, repairs to breakwater	1,850
Rustico, repairs to breakwater	3,000

New Brunswick.

Blacks' Harbor, wharf extension	7,000
Chocolate Cove float	1,000
Gull Cove, breakwater completion	2,000
Renforth, reconstruction of wharf	3,000
Two Rivers, repairs to wharf	1,700
Woodlands, repairs to wharf	1,200

Quebec.

Anse St. Jean, wharf reconstruction	2,000
Beloeil Station, repairs to protection piers	12,300
Cacouna, repairs to wharf	3,600
Cape Cove, repairs to wharf	3,000
Cap St. Ignace, repairs to wharf	6,000
Chicoutimi, repairs to wharf and construction of shed	3,200
Father Point, repairs to wharf	3,600
Grand River, repairs to pier	12,000
Kamouraska, repairs to wharf	3,000
La Malbaie, repairs to wharf	1,400
Lavaltrie, reconstruction of wharf approach	2,000
Paspebiac East, to repair and reconstruct wharf	4,000
Piche Point, repairs to wharf	4,000
Port Daniel, repairs to wharf	4,000
Quyon, repairs to wharf	1,500
Riviere Ouelle, repairs to wharf	1,540
Ruisseau a la Loutre, wharf repairs and improvements	2,300
St. Alphonse, repairs to wharf	2,600
St. Godfroy, repairs to wharf	2,300
St. Ignace de Loyola, repairs to wharf	2,400
St. Jean Port Joli, repairs to wharf	2,600
St. Laurent d'Orleans, repairs to wharf	1,000
St. Michel de Bellechasse, repairs to wharf	25,000
St. Nicholas, repairs to wharf	5,200

St. Ours, repairs to wharf	1,900
St. Roch des Aulnaies, repairs to wharf	1,400
St. Zotique, repairs to wharf	2,000
Sorel, repairs to breakwater	2,000
Squateck, repairs to wharf	1,500
Ontario.	
Barrie, repairs to wharf	1,800
Bruce Mines, repairs to wharf	1,050
Cobourg, reconstruction of pier and breakwater . .	50,000
Collingwood, breakwater reconstruction, additional amount required	35,000
Gargantua harbor, repairs to wharf	2,000
Grand Bend, repairs to piers	1,000
Kincardine, repairs to piling	3,500
Kingston harbor, improvements	3,500
McLaren's Landing, wharf, further amount required . .	1,600
Millhaven, wharf .	8,400
North Bay, reconstruction of wharf	25,000
Oakville, repairs to pier	2,000
Owen Sound, repairs to sheet piling	13,000
Parry Sound, wharf improvements	32,000
Pembroke, repairs and wharf replacement . .	60,000
Petewawa, reconstruction of wharf	7,900
Port Stanley, repairs to harbor works	10,000
Rondeau, harbor repairs and improvements, further amount required, revote $14,500 . .	15,500
St. Joseph Island, repairs to wharf	1,750
Sturgeon Falls, wharf extension	6,750
Whitby, reconstruction of piers	13,500
Manitoba.	
Delta, completion of protection work..	2,500
Little Pembina River, repairs to dam and building fence	1,600
Red River, repairs to channel protection work	12,000
Wanipegow River, removal of obstructions . .	5,000
Saskatchewan and Alberta.	
Fort McMurray, temporary wharfage accommodation . .	2,500
Harbors and rivers generally, repairs and improvements, further amount required . .	30,000
British Columbia.	
Ainsworth, fender boom	1,750
Cowicham Bay, wharf repairs,	9,800
Fraser River, improvements	100,000
Fraser River (lower), operation of snag boat, further amount required	5,000
Maples Bay, repairs to wharf	2,200
New Massett, to settle claims due to collapse of wharf	2,600
Port Washington, repairs to wharf	2,600
Quathiaski Cove, new float and repairs to wharf . .	2,700
Sooke, repairs to wharf	2,700
Sicamous, wharf extension	2,800
Sorrento, wharf repairs and extension	3,100
Squamish, repairs to wharf	1,500
Stewart, enlarging warehouse and wharf improvements . .	6,000
Upper Pitt Lake, addition to wharf....	1,800
Yukon Territory.	
Stewart River, improvements	$10,000
Roads and Bridges.	
Burlington channel, new bridge, further amount required . .	70,000
Capilano River, B.C., bridge, contribution by Dominion Government, Provincial Government, and municipality each to contribute a like amount, revote . .	11,000
Grand River Bridge, repairs and renewals . .	5,400
St. Leonards, N.B., repairs, State of Maine to contribute like amount, further amount required .	1,700
Miscellaneous.	
Temporary relief of distressed seamen and expenses of shipping forms, further amount required .	2,000
Compassionate allowance to widow of the late J. T. Roach, formerly engine-room storekeeper on C.G.S. Estevan	1,000

Beeson's Marine Directory of the Northwestern Lakes for 1921, the 35th year of its publication, contains classified lists of freight and passenger steamships, tugs, barges, etc., operating on the Great Lakes, and on both the U.S. and Canadian registers, together with particulars of various docks, marine associations, and several illustrated articles dealing with transportation facilities and construction work on the lakes, including a scene at the Canadian canal at Sault Ste. Marie. The publisher is Mrs. H. C. Beeson, 732 South Sherman St., Chicago, Ill.

Spitzbergen Coal for Canada?

Railway and Marine News, Seattle, Wash, said, in a recent issue:—"A late project has been announced in Canada for transporting coal from Spitzbergen to the Great Lakes; by sea to James Bay, from James Bay to Lake Nipissing by rail, and from there to Lake Huron by canal. One is struck with the vastness of the proposal. But then this larger outlook is due to living in a vast country like Canada, great tracts of which have never even been explored. A few years ago one would have been laughed at for even mentioning the idea of bringing coal from a far-away place like Spitzbergen to stoke the furnaces of Canadian industries, but soon it may be an accomplished fact."

Many people may not be aware that Spitzbergen, which is a group of rocky, barren and snowclad islands in the solitudes of the Arctic Ocean, some 400 miles n.n.w. of the North Cape of Norway, is practically uninhabitable.

If any such scheme as outlined by our contemporary has been propounded in Canada, or elsewhere, it cannot possibly be taken as a serious proposition. The distance between Spitzbergen and James Bay is approximately 4,000 miles, and the cost of taking coal that distance, apart from the cost of building the railways and canals mentioned, in order to reach Lake Huron, certainly would be sufficient cause for laughter at the idea of bringing coal from Spitzbergen to stoke the furnaces of Canadian industries.

Coal was discovered in Spitzbergen in 1900, and has been developed to a considerable extent by the Northern Exploration Co. (British), which had an output in 1918 of about 80,000 tons. The question of sovereign rights over Spitzbergen was being dealt with during 1914, but nothing was done after the outbreak of war, until Sept. 1918, when the British took possession of the islands to protect British interests. Since then they have been assigned to Norway.

Damages Awarded the Steamship Harlem.

The further supplementary estimates for the year ending Mar. 31, 1922, passed at the Dominion Parliament's last session, contained an item: "To pay for damages claimed for s.s. Harlem, not exceeding $100,000." We are officially advised that this claim arose from a collision, on April 22, 1917, just outside of New York harbor; between the s.s. Durley Chine, belonging to the Railways Department, and operated in connection with the Canadian Government Rys., and the British s.s. Harlem, owned by the Harlem Steamship Co., in which the Durley Chine was sunk and the Harlem was damaged considerably. The Durley Chine had sailed from Halifax on April 19, 1917, in ballast, bound for Norfolk, Virginia. The Harlem had a cargo of munitions for the French Government.

The Dominion Government brought action against the Harlem for damages for the sinking of the Durley Chine, and the owners of the Harlem instituted a cross action against the master and second officer of the Durley Chine. The case was tried by the Judge of the Nova Scotia Admiralty District, who held that that the Durley Chine was alone in fault for the collision and gave judgment against her master and second officer. An appeal was taken from this decision to the Supreme Court of Canada, which dismissed the appeal and confirmed the lower court's decision. The owners of the Harlem claimed that in view of the judicial finding of fact in favor of the navigation of their ship, and against that of the Durley Chine, the Dominion Government should admit responsibility for the damages suffered by the Harlem. These damages were assessed by the District Registrar at Halifax at $130,339.36. After considerable negotiations, the Government decided to follow the British practice in such cases, which is as follows: "His Majesty's Government, in cases in which damage has been done by His Majesty's ships to private ships, pay ex gratia the amount of damages sustained by the privately owned ship, although there is no legal liability on the Crown to do so, with the limitation that where if the Government owned ship had been privately owned the private owner would have been able to limit his liability under the Merchant Shipping Act, the Crown makes no payment in excess of the limited liability of the ship." This limitation of liability will reduce the amount which the Government will have to pay to approximately one-half of that assessed by the District Registrar.

Marine and Fisheries Department Salaries Estimates.

The estimates for the year ending March 31, 1922, passed by the House of Commons recently, contain the following items for the principal officials' salaries:—

Marine.	
Deputy Minister	$6,000.00
Assistant Deputy Minister	4,140.00
Chief Naval Architect	4,800.00
Chief Engineer .	4,500.00
Commissioner of Lights	3,960.00
Superintendent of Agencies	3,600.00
Chief Accountant . .	4,380.00
Chief Registrar of Shipping	3,180.00
Secretary Clerk . .	3,360.00
Supt. Masters and Seamen	3,600.00
Dominion Wreck Commissioner	3,800.00
Purchasing Agent . .	3,900.00
Assistant Commissioner of Lights	3,000.00
Junior Departmental Solicitor	3,240.00
Accountant . .	3,120.00
Director, Pilotage Branch	3,780.00
Supervisor of Harbor Commissions	3,200.00
Chairman S. S. Inspection Board	4,500.00
Assistant Purchasing Agent	2,800.00
Principal S.S. Inspectors: 2 at $3,840	7,680.00
Assistant Naval Architect	2,500.00
Assistant to Commissioner of Lights	2,040.00
Editor . .	3,200.00
Senior Inspector of Fog Alarms	2,600.00
Secretary of Wreck Commissioners Court	2,100.00
Secretary to Executive	2,100.00
Junior Purchasing Agent	2,100.00
Senior Assistant Engineer	2,940.00
Assistant Mechanical Engineer	2,340.00
Chief Draughtsman . .	3,000.00
Fisheries.	
Assistant Deputy Minister	$4,500.00

Howe Sound Navigation Co. Ltd. has been incorporated under the B.C. Companies Act, with $100,000 authorized capital, and office at Vancouver, to take over the business of J. R. T. Dinahan, shipping and general broker, Vancouver, and the s.s. Britannia, and to carry on the business of towing, shipowning, transportation by land and water, forwarding agent, etc. The s.s. Britannia was built at Vancouver in 1902, and is screw driven by engine of 33 h.p. Her dimensions are,—length 104.8 ft., breadth 22.4 ft., depth 6.9 ft.; tonnage, 326 gross, 222 net.

A small floating drydock has been established at Port Stanley by O. Smith and N. S. Cornell.

Questions About Montreal Drydocks and Ship Repairing Ltd.

The following questions were asked in the House of Commons recently by W. Duff, Lunenburg, N.S., and answered by the Minister of Marine and Fisheries:—

Q. "Was a concrete tug sold to the Marine and Fisheries Department during the last three years by Montreal Dry Docks & Ship Repairing Ltd., or by interests associated with the said company, and if so, what was the tonnage and price paid for the said tug, and when was she built?" A. "One concrete ship was bought from Montreal Shipbuilders Ltd., in 1918. Tonnage 320 gross, 176 net. Built 1917. Price paid was $76,-269.63, being actual cost of construction as determined by A. K. Fiske Skelton Co., chartered accountants, without any allowance for interest during construction, or profit."

Q. "Has Montreal Dry Docks & Ship Repairing Ltd. done all the repairs of Government ships at Montreal since 1917? If not, what other company had the repairing of those ships during that period? How much has been paid Montreal Dry Docks & Ship Repairing Ltd. since 1917 for repairs, and all other work done to Government ships?" A. "In so far as the Marine and Fisheries Department is concerned the following firms have made repairs to its ships at Montreal since 1917:—1917, Marconi Wireless Telegraph Co., $117; 1917, Canadian Vickers Ltd., $4,857.50; 1917, Canadian Vickers Ltd., $18,881; 1919, Montreal Dry Dock & Ship Repairing Co., $18,-279; 1920, Hall Engineering Works, $162.87."

Q. "Is Thos. Hall, President and General Manager of Montreal Dry Docks & Ship Repairing Ltd., and if so, what relationship does he bear to the Minister of Marine and Fisheries?" A. "No. John Lumsden, of Ottawa, is president and Mr. Hall is Managing Director. The late Mrs. Thomas Hall, who died nine years ago, was a sister of the present Minister of Marine and Fisheries."

Havana Harbor Conditions Returning to Normal.

H. A. Chisholm, Canadian Trade Commissioner at Havana, Cuba, wrote recently as follows:—From the middle of January one heard remarks, everywhere where business men were gathered, commenting on the remarkable speed with which the energetic measures taken by the Government were succeeding in relieving port congestion. Today one can walk along the harbor front and see no more than two or three lighters unloading at a single wharf, compared with 20 or 30 loaded lighters waiting for weeks and even months for their turn to unload. For example, last December, when I returned to Havana I counted 28 loaded lighters crowded around a single wharf in the harbor. Yesterday there was not a single lighter tied to this wharf, all the lighters being out in the harbor loading up.

The difference accomplished within the last two months along the docks and warehouses is almost unbelievable to any one who saw the congestion of last December. Three months ago, huge piles of merchandise cluttered up the wharves and warehouses, and extended out into open spaces and streets required for the handling of drays and trucks. Today these open spaces are entirely clear, and within the last few days I have seen stretches of wharves without a single bale of goods on them. The present situation is, then, that goods are being cleared practically as soon as they are landed. If goods are not claimed immediately by their consignees, they are forthwith transported by the port authorities to open spaces outside the city, where the consignee may be able to claim them. Every shipping man in the city tells me that the port situation has practically returned to normal and that any ship entering Havana harbor can be certain of clearance papers within a few days, whereas last year the same ships were taking several weeks for clearance. In short, port congestion has disappeared as a factor retarding Cuba's export and import business.

The British Empire Steel Corporation's Steamships.

The statements submitted to the stock exchanges recently, in connection with the listing of this corporation's stock, contained the following:—"One of the Dominion Coal Co.'s earliest invesements was in the Black Diamond steamships, and the carriage of coal by water has ever since been one of the most important branches of the company's business. The fleet now owned by the Dominion Iron & Steel Co. and the Nova Scotia Steel & Coal Co. consists of 14 ships, the carrying capacity having grown from 6,000 or 7,000 tons to 73,000 tons. Up to 1914 this was done principally by chartered hips. In the future it will be done by ships owned or controlled by the companies which compose the new corporation. Most of these ships are new and large. Two of them are rated at 12,000 tons d.w. carrying capacity. Four others average over 7,800 tons. Apart from their value as accessory to the companies' operation, they constitute a most important item of the assets of the united enterprise."

The Clarke Steamship Co., which started steamship services out of Montreal and Quebec recently, along the St. Lawrence, is operating the steamships Aranmore, Tremblay and Labrador. The s.s. Aranmore, which is sailing from Quebec, to ports along the north shore from Franklin to Harrington, has been chartered from the Dominion Government, while the company's s.s. North Shore, formerly the British s.s. Nova Zembla, is being overhauled and repaired at Montreal, following damage by fire at Quebec, June 9. She is expected to be ready to resume her service about the end of August. The s.s. Tremblay is only operated by the company, being owned by Jos. Tremblay, Ste. Anne de Chicoutimi, Que., and sails from Montreal, in conjunction with the s.s. Labrador, calling at Quebec, and then along the south shore and the Gaspe coast from Cap Chat to Paspebiac. The s.s. Labrador was owned formerly by the Gulf of St. Lawrence Shipping & Trading Co., Montreal, now in bankruptcy. The s.s. North Shore is in charge of Capt. Jos. Boucher as master, and E. Bolduc as chief engineer; and the s.s. Labrador's master is Capt. A. Brie, with J. B. Hamelin as chief engineer. J. F. Bouchard, Quebec, Que., is Manager of the company, and Ed. Bouchard is agent at Montreal.

Thames Ship Repairing, Etc.

Harland & Wolff, of Belfast, Ireland, are opening a ship repairing and engineering branch on the River Thames in England, having made a contract with the Port of London Authority, taking over its engineering repairs and constructional work, and to construct buildings of a permanent character of not less than £300,000 in value, as well as two slipways for ship repairing, and perhaps for ship building purposes. The firm has agreed to engage for its own services all the Authority's foremen and workers. It is to have absolute preference on the Authority's work. Where it is found necessary to give such to other firms, Harland & Wolff will be paid a commission. It is understood, however, that the firm will devote a large amount of its attention to the overhaul and repair of vessels trading with the Port of London, particularly of the large steamships belonging to the liner firms with which Lord Pirrie is associated.

Harland & Wolff's advent to the Thames will obviously add enormously to the present facilities for ship repair work. The number of dry docks on the Thames is considerable, and while there are no docks as large as those in Liverpool, good accommodation is available for all ships, except the very largest Atlantic liners. During the war an enormous volume of work was carried out in London repairing yards, including some jobs of marked interest. To mention only one case: one repairing firm joined together the more or less undamaged halves of two different destroyers, thus turning out a complete new vessel, the Zubian, and consisting of a half of the destroyer Zulu and half of the destroyer Nubian. Hospital ships, paddle sweepers, mine layers, mine sweepers, destroyers, troopships, armed merchant steamers, armed merchant cruisers, armed boarding steamers, fleet sweepers, and other types of war craft were fitted out and repaired in London to the extent of approaching 8,000, and this record of work gives some idea of the value of the ship repairing yards on the Thames to the country during the past crisis.

The American Association of Port Authorities' executive committee met at Montreal, July 15, to arrange for its annual convention at Seattle, Wash., in October. Those who attended were taken on a trip on the Montreal Harbor Commissioners' steam tug Sir Hugh Allan. M. P. Fennell, Jr., Secretary, Montreal Harbor Commissioners, is also Secretary, American Association of Port Authorities.

Halifax Graving Dock Expropriation. The Supreme Court of Canada has dismissed the Halifax Graving Dock Co.'s appeal against the award of the Exchequer Court's award in regard to the amount to be paid by the Dominion Government for the expropriation of the company's property, and has denied the company's claim for an amount over and above that provided by the Exhcequer Court's award.

Great Lakes Levels.—The U.S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level, for June, as follows:—Superior 602.42 ft.; Michigan and Huron, 580.58 ft.; St. Clair, 575.69 ft.; Erie, 573.02 ft.; Ontario, 246.61 ft. Compared with the May levels, Superior was 0.31 ft. higher; Michigan and Huron, same level; Erie and Ontario, 0.07 ft. lower.

Australian Commonwealth Govment's Steamships.

Canadian Trade Commissioner D. H. Ross has reported to the Trade and Commerce Department from Melbourne, Australia, as follows:—Considerable newspaper controversy has been revived throughout the Commonwealth as to the policy of the Government in building a number of steamships in Australia when, it is stated, new tonnage could be obtained in Great Britain at much less cost. The recurrence of this hostile criticism is considered to have been raised through the influence of powerful London shipping interests, which view with much trepidation the progress made by the state owned fleet of cargo carriers. It is generally admitted that it is to the advantage of the Commonwealth to have established shipbuilding and naval construction yards, so as to make this island continent self contained in an industry in which every primary producer is vitally concerned, besides which the value of these yards in times of stress and emergency is fully recognized.

The Commonwealth line of steamers is undoubtedly competing with the huge fleets controlled by the "London Shipping Ring," who, professing to ignore it, are apprehensive of its development. Determined efforts are therefore being made, particularly at what is considered to be this opportune time, when Australia is experiencing a period of marked financial stringency, to discourage the enlargement of the Government fleet and to educate hostile public sentiment against it. While it is conceded that the building costs of steamships constructed in Australia are higher than the quotations received recently from the United Kingdom, yet there are the compensations of endeavoring to establish a permanent industry of paramount importance to the country, and of ultimately producing within the Commonwealth all the steel plates and other materials required, besides finding remunerative employment for skilled artisans.

During the war, the Government steamships carried wheat to England at a freight rate of £4 15s. (say $23.12), while other lines were obtaining a minimum of £6 5s. (say $30.40) a ton of 2,240 lb. and, in many cases, considerably higher rates. It is claimed that if it were not for the state owned steamships the freight rates to and from London would be considerably higher than are now ruling. Obviously, when state and privately owned interests clash, widely divergent views will continue to exist.

In addition to the steamships now under construction in Australia, contracts were placed in 1920 for five turbine steamships of 12,500 tons for construction in the United Kingdom, and the building of some equally large steamships at Sydney is now engaging the Government's consideration.

A few days ago, the General Manager of the Commonwealth Government's line of cargo steamships made a statement in London and Australian newspapers to the effect that the gross profit of the line to June 30, 1920, was £3,182,000, and the net profit £2,201,000, after allowing £1,000,000 for interest on the original outlay on purchases and for depreciation and renewals, besides placing £450,000 to the credit of underwriting. The first half of the current fiscal year has shown a substantial profit, and the second half, ending June 30, 1921, promises a moderate profit. The line is developing beyond expectations, notwithstanding unprecedented dullness of trade, and it is considered that the steamships are of a more economical class than the average ocean liner.

Auction of French Wooden Steamships. The French wooden steamships Bouxwiller, Bouzonville, Cattenon and Cernay, four of the five built by Three Rivers Shipyards, Ltd., Three Rivers, Que., were offered for sale by public auction at the Louise Basin, Que., July 16, but no sale was made. They are described as full powered wooden barges, length overall 204½ ft., length b.p. 195 ft., beam moulded 39 ft. 8 in., beam extreme 40½ ft., depth of hold 15 ft., draft loaded 16 ft., cargo capacity 1,400 d.w. tons, coal bunker capacity 130 tons, coal consumption 13 tons, speed 9½ knots. Equipment, 2 vertical inverted direct acting compound engines, each developing 275 i.h.p. at 175 r.p.m.; 2 Scotch marine boilers, 2 furnaces, Morison type, 180 lb. working pressure; electric light; wireless telegraph; 6 cargo feed water tanks, each 1,500 gall.; 2 drinking water tanks, 1,000 gall. combined capacity; steam steering engine, steam windlass, independent pumps and general auxiliaries.

Steamship Company's Liability for Lost Baggage.—In the Quebec Superior Court recently judgment for $200 and costs was given against the Canadian Pacific Ocean Services for loss of a fur scarf. Miss Ethel M. Scott, who sued by her father, was a passenger on the s.s. Empress of France, from France to St. John, N.B. On arriving at St. John her baggage was sent to the company's sheds for examination by customs officers. While there one box was lost, and when it was found the fur scarf was missing. The company contended that the box containing the scarf was part of the plaintiff's cabin baggage, and was never under its control, and further that by a clause on the passenger's tickets the company's liability was limited to $25. Justice Martineau dismissed these contentions and held that the company's obligation for the afety of its passengers' baggage continued as carried until after examination by the customs officials.

The Hydroglider.—A new type of high speed, shallow draft, boat has been introduced into Canada by Norman A. Yarrow, General Manager, Yarrows Ltd., Victoria, B.C. The hull consists of five separate pontoons, with air spaces between, with a bow similar to that on a punt or scow, where the rudder is placed. There is also a two-bladed aerial propeller, driven by a 230 h.p. 9 cylinder radial aeroplane engine. It has a speed of about 50 miles an hour, in perfectly smooth water, and can carry 7 persons, including the driver and mechanic. The boat was developed by the Comte de Lambert, Paris, France, who was the first aviator to fly round the Eiffel tower, and who has been experimenting with boats of this type for several years.

Proposed London Tunnel.—A London, Eng., cablegram states that it is proposed to build a tunnel under the River Thames, between Gravesend, on the south side, and Tilbury, on the north side, and to connect therewith such lines as will give direct through connection between Dover and the eastern midland and northeasterly counties of England and with Scotland. The tunnel is estimated to cost £2,500,000.

Store-Door Service From New York State Barge Canal.

A plan for store-door delivery service at Buffalo and New York has been adopted by the Inland Marine Corporation and the Transmarine Corporation operating on the New York State Barge Canal. The Canal Carriers' Association states that merchandise handled from New York City to Buffalo by canal will be delivered direct to the warehouse of the consignee at a net cost 20% lower than the railway rate. At New York City, where it is impracticable for the canal lines to operate delivery trucks, an allowance of 7c. per 100 lb. will be made shippers to cover the cost of delivery to and from canal terminals. Shippers at New York and Buffalo have complained that the cost of trucking to and from the canal terminals exceeded the saving in the rate. It is expected that the new arrangement will influence a large volume of tonnage.

Telegraph Chart of Gulf of St. Lawrence and Maritime Provinces.—The last edition of this chart, which is published by the Naval Service Department's Hydrographic Branch, is dated 1917, and Canadian Railway and Marine World has been informed that while every attempt is made to get the chart out annually, the King's Printer is not able to keep up with the work, and several charts are considerably behind time. This is a chart that certainly should be issued annually. Since the 1917 edition was got out, a number of radiotelegraph stations have been established, and various changes have been made. If the King's Printer's Department is not sufficiently equipped, or manned, to get out charts on time and not to cause a delay of four years, the Department should arrange for their printing in some outside office.

Peace River & Fort Norman Navigation & Oil Development Co. Ltd., has been incorporated under the Dominion Companies Act, with $12,000 authorized capital, and office at Montreal, to own and operate steam, sail, or gasoline propelled boats, aeroplanes, etc., and to carry on a general navigation and oil development business. The incorporators are: R. F. Craig, Peace River, Alta.; A. G. F. Ross, C. M. Cotton, Westmount, Que.; T. J. Duggan, Montreal, and W. U. Cotton, Cowansville, Que.

The Fletcher Ship Repairing Co. Ltd. has been incorporated under the Dominion Companies Act, with $500,000 authorized capital and office at Levis, Que., to carry on the business of shipbuilders, ship carpenters, etc., and to build ships of every description. The incorporators are, W. I. Bishop, contracting engineer; W. F. Fletcher, naval architect, Montreal; C. A. Chauveau, A. Marchand and A. Rivard, Quebec, Que.

B. Ram Steamship & Financial Agents Ltd. has been incorporated under the Quebec Companies Act, with $49,000 authorized capital, and office at Montreal, to carry on a general steamship agency, and to act as ticket agent for steamships and railways, real estate agent, etc. The incorporators are: L. and A. Millman, L. Marcovitch, M. Setz and J. Skeith, Montreal.

St. Clair Tunnel.—The Sarnia, Ont., Hydro Electric Commission is reported to be having a report prepared on the possibility of supplying electric power for the operation of this G.T.R. tunnel.

Mail Subsidies and Steamship Subventions.

The further supplementary estimates for the year ended March 31, 1921, passed at the Dominion Parliament's recent session, contained the following item:—

Canada and Australia, or New Zealand, or both, on the Pacific Ocean, steam service between, further amount required . .	$19,300

The further supplementary estimates for the year ending March 31, 1922, contain the following items for services between the points mentioned:—

St. John and ports on Bay of Fundy and Minas Basin, additional amount required . .	$6,000
St. Stephen, Deer Island and Campobello, etc.	2,000
Halifax, LaHave and LaHave River ports, additional amount required....	2,000
Campment d'Ours Island and mainland	2,000
Halifax and west coast of Cape Breton, calling at way ports, additional amount required .	2,000
Pictou, Souris and Magdalen Islands, additional amount required	4,000
Mulgrave, Arichat and Petit de Grat, additional amount required	1,000
Charlottetown, Victoria and Holliday's wharf, additional amount required	1,000

The items voted in the main estimates were given in Canadian Railway and Marine World for April.

Electric Propulsion for Ships.

Canadian Railway and Marine World for March, stated that the U.S. Shipping Board had had its s.s. Eclipse equipped with an electric generator attached directly to the propeller shaft, and driven by a steam turbine, and that a decision had been reached to so equip 11 of its steamships. It was claimed that the Eclipse was the first freight steamship to be equipped with a motor drive, but as we pointed out, the first freight steamship fitted with an electric drive attached direct to the propeller shaft, was an experimental ship built at Newcastle-upon-Tyne, Eng., for Montreal Transportation Co., and which was tried with indifferent success on a trip between England and Spain, in Feb. 1914. The equipment was removed later and the ship operated for some time in Canadian waters under the name of Port Dalhousie, by the Montreal Transportation Co.

The first trip of the s.s. Eclipse, to Port Said, Singapore, Java and Bombay, was completed by her return to New York recently. A report on the voyage states that she encountered heavy seas both outward and homeward, but maintained good speed and accomplished the trip in one week less time than is rerequired for a similar boat not so equipped. The average speed said to have been maintained on the entire trip is given as 10 knots or better. It is claimed that the propeller can be reversed from full speed ahead, to full astern, with ease in 10 sec., and that there is a uniformity of propeller speed and a total lack of vibration.

The Liverpool, Eng., Journal of Commorce, while disclaiming intention to minimize U.S. enterprise, states that it is informed from a reliable source that her mean speed throughout the voyage was half à knot less than it had previously been, and that she consumed two tons more fuel per day. The electric installation itself gave practically no trouble, so that it may be considered tolerably successful, if not economical.

Dominion Canals Estimates.

The further supplementary estimates for the year ended March 31, 1921, passed at the Dominion Parliament's recent session, contained the following items under canals, chargeable to income:—

Carillon and Grenville, improvements, additional amount required	$20,500
Welland, reconstruction of Port Colborne elevator, additional amount required . .	$15,000
Lachine, St. Peter River syphon repairs, additional amount required	$1,000
Canals, surveys and inspections, additional amount required	$10,000

The further supplementary estimates for the year ended March 31, 1922, contain the following item, chargeable to capital:—

St. Anne's lock, contribution toward cost of highway bridge across the canal at Isle Perrot as part of a total of $150,000	$50,000

Dominion Government Drydock Estimates.

The further supplementary estimates, for the year ending March 31, 1922, passed at the Dominion Parliament's recent session, contain the following items, under Public Works, chargeable to income:—

Esquimalt graving dock, travelling crane .	$45,000
Esquimalt graving dock, dwelling for Chief Engineer	8,000
Quebec harbor, Champlain dock, balance due T.T. and M.P. Davis	$278,349.60

The following item is chargeable to collection of revenue:—

Lorne graving dock, further amount required . .	$5,300

Marine Public Works Estimates.

The further supplementary estimates for the year ended March 31, 1921, passed at the Dominion Parliament's recent session, contained the following items:—

Public Works, chargeable to capital, Marine Department, River St. Lawrence Ship Channel, maintenance and operation of dredging fleet, further amount required	$30,000
Lighthouse and Coast Service, Signal Service, further amount required.....	$4,000

The further supplementary estimates for the year ending March 31, 1922, contain the following item:—

River St. Lawrence Ship Channel, maintenance, and operating dredging fleet, further amount required....	$85,000

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.— Capt. R. D. Simpson, Owen Sound, Ont.

Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Webster, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario —T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

Sept. 12-14.—American Railroad Master Tinners, Coppersmiths and Pipefitters Association, Chicago, Ill.; C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

Sept. 12-15.—International Railway General Foremen's Association, Chicago, Ill.; W. Hall, 1061 West Wabasha Ave., Winona, Minn.

Sept. 20-22.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry., Sterling, Ill.

Oct. 4-6.—Maintenance of Way Master Painters' Association, Buffalo N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Oct. 18-20.—American Railway Bridge and Building Association, New York, N.Y.; C. A. Lichty, Chicago & North Western Ry., Austin Station, Chicago, Ill.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The John Bertram & Sons Co., and Pratt & Whitney Co. of Canada, Dundas, Ont., are closing their plants, for two weeks holiday, from July 30. Correspondence will be given attention, and orders for goods in stock will be shipped during the holiday period. The policy of closing plants for summer holidays has been tried in some large plants in the United States, and these Canadian companies are making the experiment this summer, and if it proves satisfactory will no doubt continue the practice in future.

Dominion Oxygen Co., Toronto, has started the construction, in Montreal, of a building 100 x 100 ft., for an oxygen plant, which will be practically a duplicate of the Toronto plant, and will double the company's present capacity.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

TANKS FOR SALE

New and used, in all parts of the country

Over 4000 steel storage tanks.
Over 2000 wood tanks.
Over 500 tanks, with agitators, jackets, etc.
Over 1800 rectangular steel tanks.
Over 1500 glass enameled tanks.
Over 1250 steel pressure tanks.
Over 15 tanks and towers.

We make lowest prices on new tanks of any character or kind anywhere.
Chemical and mechanical equipment.

Largest dealers in tanks

The Curtiss-Willis Co.
30 Church St., New York

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the
CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

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"Chief Draftsman for Street Car Building Plant. Must be experienced in Street Car work and capable of taking charge of small drafting room. Designing ability and experience especially desired. State age, record, salary expected. Apply Box 3504 Canadian Railway and Marine World."

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Capital Authorized	$10,000,000
Capital Paid Up	7,000,000
Reserve Fund	7,500,000

Head Office: Toronto.

Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.

Sterling and New York Exchange bought and sold.

Savings Department: Interest allowed on deposits at best current rates.

Branches throughout the Dominion of Canada.

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MADE IN CANADA

Electric Traveling Cranes, Electric Gantry Cranes, Hand Cranes, Electric Hoists.

Write for Estimates.

NORTHERN CRANE WORKS, Ltd.
Walkerville, Ont.

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Docks Harbors Breakwaters
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Head Office: Lumsden Bldg., - TORONTO.

The Canadian Bridge Co., Limited

Walkerville, Ontario

Locomotive Turntables Roofs Steel Buildings

Manufacturers of
Railway and Highway
BRIDGES
Montreal Office in New Birks Building

Structural Iron Work of all Descriptions

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Washout Water at 120°. Refill Water at 200°.

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VIVIAN T. BARTRAM

Railroad and Harbour Works

Head Office

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Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

ANGUS SINCLAIR, C. E.

Railway Contractor

OFFICE: EXCELSIOR LIFE BUILDING, Adelaide and Toronto Sts, Toronto

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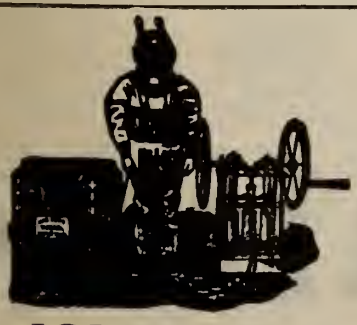
ENGINEERS--CONSTRUCTORS.
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—Electrification of Steam Railroads.
CHICAGO



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CANADA FOUNDRIES & FORGINGS, LIMITED
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RAILWAY
To R.S.A. Specification
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MARINE
To B. of T. Requirements
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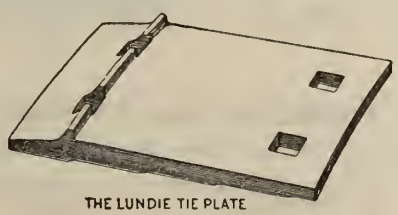
THE HIRAM L. PIPER COMPANY, Limited
Montreal, P.Q.



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One of the most distinguished, successful and honored Engineers of Canada writes as follows of the

LUNDIE TIE PLATE

"It is by far the most scientifically designed and practically efficient tie plate ever evolved."

THE LUNDIE ENGINEERING CORPORATION
920 BROADWAY, NEW YORK
Chicago Office—30 No. La Salle Street

Canadian Representatives
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STANDARD Signal Wires

include a complete line of high grade products among which are

Copper Wire

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(Colonial Copper Clad)

Bronze Wire
High Strength

We can supply them bare or insulated with weatherproof braid or rubber.

Write our nearest office.

Standard Underground Cable Co. of Canada, Limited

Hamilton, Ont.
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Fairbanks Valves are not discarded when the seat is worn

A new disc can be put on in one minute, without removing the valve from the pipe line.

The main features of this valve are:

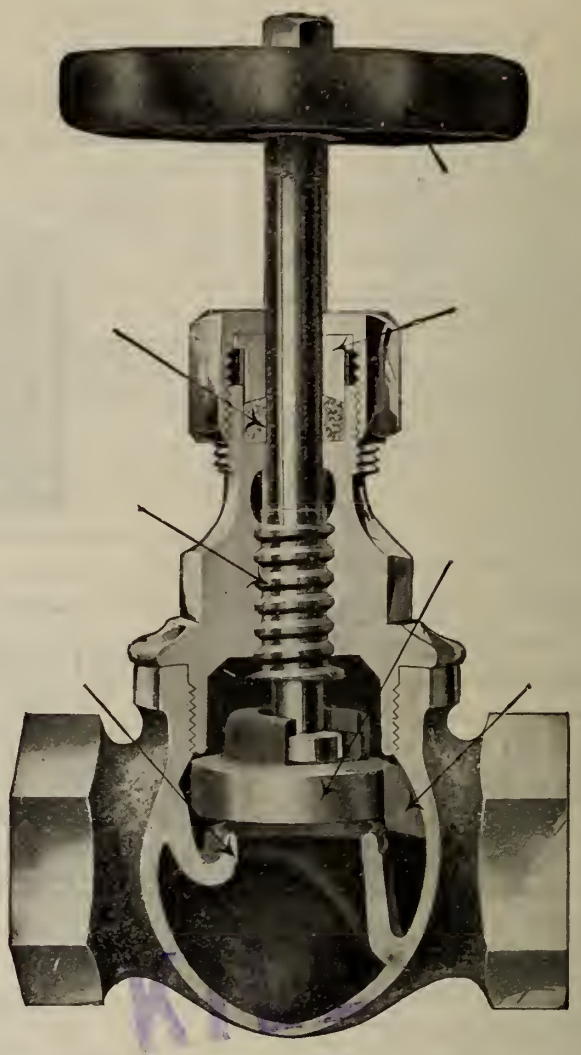
Stuffing box packed with Palmetto Twist packing.

At least four threads engaged with bonnet at all times.

Renewable Bakelite Disc can be replaced in one minute.

Raised round seat. No sediment can lodge on it to injure the disc.

Guides cast on body hold disc centrally over seat.



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Durabla Asbestos sheet packing is not affected by contraction, expansion, condensation or vibration.

It is guaranteed for Steam, Air, Water, Oil, Ammonia, Gasoline or Acids.

The Canadian Fairbanks-Morse Co., Limited

"Canada's Departmental House for Mechanical Goods"

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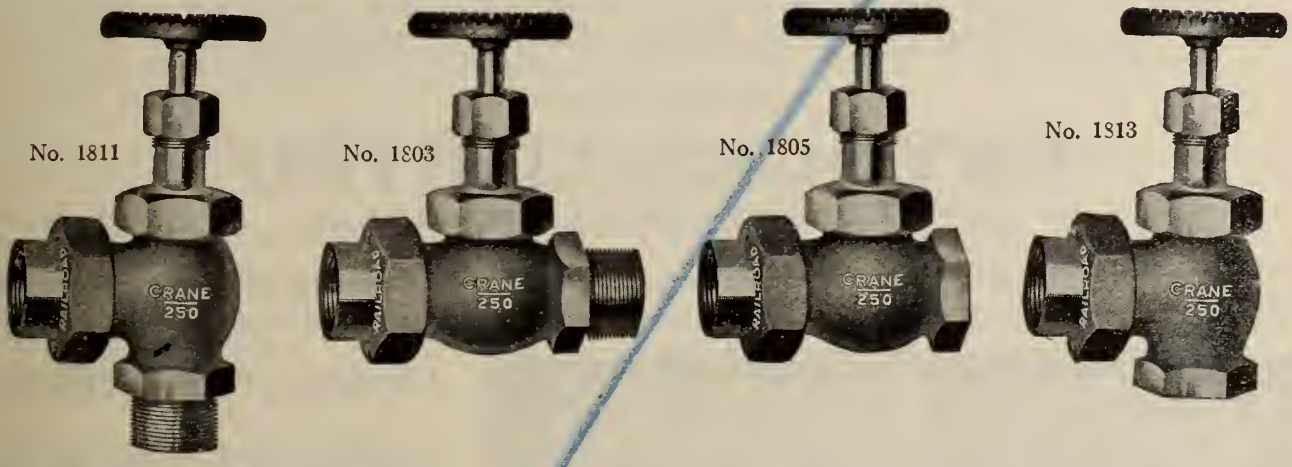
CRANE
Regrinding Cab Valves



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These valves have extra strong stems, deep stuffing boxes, with glands in the stuffing boxes, and malleable iron wheels. The malleable iron union nut is strong and rugged. All parts are interchangeable. Recommended for 250 pounds working pressure.

The union connection ON THE VALVE saves joints.

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

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Sales Offices:
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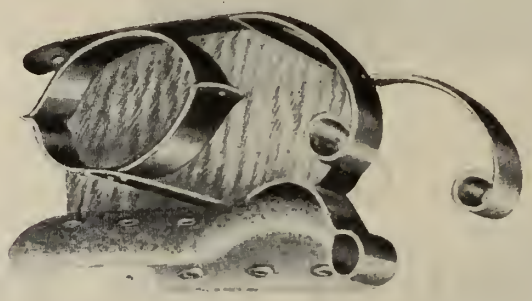
3

The Armstrong Oiler Co., Limited

Oilers For Journal Boxes

Steam and Electric Railway Systems



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We will be showing Diamond Fibre in all its different forms, both in the raw material and in finished products, as well as articles in which it has been utilized for machined parts in the place of wood, metal, rubber or other materials.

If you are using any of these latter in your manufacturing process it will pay you to let our representatives explain to you how Diamond Fibre can increase your production and decrease your production costs. Our representatives will be at our booth every day and will be glad to answer all enquiries.

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The break was welded in less then seven hours by two operators; the cost was negligible in comparison to the expense of replacing a new stern post.

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Buoys, Lanterns, Beacon Towers

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Write in for Sample and Prices.

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Made in Canada under Peirce and Hubbard Patents

Canadian Porcelain Co.

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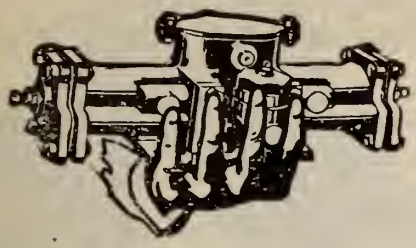
Porcelain Insulators and Pole Line Hardware



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You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door* and *Step Control,* which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control,* which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

National Pneumatic Company

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Make your peak periods produce maximum profit and efficiency

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As soon as a file ceases to cut keenly at every stroke, it has outlived its usefulness.

You will actually save money by throwing it away and buying a new file, because files cost less than workmen's time.

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Tugs, Lighters, Divers, Diving Gear and Steam Pumps
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Tugs and Scows of either
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Builders of STEEL SHIPS,
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Plant is equipped with the latest
appliances. Special attention
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in Quality Finish and Service is built into each and every tool

Angular, Concave, Convex, Form CUTTERS, End Mills, Worm Hobs, Generating Hobs, Hollow Mills.

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Locomotive Lagging
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Pipe Coverings for all classes of service
High pressure, Low Pressure and Sheet Packings
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Through—
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INSULATION
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Canadian Johns-Manville Co., Limited
TORONTO, MONTREAL, WINNIPEG, VANCOUVER,
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BERRY BROTHERS' CELEBRATED TRADE MARK BRILLIANT DURABLE UNEXCELLED VARNISHES WALKERVILLE, ONT.

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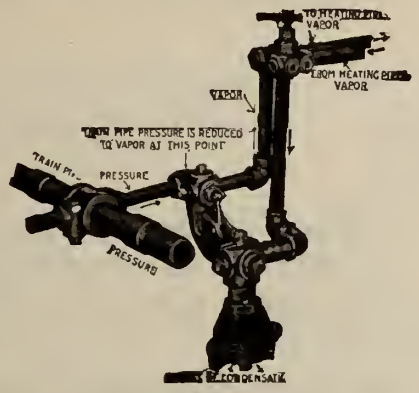

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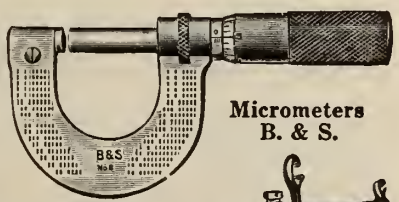

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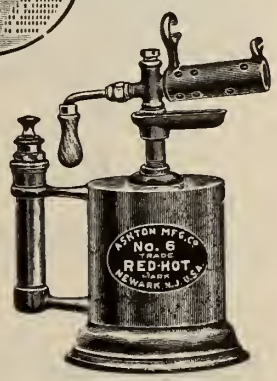

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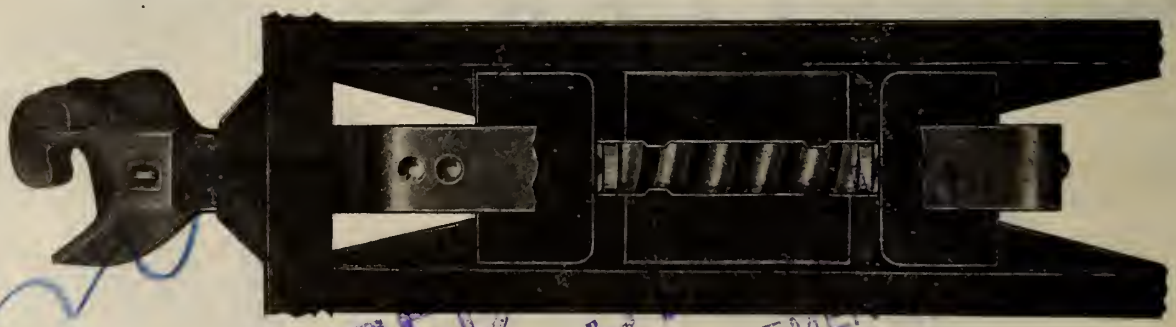

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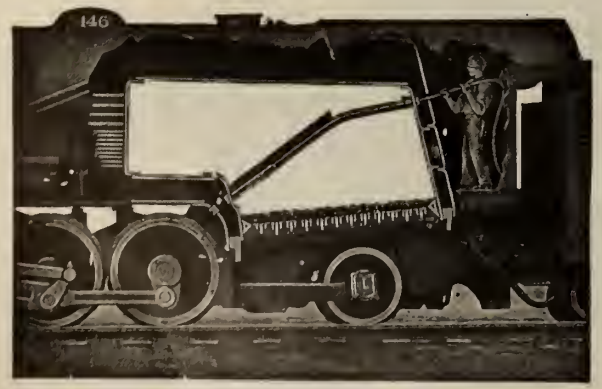

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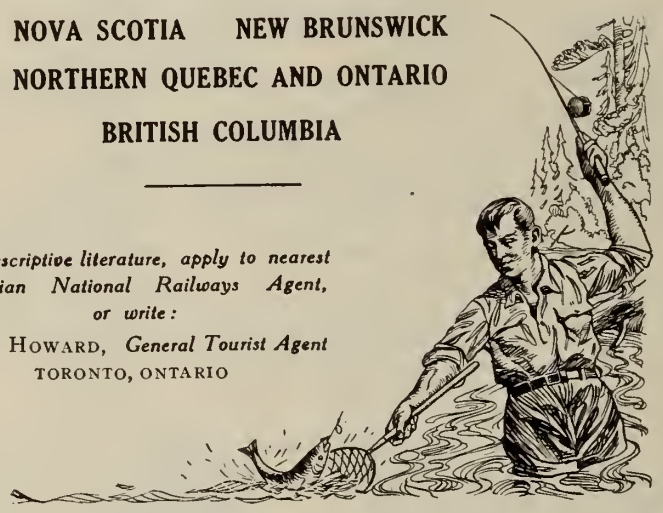

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Dominion Towing & Wrecking Co.
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WRENCHES
Dominion Brakeshoe Co.

Alphabetical List of Advertisers

A

Algoma Steel Corporation 56
American Manganese Bronze Co. 57
American Steel Foundries ....
2 and cover 4
Arnold Co. 45
*Associated Business Papers Inc. —
*Association of Manufacturers of Chilled Car Wheels 23

B

Babcock & Wilcox 60
Barrett Co. 8
Bartram, V. T. 45
Berry Bros. 53
Bertram, John, & Sons Co. 14
Bowser, S. F., Co. 34
Bradstreet Company 66
Brown Hoisting Machinery Co... 3
Brydges Ltd. 48
Buffalo Brake Beam Co. 31
Butterfield & Co. 53

C

Canada Foundries & Forgings Ltd. 45
Canada Iron Foundries, Ltd. 54
Canada Machinery Corporation ... 28
Canada Steamship Lines, Ltd. 30
Canadian Bridge Co. 44
Canadian Bronze Co. 64
Canadian Car & Foundry Co. 18
Canadian Clothel Refrigerating Co. Ltd. 37
Canadian Consolidated Rubber Co. 16
Canadian Fairbanks-Morse Co. .. 46
Canadian General Electric Co..... 19
Canadian Gold Car Heating and Lighting Co. 66
Canadian Government Merchant Marine, Ltd. 11
Canadian Johns-Manville Co. 53
Canadian National Carbon Co. 56
Canadian National Railways 64
Canadian Pacific Railway 61
Canadian Porcelain Co. 50
Canadian Ramapo Iron Works Ltd. 54
Canadian Steel-Tire & Wheel Co. 39
Canadian Vickers, Ltd. 24
Canadian Westinghouse Co. 38
Carr, C. E. A., Co. 59
Carter White Lead Co. 61
*Chase, L. C., & Co. 40
Coghlin, B. J., Co. 59
Collingwood Shipbuilding Co. 33
Commercial Acetylene Supply Co. 27
Consolidated Steel Corp. 6
Corbet Foundry & Machine Co... 44
Crane Limited 47
Curtiss-Willis Co. 44

D

Date, John 45
Dearborn Chemical Co. of Canada 5
Diamond Saw & Stamping Works 62
Diamond State Fibre Co. of Canada. 48
Dominion Brakeshoe Co. 60
Dominion Bridge Co. 33
Dominion Coal Co. 64
Dominion Foundries & Steel, Ltd. 62
Dominion Iron & Steel Co. 58
Dominion Oxygen Co. 17
Dominion Steel Products Co. 66
Dominion Towing & Wrecking Co. 66
Dominion Wire Rope Co. 25
Duner Co. 61

E

Engineering & Machine Works of Canada 1

F

Fairmont Gas Engine & Railway Motor Car Co. 41
Flannery Bolt Co. 29
Franklin Railway Supply Co. of Canada 38

G

Galena Signal Oil Co. 9
Galt Malleable Iron Co. 66
Gartshore, J. J. 64
General Railway Signal Co. of Canada 66
Grand Trunk Railway 34
Griffin & Brinkerhoff 66

H

Hamilton Bridge Works Ltd..... 54
Hart-Otis Car Co. 25
Holden Co. 32
Hopkins, F. H., & Co. 25
Hoyt Metal Co. 64
Hunt, Robert W., & Co. 45
Hunt-Spiller Mfg. Corporation... 29

I

Imperial Bank of Canada..... 44
*Imp. Guar. & Accident Ins. Co. 66
Inglis, John, Co. 35
International Correspondence Schools . . .. —
International Machinery & Supply Co. 57

J

Joliette Castings & Forgings Ltd. 58

K

Kalamazoo Railway Supply Co.... 12
Kennedy, The William, & Sons, Ltd. 2
Krauser, Webb. G. 7

L

Lewis, Rice, & Son 55
Lundie Engineering Corporation 45
*Luther Grinder Mfg. Co. ..... —

M

McAvity, T., & Sons 26
Marconi Wireless Telegraph Co. 57
Midland Shipbuilding Co. 52
Miller, F. W., Heating Co. 44
Miller, Roger, & Son 44
Miner, W. H. 26
Montreal Locomotive Works, Ltd. 28

N

National Lock Washer Co. 21
National Pneumatic Co. 51
Nichols, G. P., & Bro. 61
Nicholson File Co. 51
Northern Crane Works Ltd. 44
Northern Electric Co. 20
Norton, A. O., Ltd. 37
Nova Scotia Steel & Col Co. 40

O

Ohio Brass Co. 69
Orton & Steinbrenner Co. 55
Ottawa Car Mfg. Co. 32

P

Page-Hersey Tubes, Ltd. 35
Peacock Bros. 4
Pedlar People, Ltd. 36
Piper, The Hiram L., Co. 45
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 49

Q

Q & C Co. 13

R

Rail Joint Co. of Canada 56
Railway & Power Engineering Corp. 39
Reid Newfoundland Co. 30
Robinson, Dwight P., Co. 15
Russell, J. E. 52

S

Safety Car Htg. & Ltg. Co. 49
Sinclair, Angus 45
Slater, N., Co. 50
Smart-Turner Machine Co. 58
Standard Car Truck Co. 59
Standard Underground Cable Co. of Canada 45
Star Brass Works 36
Steel Co. of Canada 10
Strauss Bascule Bridge Co. 45
Superheater Co. 22
Symington Co., The T. H. 27

T

Taylor & Arnold Engineering Co. 31
Templeton Kenly Co. ..... —
Toronto Drydock Co. 52
Tuco Products Corporation 60
Turnbull, Harvard, & Co. 41

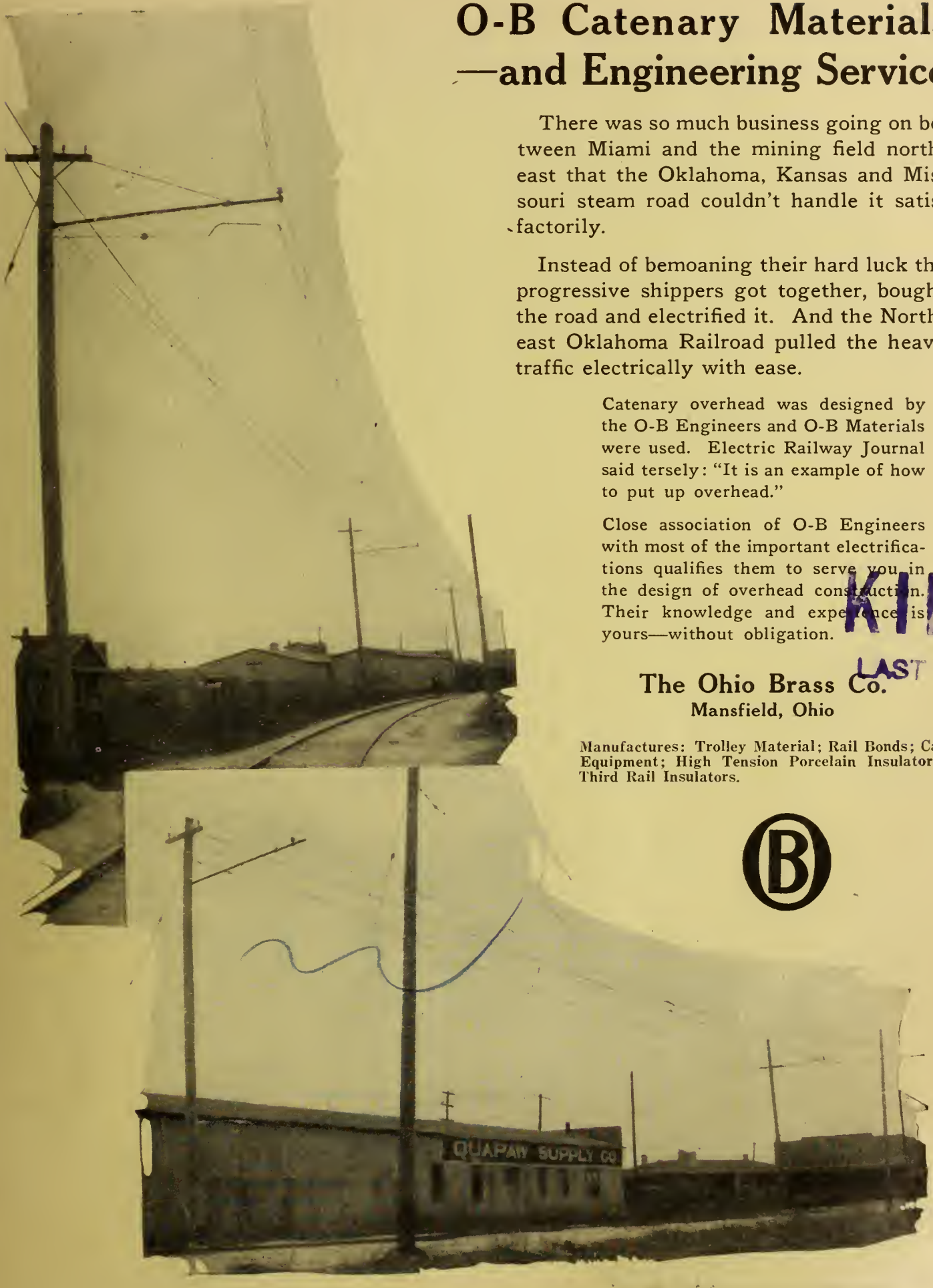
U

Union Draft Gear Co. 7
Universal Draft Gear Attachment Co. 7

V

Vapor Car Heating Co. of Canada 55

*Alternate months.



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Steam Railway and General, Page 455. Electric Railways, Page 486. Marine and Shipbuilding, Page 498.

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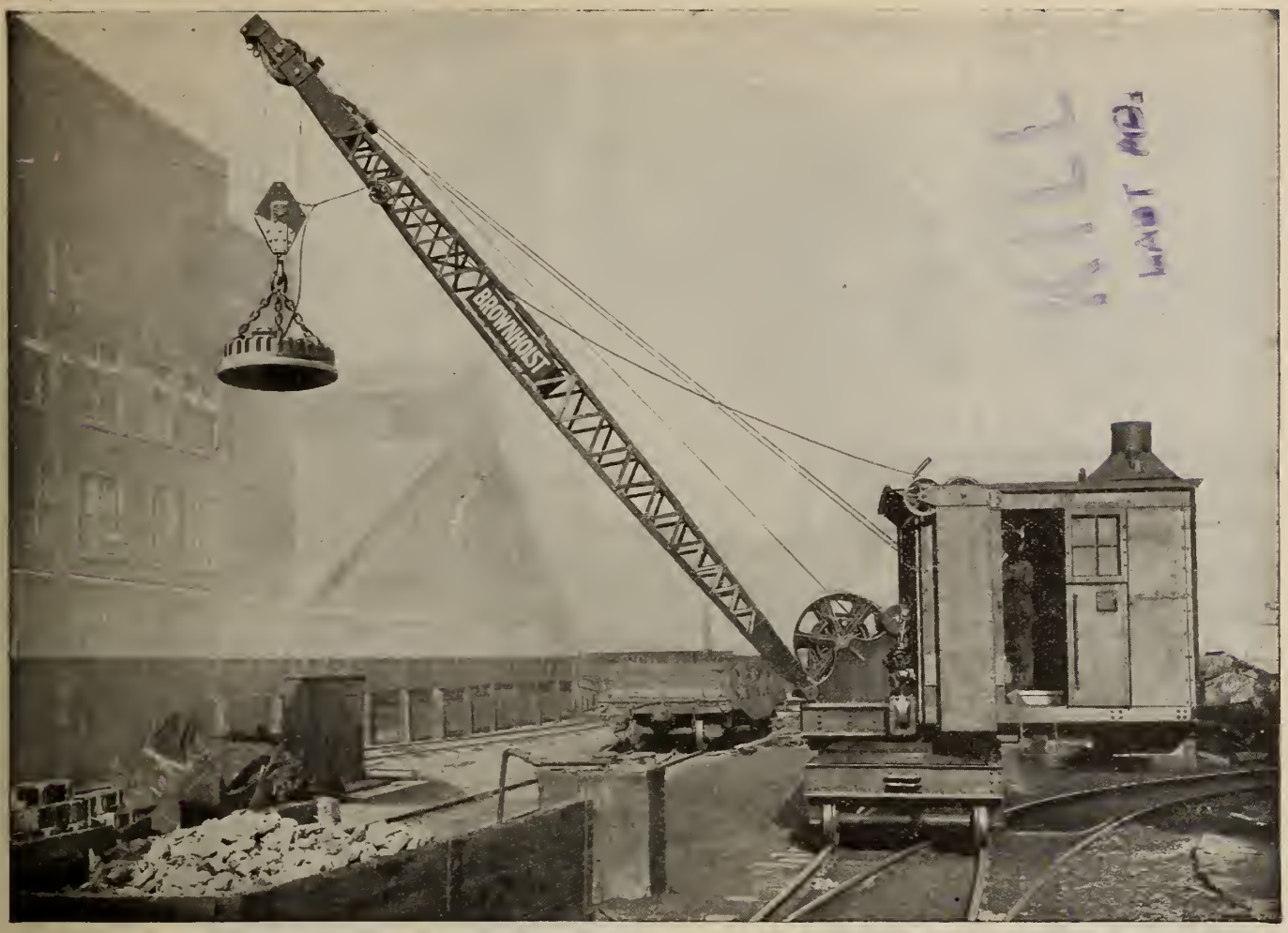

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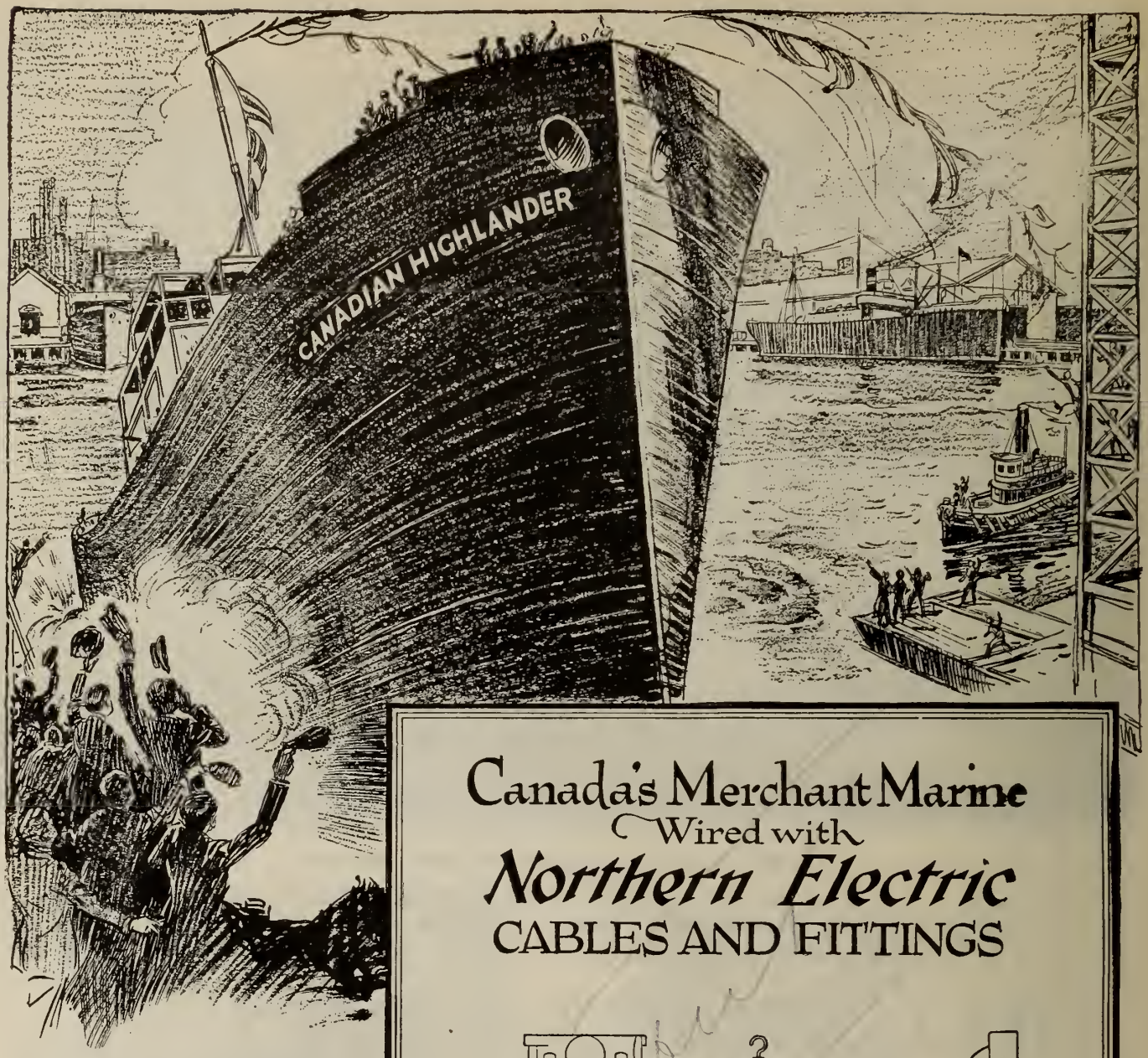

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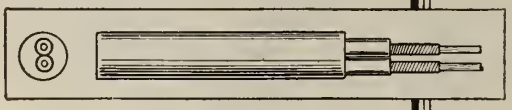

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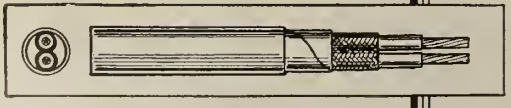

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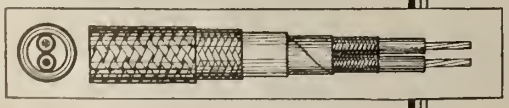

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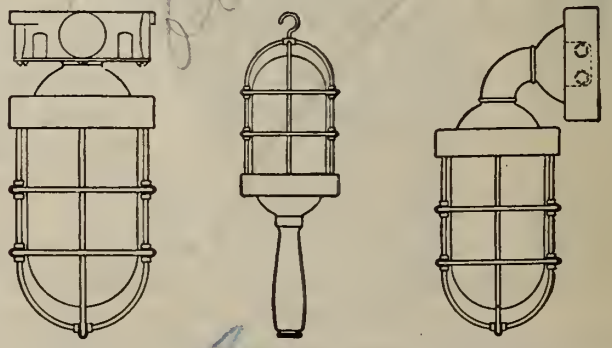

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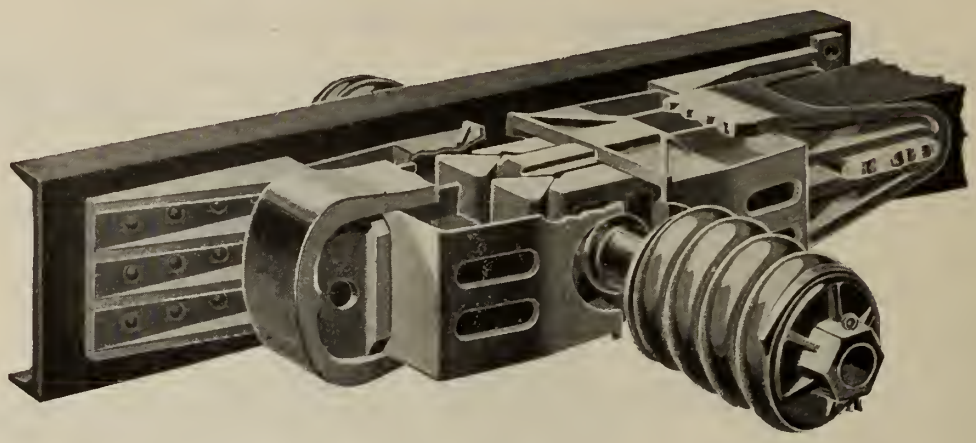

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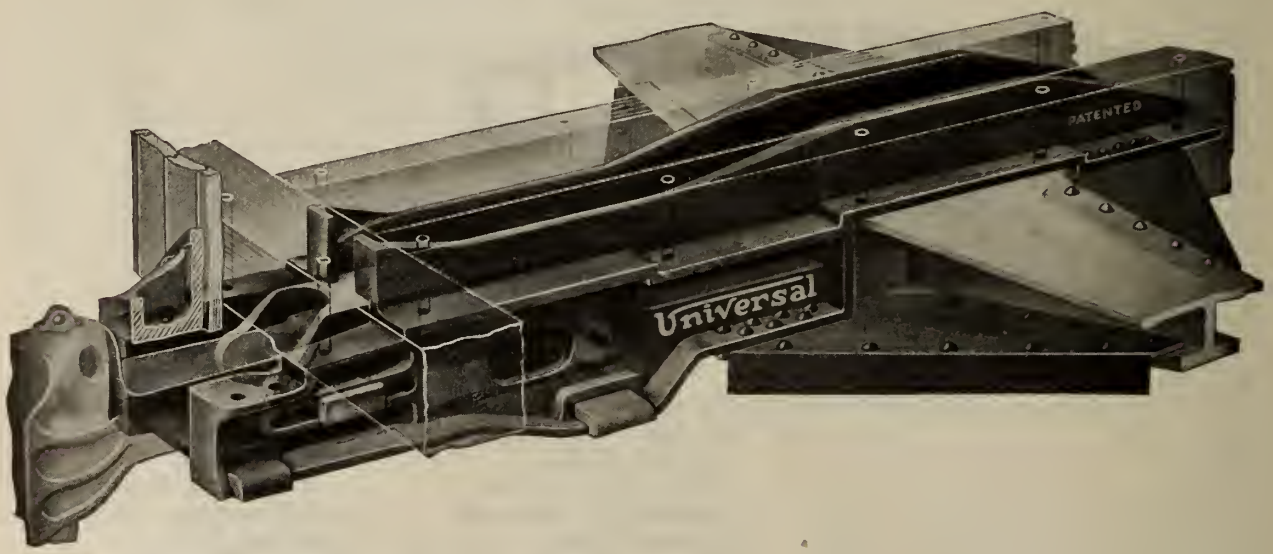

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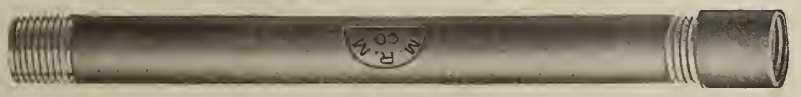

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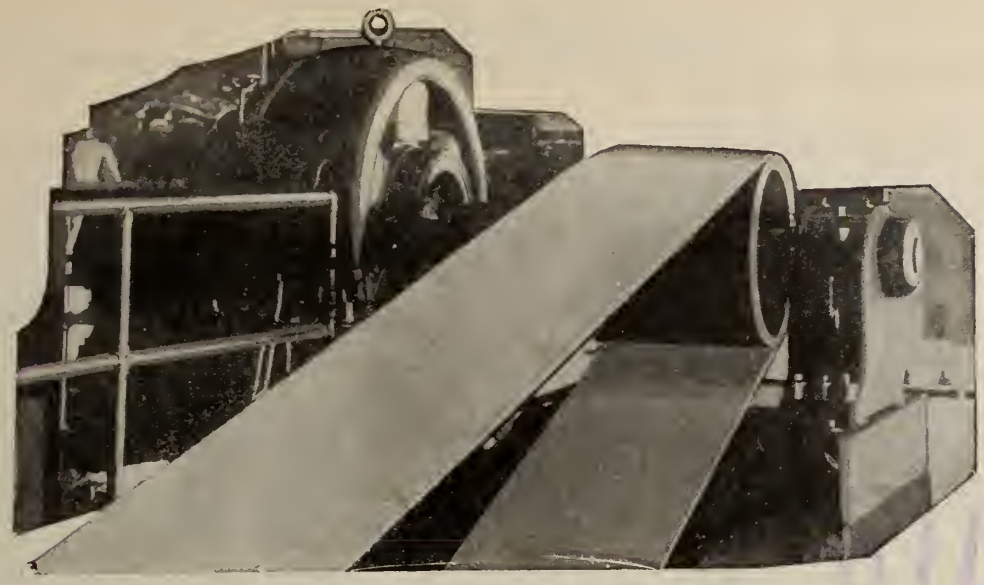

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Line Breaker cover lowered showing relay

A Line Breaker Under the Car

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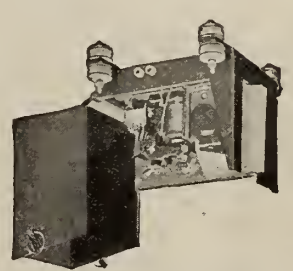
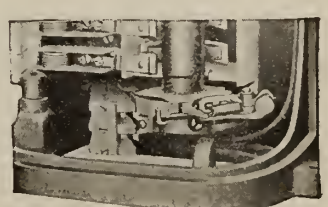
C.G.E. line breaker equipments are cutting controller maintenance cost and are making car operation more economical on many street railways.



Cover removed showing contactor



Ratchet switch installed in bottom of controller

This line breaker has been adopted by the Toronto Transportation Commission for their new Motor Cars.

Canadian General Electric Co., Limited

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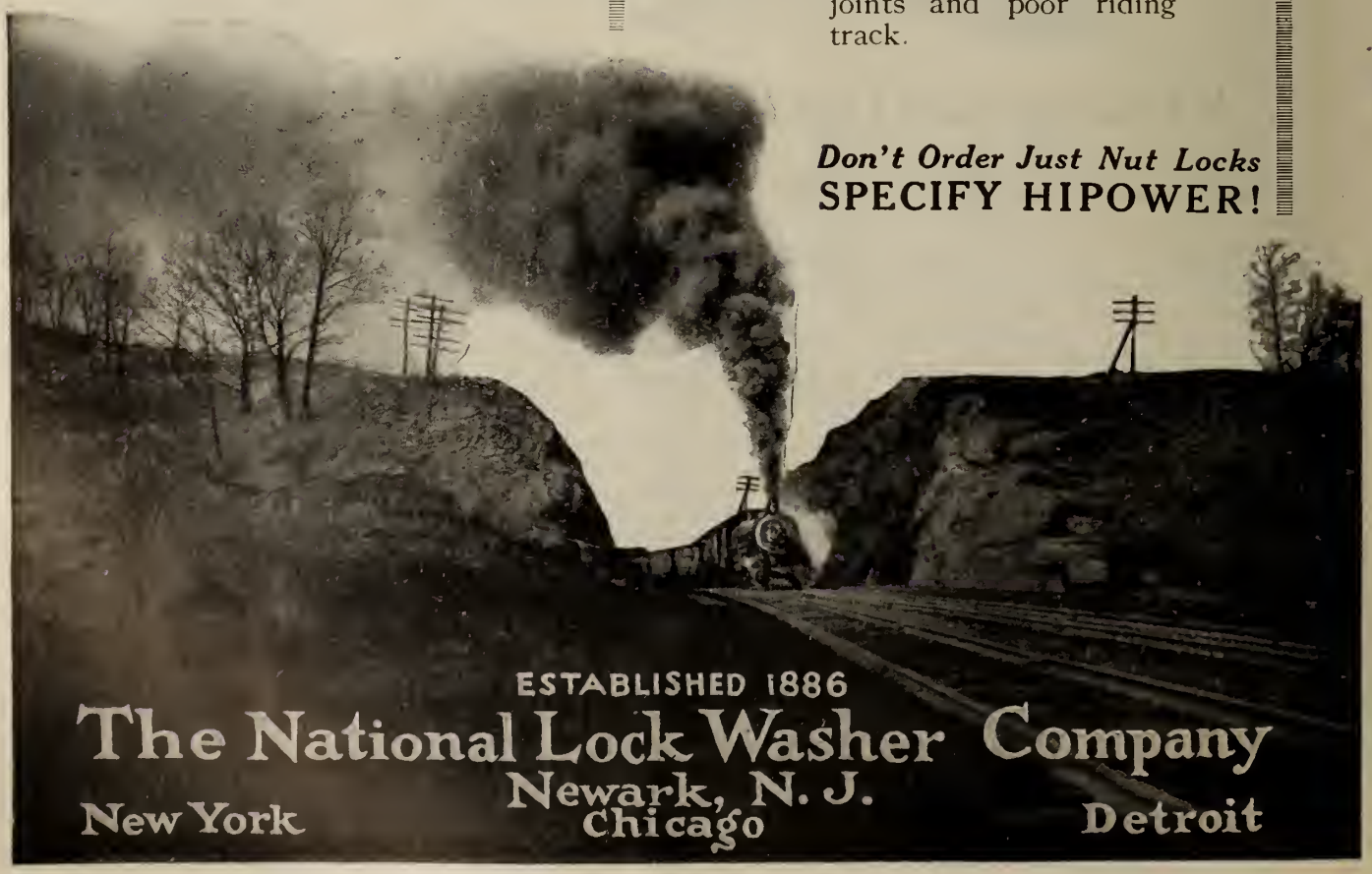

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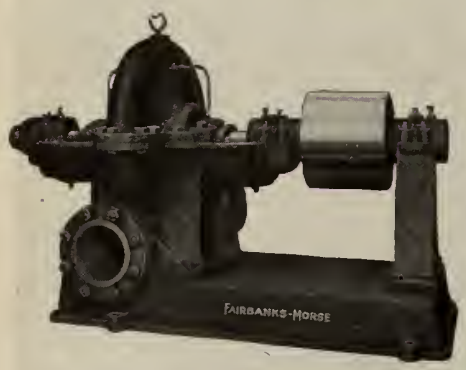

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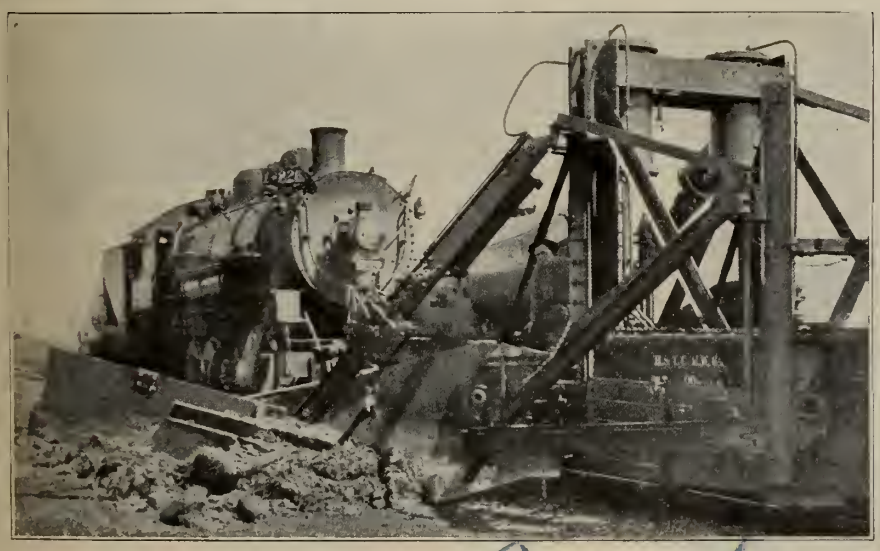

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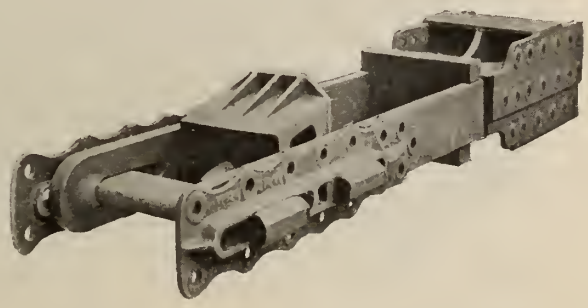
Made in Canada

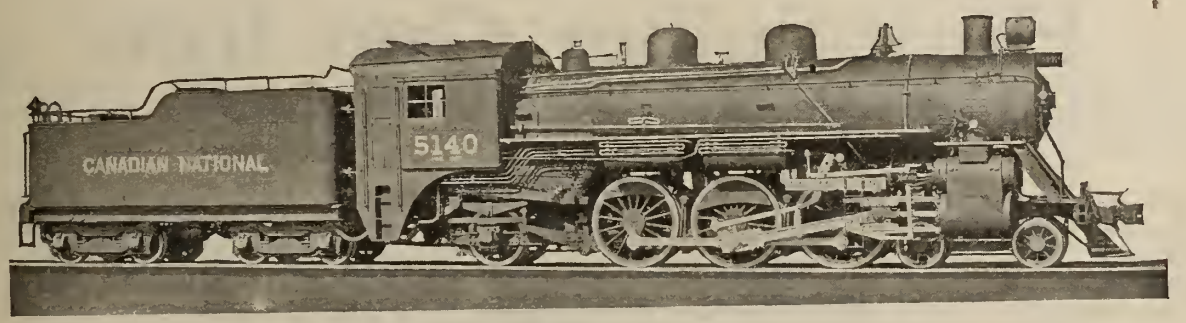
Symington Malleable Iron Journal Box equipped with Malleable Iron Torsion Spring Lid.

Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



The T. H. Symington Company

New York **Baltimore** **Chicago**



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Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

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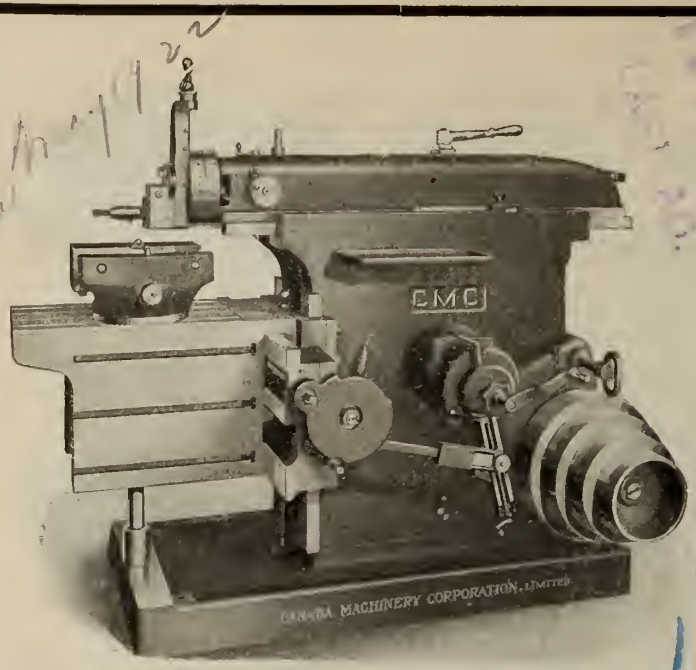

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C.M.C.

The Leading Railway Companies of Canada have selected this Shaper in preference to other types, because

It is a heavy production machine.

It has power down feed to head with nine changes of feed.

All controls are within reach of operator's hand.

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HUNT-SPILLER GUN IRON
PEDESTAL SHOES AND WEDGES
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7 Side Rod Bushings
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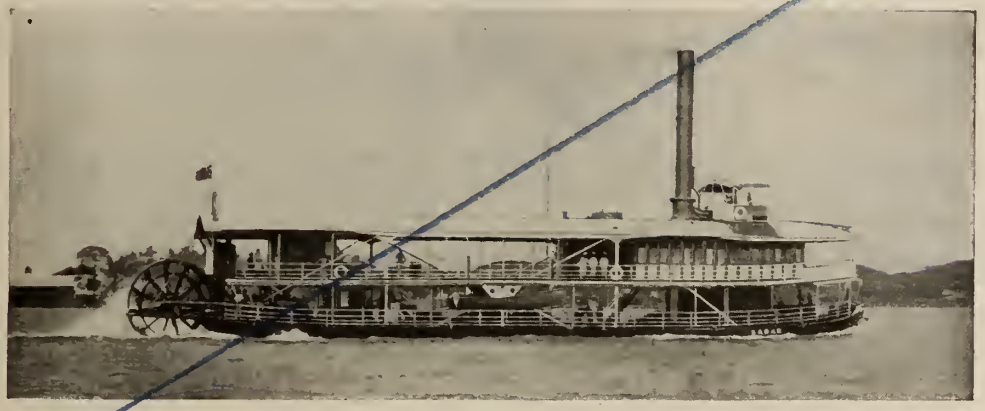

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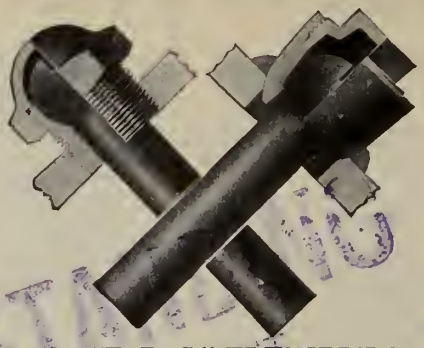

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Our latest achievement, the "F. B. C." FLEXIBLE STAYBOLT, is as great an improvement over the present type of Tate bolt, as the Tate was over the ordinary rigid staybolt.

The Principal Improvements are

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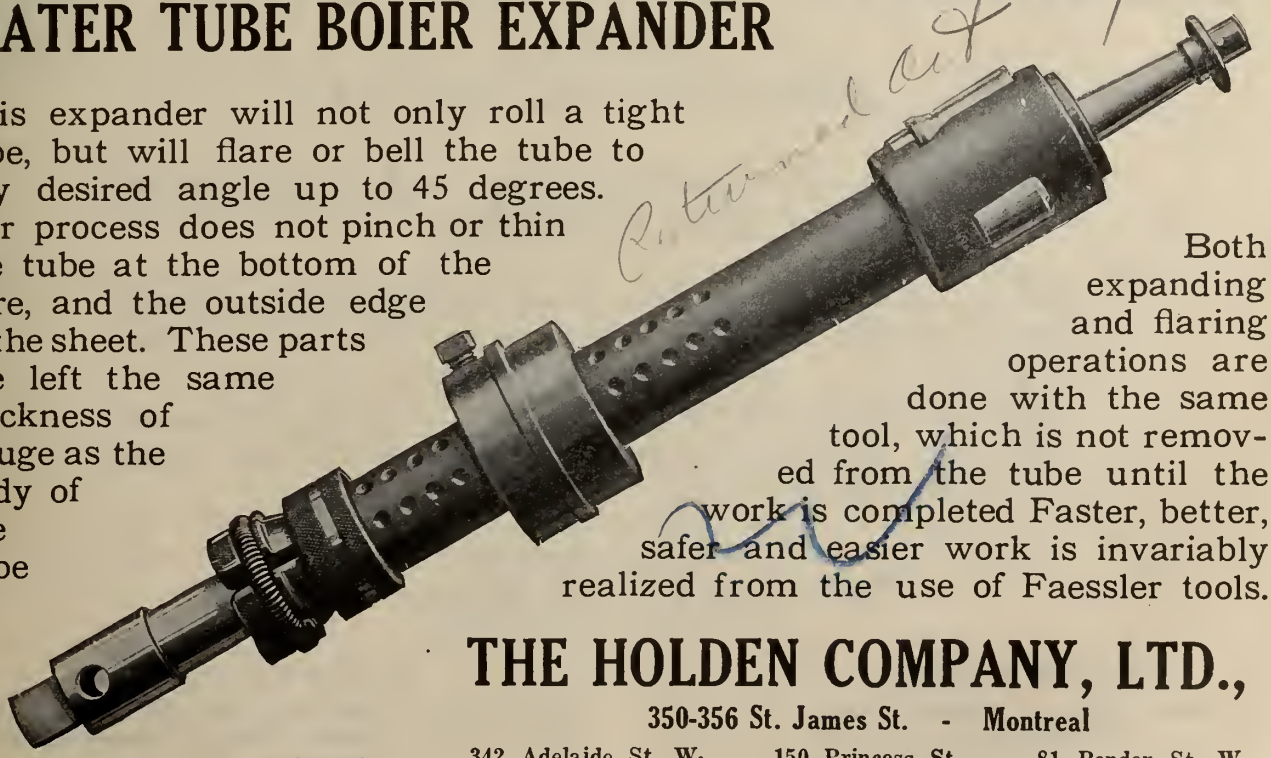
This expander will not only roll a tight tube, but will flare or bell the tube to any desired angle up to 45 degrees. Our process does not pinch or thin the tube at the bottom of the flare, and the outside edge of the sheet. These parts are left the same thickness of gauge as the body of the tube



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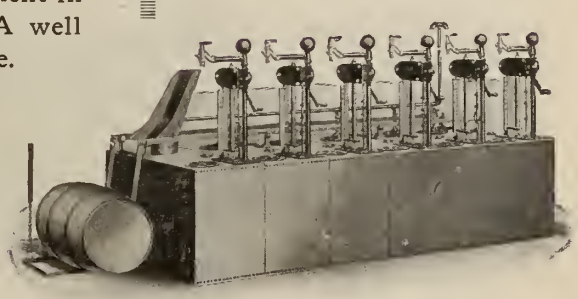

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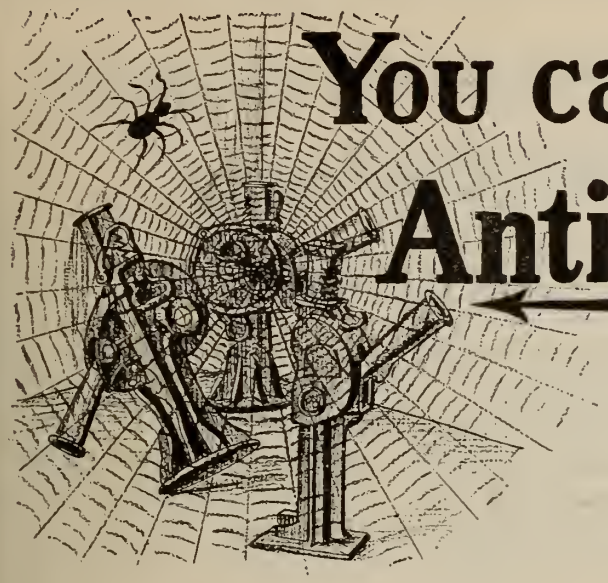

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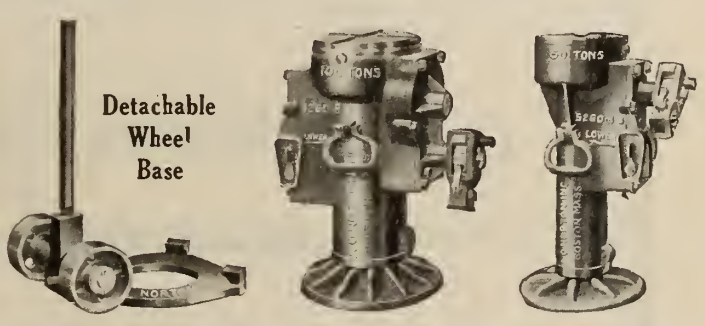

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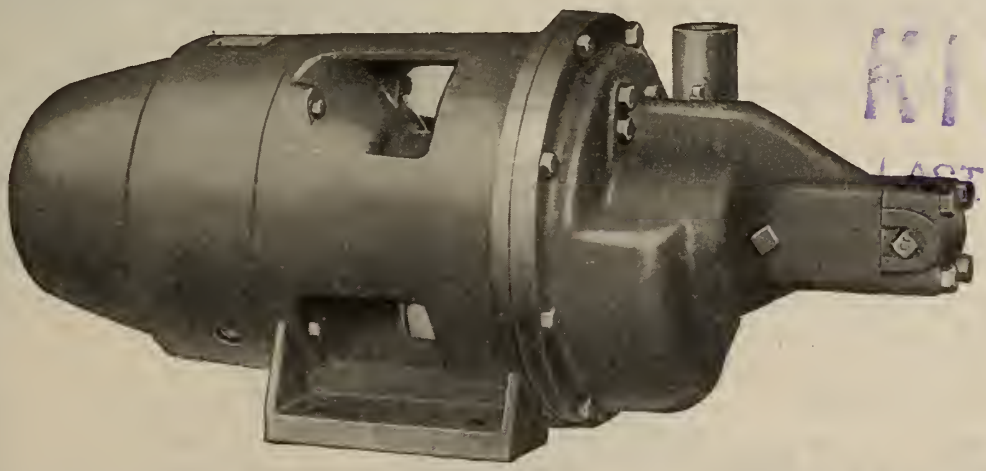

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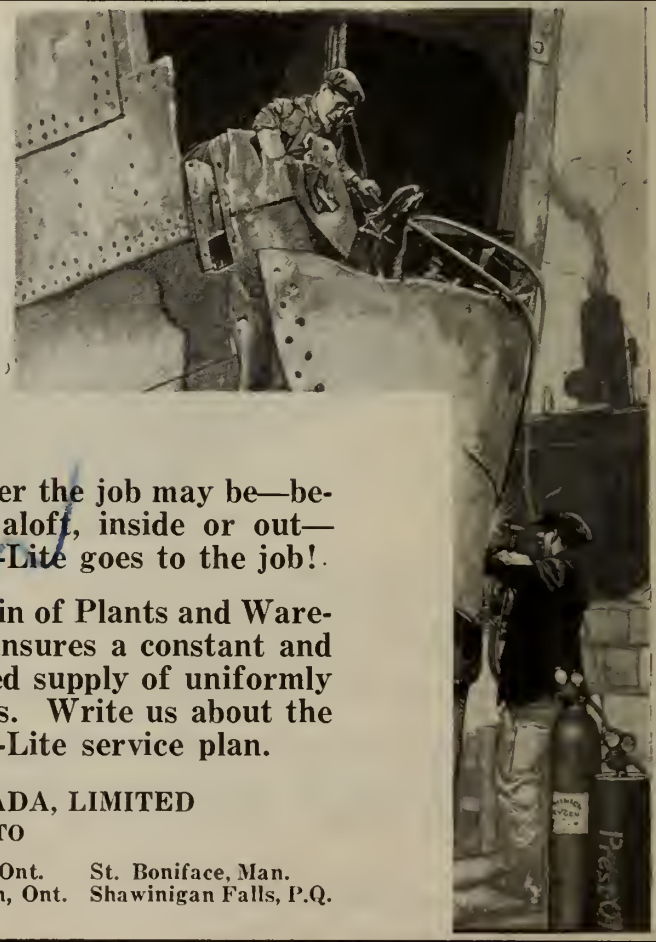

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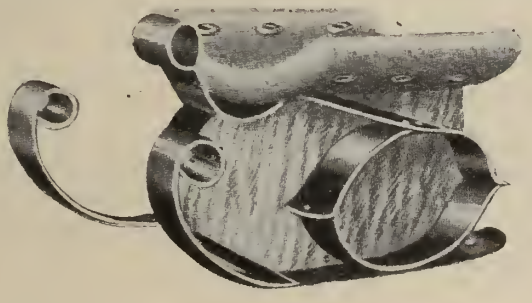

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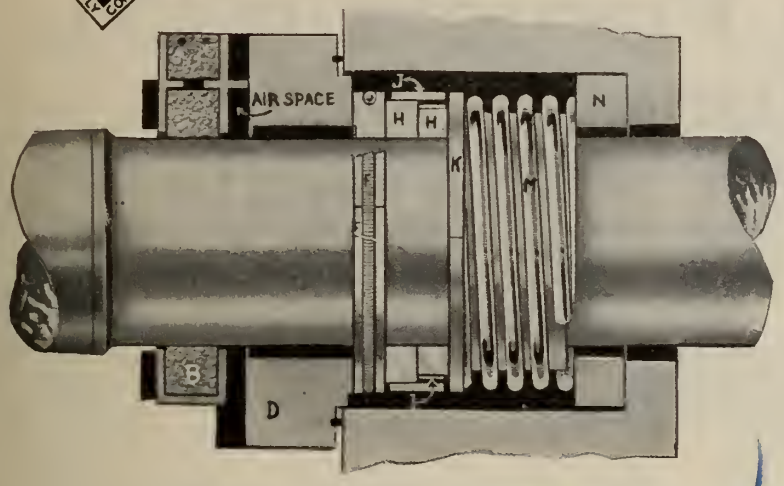

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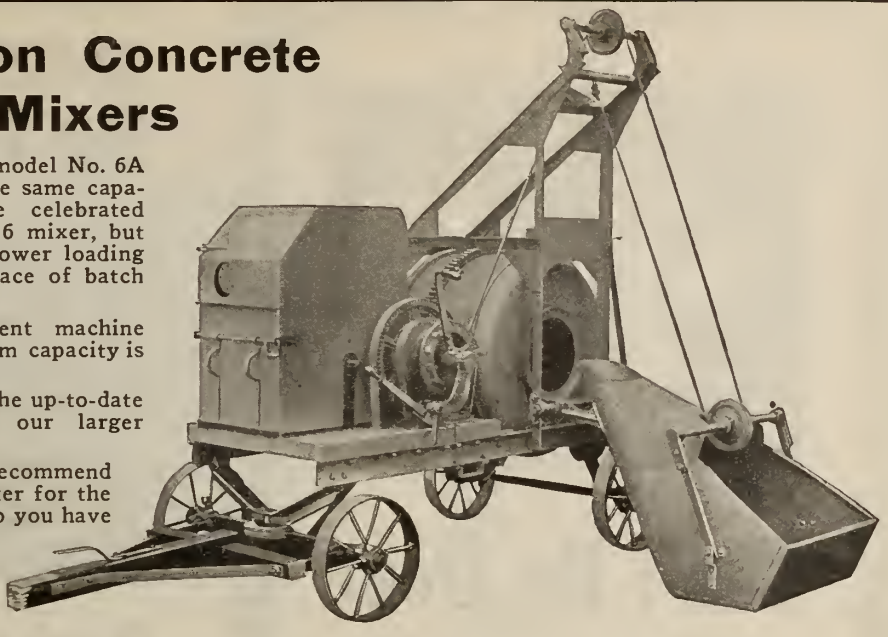
London Concrete Mixers

This new model No. 6A mixer has the same capacity as the celebrated London No. 6 mixer, but fitted with power loading hopper in place of batch hopper.

An excellent machine where medium capacity is required.

It has all the up-to-date features of our larger machines.

Let us recommend the right mixer for the particular job you have in hand.



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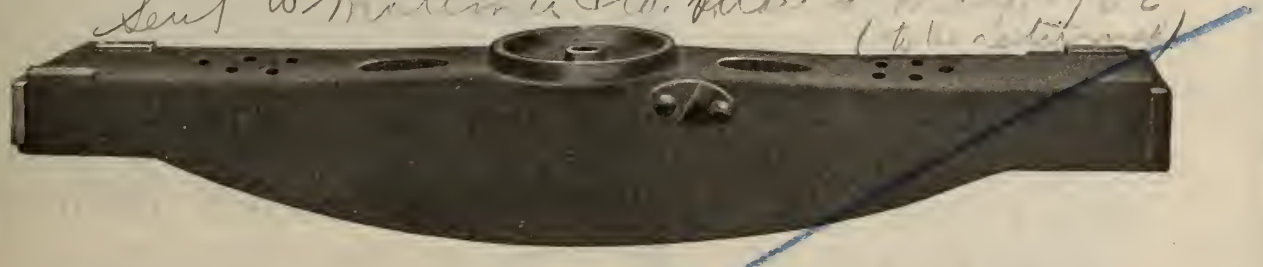

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Built For

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performance on the job COUNTS

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Years in use—8; totals miles travelled—40,000; total cost repairs—$12.50; gallons gas used per month—18; miles per gallon—25; gallons lubricating oil used per month—1½; largest load in pounds you have pulled—4,000; how many ties have you pulled—50; what percent. grades do you make—1.

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Mr. Synak states further: "I have also pulled two rubble cars loaded with 40 oak ties on each car."

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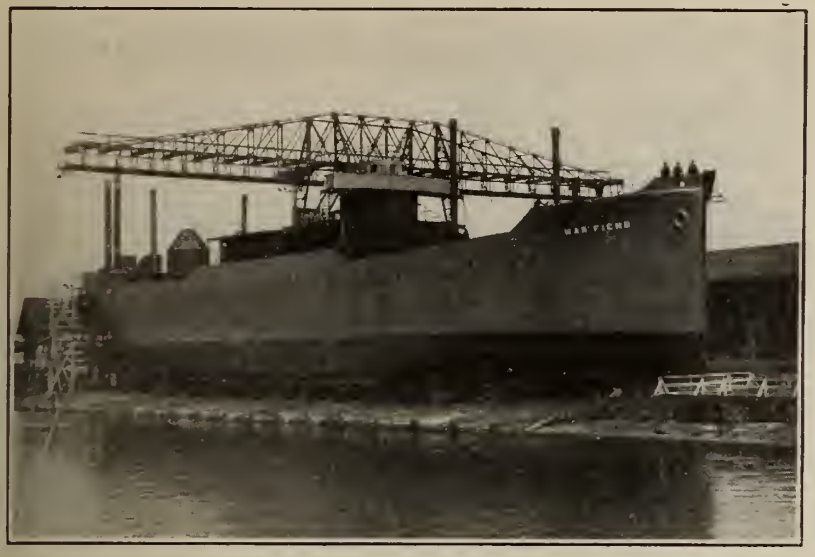

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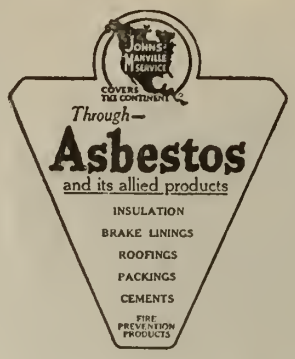

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Canadian Railway and Marine World

September, 1921

American Railway Association, Mechanical Division, Committee Reports.

As announced previously, in Canadian Railway and Marine World, the American Railway Association's Mechanical Division, which embraces the former American Railway Master Mechanics' Association, and the Master Car Builders' Association, decided, in consequence of the financial stress and serious business conditions in the United States, not to hold the annual convention which had been scheduled for Atlantic City in June, but to have instead a two days business meeting in Chicago on June 15 and 16, the usual exhibits by manufacturers to be omitted. On June 10 it was announced that, owing to the unusual conditions, and the inability of members to attend, the meeting had been postponed to June 29 and 30, and on June 21 it was further announced that it had been again postponed and that owing to the uncertainty as to the conditions for the next few weeks no date had been set, and the probability now is that no meeting will be held this year.

The reports prepared by standing and special committees for presentation at the meeting were fewer than usual, and there were no individual papers. The principal reports of the various standing and special committees are given on this and following pages, either in full or in abstract. Since the annual meeting was postponed the general committee has approved the reports of the following committees:—Specifications and tests for materials, train brake and signal equipment, car construction, tank car, loading rules, brake shoe and brake beam equipment, and they will be submitted to the members by letter ballot. The arbitration and the labor and prices committees' reports were approved by the general committee for submission to the American Railway Association's executive committee for approval, with the exception of the arbitration committee's recommendations for changes in interchange rules 32, 43 and 70.

As no annual meeting was held the general and the nominations committees' reports were not dealt with and the 1920-1921 officers continue, viz.:—W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry., Chairman; J. Coleman, Assistant to General Superintendent of Motive Power and Car Departments, Grand Trunk Ry., Vice Chairman; and V. R. Hawthorne, Secretary.

Specifications and Tests for Materials Committee's Report.

The committee, of which F. M. Waring, Engineer of Tests, Pennsylvania System, was chairman, reported as follows:—Sub-committees have been appointed and are actively engaged in work on the subjects assigned, viz.:—Co-operation with Rubber Association of America on preparation of specifications for mechanical rubber goods. Co-operation with Equipment Painting Section in preparation of specifications for painting materials. Specifications for welding wire. Specifications for water gauge and lubricator glasses. Revision of present specifications for galvanized sheets. In addition to the above the chairman has had some correspondence with the chairman of the Train Brake and Signal Committee, on the subject of tolerances for air brake and signal hose gaskets and gauges for gaskets and couplings, with a view to improving present practice in these particulars. Further work should be done on these subjects during the coming year.

Subjects referred to the committee by the General Committee.—(a) "The proper fibre stress to be employed in the design of helical springs of different diameters of steel wire from ½ in. to 1½ in. in diameter. The original spring table calls for 80,000 lb. per sq. in. throughout for all sizes, but it is well known that this is not the manufacturers' practice, and, in fact, in many cases it is impossible to obtain a proper spring with the smaller sizes of wire." A sub-committee was appointed to report on this question, and after investigating the available data on spring design and manufacture, has reported that, in its opinion, tests should be made to develop information on various grades of steel and different heat treatments. It has not been practicable for your committee to arrange for such tests, nor does it seem at all feasible to make any such arrangements under present conditions or in the near future. The number of variables affecting spring design, in addition to that of variation in diameter of wire, such as quality of steel, workmanship and heat treatment, makes the whole subject a very indefinite one and one that would require long and expensive investigation, probably without satisfactory results. Your committee will keep this matter before it and will take such action as may be possible.

(b) "Heat treated axles and crank pins. Has the process of heat treatment decreased the number of failures to any appreciable extent?" Your committee feels that it does not have sufficient information to reply to this question, and is endeavoring to obtain the views of other members of the Association by means of a questionnaire.

(c) "Revision of specifications for lumber, if such revision is needed, representatives of the Purchases and Stores Division to be requested to co-operate with the Committee on Specifications and Tests." No action has been taken on this subject. Your committee desires the benefit of advice from all interested mem members, on What use, if any, is being made of the present lumber specifications? Suggestions for revising the specifications so that they might be of greater use.

Co-operation with Car Construction Committee.—In its report to the Association in June, 1920, the Car Construction Committee made certain recommendations regarding the desired quality of steel for forgings and castings for railway use, and gave an outline of what, in its opinion, constituted certain fundamental requisites for specifications. Chief among these was the requirement of the elastic limit as a base determination, and specifying the elongation of 2in., and the reduction of area to be controlled by the elastic limit and given constants. Other requirements covered chemical composition and annealing and the recommended constants for tensile properties of two grades of steel, with 26,000 and 32,000 lb. per sq. in. elastic limits, respectively. Your committee has spent most of its time at recent meetings in the endeavor to satisfactorily carry out these recommendations of the Car Construction Committee, which have been approved by the Association, and regrets to say that it has not been entirely successful, partly because of the large amount of work involved in revising the specifications, and partly because of differences of opinion that have arisen between members of our committee and representatives of the Car Construction Committee as to the practicability of certain of the latter's recommendations. The question of standardizing methods of tests so that results obtained in different laboratories will be comparable is one that is engaging the attention of your committee at this time, and will require its best efforts for some time to come, and also the assistance of all members with laboratories who may be willing to help with the work.

Recommendations. — As a result of conferences with representatives of the Car Construction Committee, your committee offers the following specifications and recommendations:—1. A revision of the Standard Specifications for Carbon Steel Axles for Cars, Locomotive Tenders and Engine Trucks. 2. A revision of the present Specifications for Steel Castings for Cars and Locomotives, combining these two into one specification. (Editor's note. Want of space prevents the publication of these specifications.) 3. It is recommended that the present Specifications for Axles and Steel Castings be retained without change and that both of the above proposed specifications be printed in the Proceedings as tentative specifications until further action is justified by the experience of the members in working to them. Your committee feels that this action is warranted by the newness of the proposed method of expressing physical properties, as shown in the Steel Casting Specifications, and the many changes that have been made in the Axle Specifications, as well as to the necessity of having both the consumers and manufacturers become thoroughly familiar with these specifications before they are made obligatory.

Specifications for Heat Treated Knuckle Pivot Pins to be revised as shown in exhibit C. This increase in the range of both carbon and manganese is recommended to cover the usual grade of steel used for this purpose, as it has been found by experience that the present limits are unnecessarily close.

Your committee does not recommend advancing any of the present Recommended Practice Specifications to standard, for the reason that some changes may have to be made in a number of these if the proposed changes in the method of expressing tensile test requirements develop satisfactorily.

The frequent, sometimes yearly, revision of specifications has been severely criticized by both purchasers and manufacturers, and is clearly an undesirable state of affairs. Therefore, it is recommended that the Association should give serious consideration to establishing a definite time limit for revisions of specifications and other standards which will appear in the Manual, this limit to be preferably three years, during which no changes should be allowed, except for reasons important to the interest of the Association and then only if the proposed changes receive at least two-thirds vote at the Division's annual meeting.

The committee also presented the following supplementary report:—

The unsatisfactory condition of class D bolster springs for trucks of 100,000 capacity cars has been brought to the attention of the Committee on Car Construction, which has prepared designs for alternate springs L, M, N and O, to be substituted for present standard springs, classes B, C, D and H. The committee on car construction has requested that the committee on specifications and tests for materials prepare specifications covering their alternate special springs. Your committee has prepared tentative specifications for chrome molybdenum steel springs, as requested. The committee has not been able to develop any satisfactory information regarding what service may be expected from springs made of chrome molybdenum steel, but agrees with the committee on car construction that the matter is of importance and that such springs should be made and tested in service, in order to develop whether they are an improvement over the present carbon steel springs, which have been found to give very unsatisfactory service. Your committee recommends that the following specification for chrome molybdenum alloy steel helical springs be adopted as tentative for one year, or until further action is recommended by the committee.

[Editor's Note.—Want of space prevents the publication of the specifications. Persons desiring a copy should apply to V. C. Hawthorne, Secretary, American Railway Association, Mechanical Division, 431 South Dearborn St., Chicago.]

Train Brake and Signal Equipment Committee's Report.

The committee, of which T. L. Burton, Air Brake Engineer, New York Central Rd., was chairman, reported as follows:

Your committee submits the following report on subjects which have been considered by the committee during the past year:

Brake Power and Brake Beams for Freight Equipment.—Pursuant to action taken at the last annual meeting, the committees on brake shoe and brake beam equipment and train brake and signal equipment have jointly considered the recommendations contained in the car construction committee's report of 1920 on brake power and brake beams for freight cars, which will be covered in the report of the committee on brake shoe and brake beam equipment.

Retaining Valves for Freight Equipment.—The quetion of retaining valves for freight equipment cars referred to in this committee's report of 1920 has been made the subject of special investigation by a sub-committee, which outlined and arranged for a series of tests on grades ranging from 1½ to 3½%, with retaining valves of various capacities. Owing to the serious business depression now generally prevailing, the tests were discontinued before sufficient information had been collected to permit the committee making definite recommendations.

Automatic Hose Connectors for Freight and Passenger Equipment.—The question of automatic hose connectors for freight and passenger equipment was referred to a sub-committee, which reports that, "it has examined all of the data received in reply to circular of inquiry sent out by the committee appointed in 1919." The circular of inquiry was sent out Feb. 20, 1920, to all United States railways. There were 39 answers to this circular; four roads reporting experience with automatic connectors. Of these, there is only one which has any considerable number of cars equipped, or which are in any representative service. The committee learned that there were some automatic connectors used in Canada, which were not included in the answers to the circular, and endeavored to find what information could be obtained from this trial; but was unable to get any great amount of information. A number of drawings and information with regard to special designs of automatic connectors were submitted to the committee, all of which were carefully considered. The committee is unable to find in the reports of automatic connectors now in service a design that would seem to lend itself to general use, and for the lack of such information is, therefore, unable to make any specific recommendations at this time.

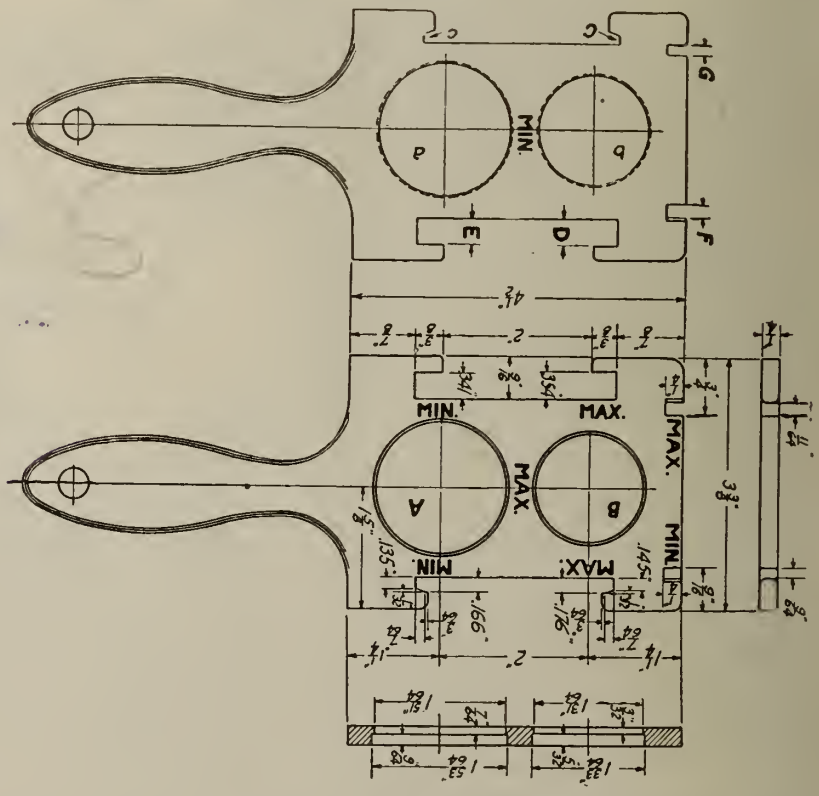


Fig. 1.—Packing Ring Gauge.

Openings A and a are for gauging max. and min. (external) diameter of packing ring flange.

Openings B and b are for gauging max. and min. (external) diameter of projecting wall or face portion of ring.

Slots C and c are for gauging max. and min. thickness of flange and bevel on surface of flange.

Slots D and E are for gauging max. and min. over all depth of ring at face.

Slots F and G are for gauging max. and min. thickness of projecting wall or face portion of ring.

Rings must enter all sections of gauge marked "max." and must not enter any section of gauge marked "min."

Air Brake Cylinder Packing.—The committee has further considered the matter of air brake cylinder packing made of leather substitutes. It has also been recently suggested that specifications be prepared for brake cylinder packing. The information which the committee has is very meager, but it will solicit the assistance and co-operation of the committee on specifications and tests for materials in preparing suitable specifications, after which it will

be in position to submit definite recommendations.

Brake Wheels.—Attention has been called to the desirability of improving the design of hand brake wheel as applied to freight equipment cars. This subject is being investigated, and the committee will submit recommendations to the car construction committee on the design of a standard or recommended practice wheel.

Mechanical Sanders.—At the suggestion of a member, your committee has considered the question of connecting mechanical sanders to the engineer's brake valve in a manner that will automatically sand the rails when the brake valve is placed in emergency position, but as this is largely a local matter that should be handled by individual roads, the committee has no recommendations to make.

Life of Air Brake Hose.—This subject has been investigated by a sub-committee, which has reviewed all data available. It would seem that unless the period for removal of air hose in service was extended to at least 30 months, a large number of hose would be removed which would last for a much longer time; also, that the fixing of such a period for removal from service would not provide for removing a large number of hose which fail within this period. The committee believes that instead of establishing a maximum life it would be preferable to consider revising the present specifications to provide a better quality of hose, and suggests that this be considered by the committee on specifications and tests for materials. The committee again wishes to call attention to the importance of applying the soap suds test, as called for in the present rules governing the maintenance of freight brakes.

Stenciling Brake Cylinders.—Attention has been called to difficulty experienced in stenciling brake cylinders, with standard letters 1 in. high, with the suggestion that the letters should be 1½ in. high. The committee believes that the height of the letters should be increased as recommended, and has so advised the arbitration committee.

Extra Heavy Pipe and Nipples for Air Brake Train Line.—A member has requested that consideration be given to using extra heavy wrought iron pipe and nipples, exclusively, for repairs to all freight car equipment, regardless of age, and that prices for material be revised accordingly. The committee finds that this practice is in effect on several large roads, and while extra heavy wrought iron pipe is unquestionably superior to steel or standard weight pipe, in view of the decided difference in first cost, it does not feel justified in recommending a change at this time. It is suggested, however, that standard weight nipples be used at the angle cock with either extra heavy or standard brake pipe.

Location of Angle Cocks on Locomotives.—At the request of the general committee, the quetsion of "recommended practice for location of angle cock at rear of tender and front of engine to prevent manipulation by unauthorized parties" has been considered. In view of the fact that this subject was investigated during the period of Federal control by the Railroad Administration's committee on standards, assisted by several members of your committee on train brake and signal equipment, without being able to develop a solution for the problem, the committee does not believe it is now in posititon to develop anything new on the subject.

Triple Valve Test Requirement.—The tandard test code covering the function requirements of freight triple valves appears under the caption "Air Brake Test," which does not harmonize with the text of the code, and the committee recommends that the Secretary be authorized to change this caption to read "Triple Valve Test Requirements for Freight Service."

Air Brake Hose Couplings, Packing Rings for Air Brake and Signal Hose Couplings and Gages for Couplings and Packing Rings.—The committee on specifications and tests for materials has recommended that suitable gauges be developed for checking the dimensions of hose couplings when new, that consideration be given to changing the form of present standard gauge for hose coupling packing rings, and the tolerance dimensions for packing rings be made to conform to the tolerances shown in its report for 1919, circular S III-23. With one exception the tolerance dimensions referred to are practically the same as is now provided for in the standard gauge for hose coupling packing rings, the exception being that the gauge provides for no tolerance in thickness of packing ring flange. Originally, the committee on train brake and signal equipment was not in favor of tolerances for the ring flange. On further consideration, however, it believes it desirable to provide for tolerances for all dimensions, which, if concurred in, will require a slight modification in the packing ring gauge; it is therefore recommended that the gauge drawing be revised to conform to the accompanying fig. 1. It is suggested that the question of gauges for hose couplings be made the subject of investigation by this or a similar committee during the coming year. The committee on specifications and tests for materials, we believe, concurs in this suggestion and has consented to furnish a sub-committee, if necessary, to assist in such an investigation.

Adjustment of Hand Brake Power on Freight Cars.—On account of the present business depression in railway service, the test which was scheduled to be made early this spring in connection with the adjustment of hand brake power on freight cars has, with the approval of the general committee, been indefinitely postponed.

The committee recommends submitting to letter ballot for adoption as standard, the question of revising the hose coupling packing ring gauge as shown in the accompanying fig. 1.

The committee acknowledges its indebtedness to officers of the Pennsylvania System, Northern Pacific Ry., Atchison, Topeka & Santa Fe Ry., Westinghouse Air Brake Co., and New York Air Brake Co., for their valuable assistance to the sub-committee on retaining valves in making a number of retaining valve tests in grade service on the roads mentioned, also to the Baltimore and Ohio, Norfolk and Western, and the Western Maryland Railroads, for permission to continue the test on these roads, should it later be considered desirable to do so.

Car Construction Committee's Report.

The Committee on car construction, of which W. F. Kiesel Jr., Mechanical Engineer, Pennsylvania System, was chairman, presented the following report:—

Salt Water Drippings.—Conference has been held with representatives of the principal interests using brine valves and it is the opinion that the various devices now used will, with proper maintenance, perform their functions, that the users of such devices are fully advised as to the necessity of same and should be notified that they must have all cars with brine tanks equipped by Jan. 1922, and that no further extension of time will be granted after that date. It is recommended that paragraph F of Interchange Rule 3 be modified to correspond with the above.

End Doors for Box Cars.—In the report of 1920 the following recommendation was overlooked, when preparing the sheet for letter ballot: "In 1913, the Master Car Builders' Association adopted as recommended practice, that end doors must be so constructed that, when closed, they lock automatically by means of a lock accessible from the inside of the car, thus avoiding the necessity of taking seal records. Sheet 30 shows a design of inside fastening which is not automatic, and your committee recommends that recommended practice adopted in 1913 should be advanced to standard, and that the design of inside latch shown on sheet F should be removed, and a note substituted that the fastening should lock the door automatically from the inside of the car." It is recommended that this be now submitted to letter ballot.

Materials for Car Construction. — In co-operation with the committee on specifications and tests for materials, this subject has been fully discussed from both design and test standpoints, and that committee will report the recommended specifications.

Minimum Thickness for Backs of Journal Bearings.—Requests to fix a minimum thickness, because, at times, too much wear is allowed before removal, led to issuing a circular asking whether such limits are necessary, and, if so, what the limits should be. According to the majority of replies received, it is desired to fix a standard minimum thickness for backs of journal bearings, as follows:

Class of Bearing	A	B	C	D	E	F
Size of journal (inches)	3¾ x 7	4¼ x 8	5 x 9	5½ x 10	6 x 11	6½ x 12
Minimum thickness of back (inches)	½	9/16	⅝	11/16	¾	13/16

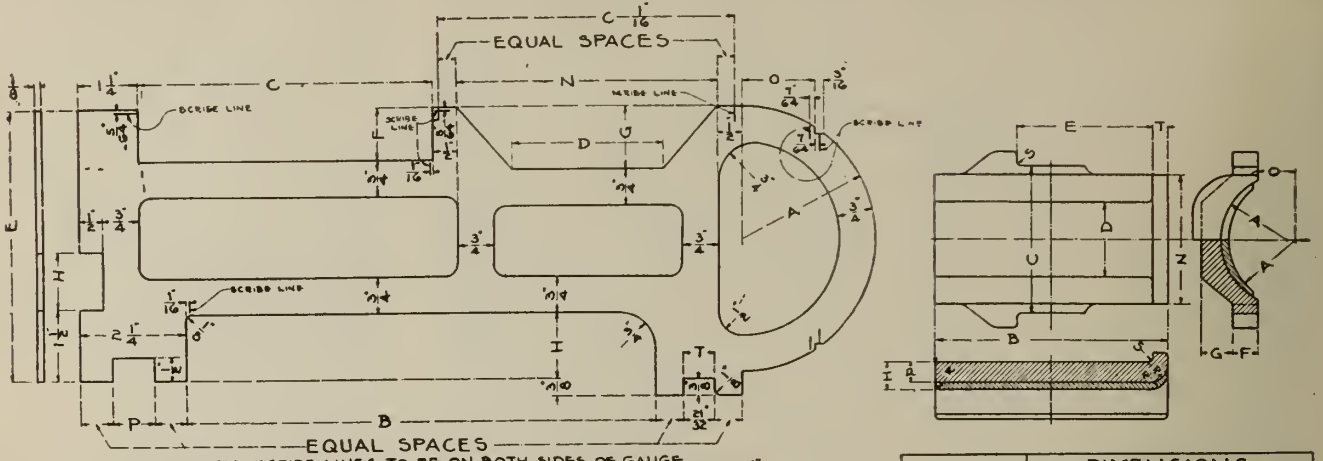
It is suggested that this be adopted as recommended practice.

Gauges for Bearings and Wedges.—Attention was directed to a growing demand for these gauges and that standards should be provided. The committee's recommendations for such gauges are shown in figs. 1 and 2 and it is suggested that these be adopted as recommended practice, the present separate gauges to remain as standard.

Dust Guards.—Since pressed or cast steel and malleable iron journal boxes with round bottom dust guard cavities have come into more general use, it is advisable, in order to avoid duplicating reserve stock for repairs, to make the bottom of all dust guards semi circular. Such dust guards can be used in either square or round bottom dust guard cavities. The committee recommends that the dust guard shown in fig. 3 be made standard. The dust guards illustrated show the round bottom, and otherwise were changed in dimensions to better fit the standard journal boxes.

Journal Boxes.—To meet various suggestions for change, and to increase uniformity of standards, we submit fig. 4, showing journal boxes C, D, E and F, recommending that they be substituted for the present standards. The bottom of dust guard pocket has been made semicircular, to reduce the cost of box. The angle of lid face has been made the same for all boxes. Various minor, or unimportant, dimensions, have been unified. No changes affecting interchangeability, or serviceability, have been made.

Specifications for Fig. 4. — Arrow heads, without figures, indicating radii, represent ¼ in. radius. Dimensions for tolerances underscored are plus or minus 1/16 in.; lesser tolerances aare given with the dimensions. Other dimensions of lesser importance may vary, plus or minus, ⅛ in. Metal thickness given in table under T is minimum. Section of any box may be made either circular or square, below center line. The metal may be cast iron, malleable iron, pressed steel or cast steel, provided all of the essential dimensions which affect interchangeability and the proper fitting of contained parts, are adhered to. When used with side frames of such design that the bottom tie bar is omitted, or is not an essential strength member for carrying the load, the bottom box lugs may be omitted. When used in connection with other side frames, the bottom box lugs must be equivalent, both in location and strength, to those shown. If the method of manufacture does not permit the placing of letters ARA on the

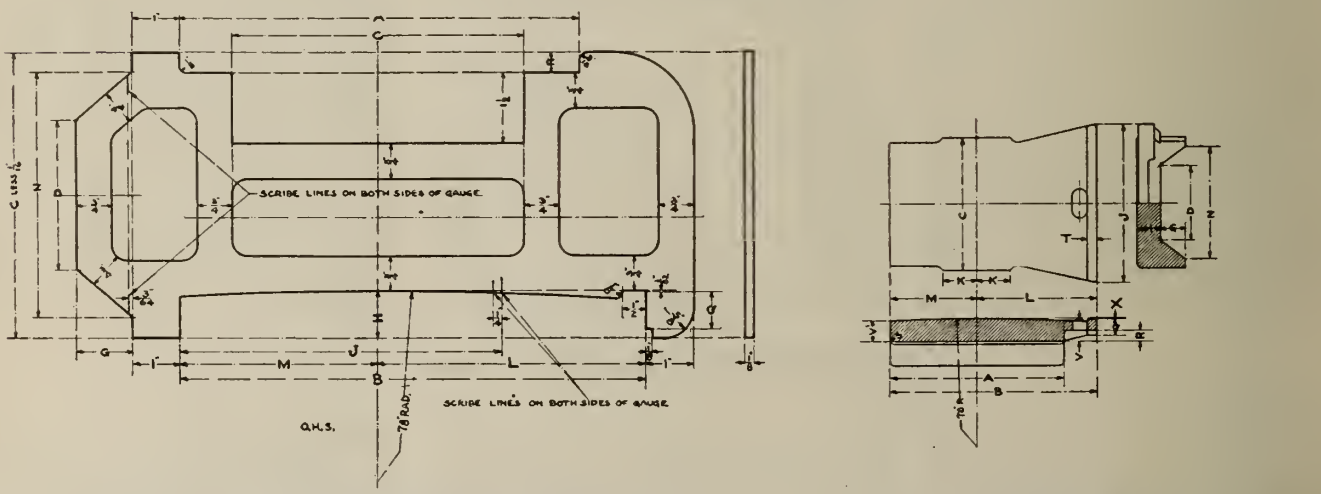


A R A CLASSIFICATION	SIZE OF JOURNAL	DIMENSIONS—INCHES A	B	C	D	E	F	G	H	N	O	P
A	3¾ × 7	1 37/64	6 25/32	4 17/32	2 1/32	3 31/32	2 29/32	1 1/8	1 1/16	3 25/32	2 37/64	3/4
B	4¼ × 8	2 9/64	7 25/32	4 29/32	2 11/32	4 15/32	7/8	1 9/32	1 1/16	4 13/32	1 1/64	3/4
C	5 × 9	2 33/64	8 25/32	5 21/32	3 5/32	5 5/32	1 1/16	1 7/32	1 3/16	4 29/32	1 25/64	7/8
D	5½ × 10	2 49/64	9 25/32	6 5/32	3 5/32	5 21/32	1 3/32	1 5/16	1 3/16	5 15/32	1 33/64	7/8
E	6 × 11	3 1/64	10 25/32	7 5/32	3 17/32	6 19/32	1 9/32	1 1/2	1 5/16	6 9/32	1 33/64	1
F	6½ × 12	3 17/64	11 25/32	7 21/32	4 1/32	7 3/32	1 15/32	1 9/16	1 7/16	6 17/32	1 41/64	1 1/8

DIMENSION P ASSUMES LINING

	DIMENSIONS A	B	C	D	E	F	G	H	P	R	S	T
MAY BE GREATER BY	1/32	1/32	1/32	1/32	1/16	1/32	3/64	1/16	1/16	1/16	0	1/32
MAY BE LESS BY	1/64	1/32	1/32	1/32	1/32	3/64	0	1/32	0	0	3/32	1/16

Fig. 1. Gauges for Bearings and Wedges.



A.R.A. CLASSIFICATION	SIZE OF JOURNAL	DIMENSIONS IN INCHES A	B	C	D	G	H	J	L	M	N	Q	R
A	3¾ X 7	5 7/16	6 19/32	4 17/32	2 1/16	1	2 5/32	5 1/8	3 7/8	2 23/32	3 5/8	2 3/32	3/16
B	4¼ X 8	6 7/16	7 25/32	4 29/32	2 11/32	1 1/16	2 9/32	5 1/8	4 3/16	3 7/32	4 1/16	2 7/32	3/16
C	5 X 9	7 7/16	8 25/32	5 21/32	3 3/16	1 1/16	1 1/32	6 7/8	5 1/16	3 23/32	4 3/4	2 3/32	7/16
D	5½ X 10	8 7/16	9 25/32	6 5/32	3 3/16	1 3/16	1 1/32	6 7/8	5 5/8	4 7/32	5 7/32	2 3/32	7/16
E	6 X 11	9 7/16	10 27/32	7 5/32	3 9/16	1 3/8	1 1/32	7 7/8	6 1/8	4 23/32	6 1/8	2 5/32	1/2
F	6½ X 12	10 7/16	11 27/32	7 21/32	4 1/16	1 1/2	1 13/32	8 3/8	6 5/8	5 7/32	6 7/16	7/8	21/32

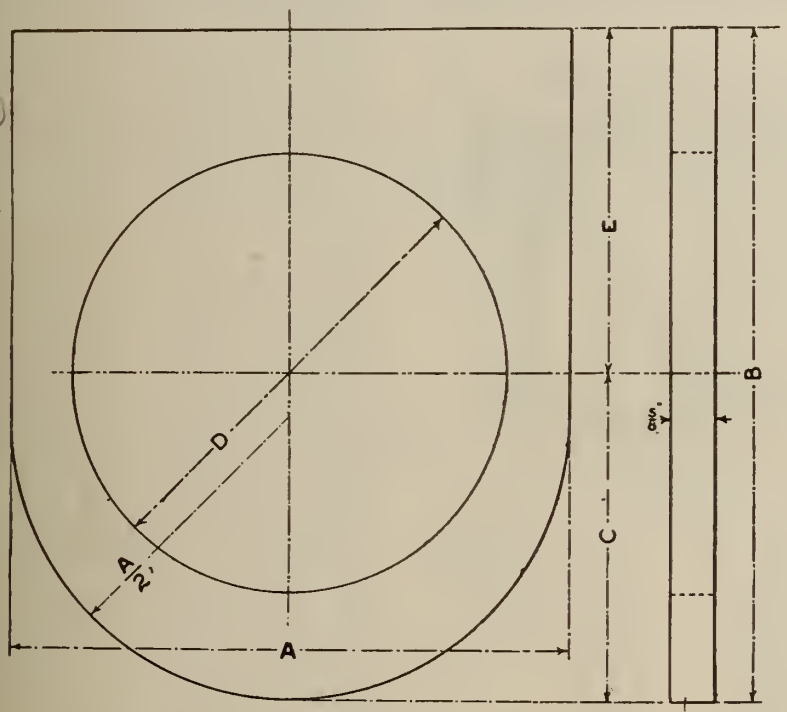
	DIMENSIONS A	B	C	D	G	H	J	K	L	M	N	Q	R	S	T	V	V'	X
MAY BE GREATER BY	1/16	1/32	1/32	0	1/32	1/8	1/8	1/32	1/32	1/32	0	1/16	1/16	1/16	1/32	1/32	1/32	
MAY BE LESS BY	1/16	1/32	0	3/64	1/16	1/8	1/8	1/16	1/16	0	1/16	1/16	1/16	1/16	3/32	3/32	1/32	

V AND V' MUST NOT DIFFER MORE THAN 1/16 ON ANY WEDGE.

Fig. 2. Gauges for Bearings and Wedges.

side of the journal box, they may be placed on the top, between the hinge lugs and the seat of truck sides. The lid face of box should be reasonably straight and smooth. For journal boxes used on passenger train equipment, a machine fit is recommended.

Springs—Complaints relating to the unsatisfactory results from standard springs have been increasing rapidly. The causes of the trouble, according to the analysis of your committee, are:— 1. Unsatisfactory process of manufacture. 2. Quality of material. 3. Irregular surface of spring ends. 4. Improper application of shims under or over springs to raise the car body to normal height. The result is that many springs either break or take a permanent set.



CLASSIFICATION OF GUARD	SIZE OF JOURNAL	A	B	C	D	E
C	5 X 9	8	9½	4 5/8	6 3/16	4 7/8
D	5½ X 10	8 7/8	10	4 7/8	6 11/16	5 1/8
E	6 X 11	10 3/8	10¾	5 1/8	7 5/16	5 5/8
F	6½ X 12	11	11 5/8	5 3/8	7 13/16	6¼

Fig. 3. Recommended Standard Dust Guard.

The remedy recommended is:—1. To improve the method of manufacture by better control of heating and tempering for more uniform results, and to obtain greater uniformity of coiling. 2. To use alloy steel. 3. To grind the ends of the springs to present a flat bearing surface of at least two-thirds the circumference at right angles to the axis of the spring. 4. To prescribe that shims, placed under or over the springs, shall consist of metal plates with parallel surfaces. 5. To design the springs for a unit stress, when solid, of closely 100,000 lb. per sq. in., using the present diameters of bars, thereby materially increasing the capacity and range of deflection.

These changes should result in: 1. Material decrease in shock on side frames. 2. Increased life of springs. 3. Decrease of maintenance cost and car delay.

It is recommended that the springs classified L, M, N and O, as illustrated in figs. 5 and 6, be adopted as alternates for springs B, C, D and H, and that alternate spring P be added for use with 2/F trucks.

That railways try out these springs thoroughly, in order to be in position to vote later on their adoption as standard. That interchange rules be formulated to protect the alloy steel springs against being replaced with ordinary springs. The Secretary has referred this to the committee on specifications and tests for materials, requesting preparation of specifications.

Fundamentals. — Enquiry relating to fundamentals, and their meaning, indicated the necessity of describing those pertaining to minimum areas more in detail. The minimum area between rear followers of the center sill construction is the whole area in compression under end force, without deducting for rivet and other holes, which are filled with metal.

In the formulae on which former requirements were based, pg. 772, line "e," under heading "For center sills between rear followers," the word "tension" should have been omitted, making it read: "The minimum area = 2.5 T.

The tension and bearing area requirements, but not the shear area requirements, shall be governed by the value of the steel. For bearing area between surfaces of different grades of steel in contact, the value of the lesser grade of steel shall govern. For grade A steel, for which the product of elastic limit in pounds multiplied by the elongation in per cent. is not less than 700,000, the areas given are required. For grade B steel, for which the designated product is not less than 850,000, the given areas may be reduced by 12½%.

It was stated that the adopted height from rail to top of truck side bearings of 27⅝ in. would prevent the use of roller, ball or rocker side bearings.

The dimension given refers only to flat truck side bearings.

The committee's intention is to make designs that will establish fixed conditions, permitting the use of detail designs standardized by the Association, or the substitution of other parts preferred by the individual railway, singly or in groups, provided these parts, or group of parts, are the equivalent in strength and safety of, and interchangeable with, the standard part or group of parts replaced. This will permit using any special detail such as top side bearing, which is interchangeable with, and equal in strength to, the side bearing that may be standard, or special top and bottom side bearings, which as a group are similarly interchangeable with the standard top and bottom side bearings as a group.

The standards should be made attractive for use by being as good or better than parts that may be substituted, rather than by making their use compulsory.

Truck Design.—A sub-committee of the committee on car construction, in co-operation with the truck committee of the Manufacturers Association, is engaged in the design of cast steel side frames and bolsters. It has considered the limits of dimensions fixed at the last meeting of the Mechanical Division and has given full consideration to the previously recognized dimensions of the M. C. B. Association, and to the designs that were put into effect by the U.S. Railroad Administration.

The manufacturers' committee has met with the sub-committee on two occasions, each time submitting for consideration designs in detail representing various ideas in view, but up to this time no single design has been brought out that could be presented as a recommendation for standard. It is possible that more than one design will have to be considered, with alternates.

Standard Car Design.—Pending the development of complete A. R. A. car designs, freight cars according to the essential standards of the American Railway Association may be ordered from any car builder according to the following:

Type.	U.S. Std. Spec. No.
Single sheath box	1001
Steel box	1341
55-ton hopper	1005
70-ton hopper	1007
70-ton gondola	1755
50-ton gondola	1004
40-ton truck	1274
50-ton truck	1276
70-ton truck	1241

The height of center plates should be specified as 23¾ in., as more fully described in American Railway Association, Mechanical Division, circular S III-189. This increased height of center plate introduces eccentricity as between the line of shock and the axis of the center sill sections, which changes the ratio of stress to end load, to offset which it is necessary to add two bottom angles to the center sills if the sectional area of the center sill is desired to be 30 sq. in. This would add about 500 lb. to the weight.

The height of sides of car, A. R. A. standard is 8½ ft. minimum inside. In event cars are ordered to the height shown in the drawings, 9 ft., no change in drawings is entailed. For the minimum height of 8½ ft., dimensions affected by the height, including the dimensions of box car doors, must be changed accordingly.

Tank Cars Committee's Report.

The committee on tank cars, of which A. W. Gibbs, Chief Mechanical Engineer, Pennsylvania System, was chairman, reported as follows:—

During the past year the work of the committee on tank cars has been mainly the continuation of its efforts to secure improvement in certain details of construction, principally the safety valve, bottom discharge valve, dome closure arrangement and anchorage of tank to underframe. In this work the committee has had the benefit of the co-operation of the Bureau of Explosives, American Petroleum Institute and the National Petroleum Association.

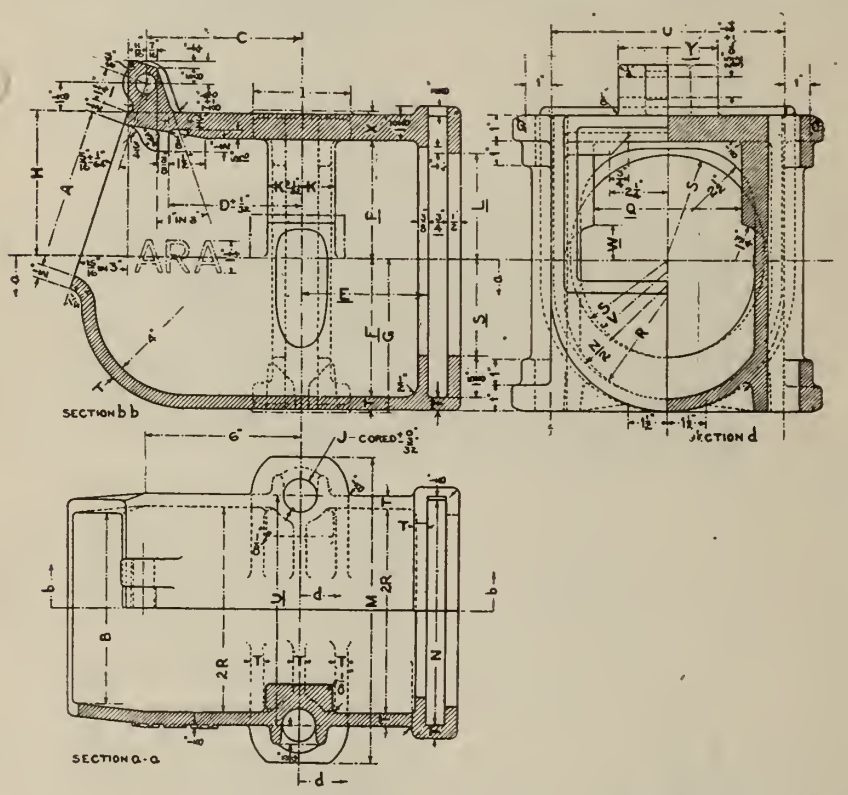


Fig. 4. Journal Box. See report on page 458.

The following are the specifications:—

Classification of Box.	Size Journal	A	B	C	D	E	F	G	H	I	J	K	L	M
C	6 by 9	6¼	7¾	6 1/16	5 5/16	4⅞	5⅜	5⅞	5⅝	4¾	1¼	1 5/16	4⅛	12
D	5½ by 9	6¼	7¾	6 1/16	5¾	5⅜	5⅝	6¼	5⅞	5¾	1⅜	1 5/16	4⅜	12½
E	6 by 11	7⅜	8¾	7 1/16	6¼	5⅞	5⅞	6½	6⅜	6¼	1½	1¾	4¾	14¼
F	6½ by 12	8⅝	9¼	7 1/16	6¾	6⅜	6⅛	6⅝	7	7¼	1⅝	1¾	5⅛	14¾

Classification of Box.	Size Journal	N	O	P	Q	R	S	C.I. T	MC. S.C. T	U	V	W	X	Y
C	5 by 9	8⅞	1½	4⅝	5¾	4	3¾	½	¼	9	3⅜	1⅜	1	3⅞
D	5½ by 10	9¾	2	4⅞	6¼	4	4	½	¼	9½	3 1/16	1½	1	3⅞
E	6 by 11	11½	2½	5⅜	7¼	4⅝	4⅜	5/8	5/16	10½	4	1½	1⅛	4⅜
F	6½ by 12	11⅞	2½	6	7¾	5⅛	4⅝	.....	⅜	11	4¼	1½	1⅛	4⅜

Safety Valves.—Additional tests have been made at Altoona of the experimental designs submitted by manufacturers of locomotive safety valves, which had been modified as the result of the tests referred to in the 1920 report; and also of other modifications of the standard design, including changes in the dimensions of the valve discs, non-corrosive seats, etc. The committee can only report progress, for the reason that no valve has proved absolutely tight at pressures at or near the popping point (25 lbs.). Observation of the leakage prior to popping has shown that the escape is always on one side, indicating a tendency of the valve disc to cock. Special guides have been tried to restrain this tendency to cock, and special springs have been made in an effort to secure true closure, but so far without success.

Some of the valve manufacturers are willing to make other modifications, but before asking them to do this, the committee is endeavoring to get from the oil trade some definite information as to the extent of the losses which can be properly charged to the safety valve. The available data indicates that with straight refinery products the losses are not large; also that with insulated tank cars the loss with casinghead blends is slight, but the question of safety valve leakage assumes importance because the uninsulated car may carry very volatile products, some of which are constantly under pressure.

The tests have shown conclusively the large discharge capacity of the standard valve—about 31,000 lb., equal to 4,800 gall. of gasoline per hour—so that an 8,000-gall. tank with its two safety valves would be discharged in about 50 minutes, with very little rise in the pressure. One of the experimental valves gave a discharge capacity of 40,000 lb. an hour. An investigation of the formula for discharge, in which the calculated flow was checked by a recording flow meter, indicated that the formula so far used has not been as far off as it was thought might be the case, because of the abnormal lift of the tank car type of valve.

The committee has approved some slight modifications in the details of the design of the valve, to reduce foundry losses and to facilitate machining. These changes do not affect the functioning of the valve, or the interchangeability of the parts, and the committee recommends that they be incorporated in the standard design of valve.

Bottom Discharge Valves.—This question has been assigned to a sub-committee composed of Messrs. Purcell, Owsley, Smith and J. E. Grant, special agent of the Bureau of Explosives, as chairman. This subcommittee is working in close co-operation with a similar committee of the American Petroleum Institute. There have been about 25 designs submitted, 11 of which are being tried under observation in service. These trials of necessity take some time, but it is hoped that another year will demonstrate the correct principles on which satisfactory designs must be based.

Reports show that a large part of the unsatisfactory performance of existing valves is due to failure to keep the tanks, and consequently the valve seat, clean. Attention was called to this condition in a circular issued by the Association in Dec. 1919, but there does not appear to have been any improvement.

Extensions to Bottom Discharge Outlet.—There have been a number of protests against the requirement adopted last year that: "No nipples, valves or other attachments shall project below the bottom outlet cap, except while car is being unloaded." These protests emphasize the lack of confidence in the present bottom outlet valves, in that it is claimed that the cocks attached to the bottom cap are necessary to enable the consignee to tell whether the outlet valve is closed, and that if the valve is not properly closed the removal of the cap would permit the uncontrollable discharge and loss of the contents of the tank. The trouble is really due to man failure rather than design failure. The Interstate Commerce Commission regulations require that the bottom cap shall be removed when the tank is loaded, and if this is done it will ensure the valve being properly closed and there will be very little danger of its being unseated in transit. The one exception is where water from gasoline leaks past the valve into the outlet pipe and freezes, which may result in unseating the valve, or breaking the outlet pipe, or both. The overcoming of this is one of the features of the problem of a satisfactory valve.

The dangers from extensions to the present outlet cap are so obvious that the committee can see no reason for modifying the rule. On the contrary, the committee believes a further step should be taken to guard against the danger of breakage of the outlet pipe by limiting the distance which the outlet projects below the sills to that required to operate a wrench in applying and removing the cap. It is, therefore, recommended that: "Effective July 1,

1922, in the case of new cars and of replacements on existing cars, the bottom outlet pipe, when applied to tanks of cars having center sills, shall not project below the bottom line of sills more than the threaded length necessary to permit the application and removal of the bottom outlet cap." The committee is now gathering information from car builders and petroleum shippers as to the least extension that will be practicable under this requirement.

The presence of a cock on the bottom of the discharge pipe is not necessarily objectionable, provided it complies with the proposed requirement.

Dome Closure Arrangement. — The Bureau of Explosives takes strong ground against the ordinary screw type of dome cover, particularly for cars carrying liquid normally under pressure. It was expected that the escape of gas through the vent holes at the top of the screw portion of the cover would give adequate warning to a man of ordinary intelligence that internal pressure existed and that the dome cover should not be removed until this pressure had been relieved. The numerous casualties which have occurred because of the removal of the cover, in spite of this warning, show that a better form of cover is necessary. There are also appreciable losses of contents in the form of gas, due to lack of tightness of the screw cover, even where soft gaskets are used. With cars assigned permanently to these very volatile products, it would suffice to provide only such cars with another form of cover, but this is not the case, as in an emergency, at least, any car may be loaded with these products. The attention of car builders has been called to the matter, and a number of them are endeavoring to work out satisfactory designs. Two general types meet the requirements, viz.: (1) An internal cover, supported by a screw and yoke against an inturned flange of the dome ring. Such a cover cannot be removed while there is internal pressure. (2) An external cover, held in place by a number of hinged bolts, the nuts of which engage lugs on the cover, so designed that the cover cannot be removed as long as there is internal pressure against it.

It may be necessary, eventually, to require that all new cars shall be equipped with some form of cover which cannot be removed until internal pressure is relieved. The committee believes that a beginning should be made with cars carrying casinghead gasoline and its blends, and recommends that paragraph 6 (c) of the Class IV Specification be amended to read: "For cars built after July 1, 1922, the dome cover, if external, shall be secured by bolts; or if internal, by yoke and screw." The committee feels that the external cover is preferable because of the greater probability of good workmanship and because its operation is simpler.

Anchorages.—The center anchorage for tank cars is the subject of a basis patent which expires in Aug. 1921. Because of this patent, builders have been allowed considerable latitude in their designs of this type of anchorage. Some of these designs have proved unsatisfactory in service, and a number of cases have been reported of tanks going adrift, with breakage of outlet pipe and loss of contents. So far these failures have been confined to the bolted anchorage, and are traceable to bad design or workmanship, or both. The principal causes have been the use of rough bolts in unreamed holes, instead of turned bolts in reamed holes, as required by the specifications; and the use of wooden fillers, prohibited by the specifications, between the anchorage and the underframe, so that the bolts are in flexure instead of in shear. In a number of cases, the bolts were threaded so far down that the shearing value was that of the root of the thread instead of the body of the bolt, while the bearing value was but that of the top of the threads. This matter was taken up with all of the tank car builders, and where it was found desirable to change the designs it was willingly done. The approved designs of all of the builders now provide connections materially in excess of the minimum requirements of the specification, and it is believed that no failures of these anchorages will result with any reasonable handling.

Heater Pipes.—The committee can only report progress upon this subject.

Number and Class of Tank Cars.—The

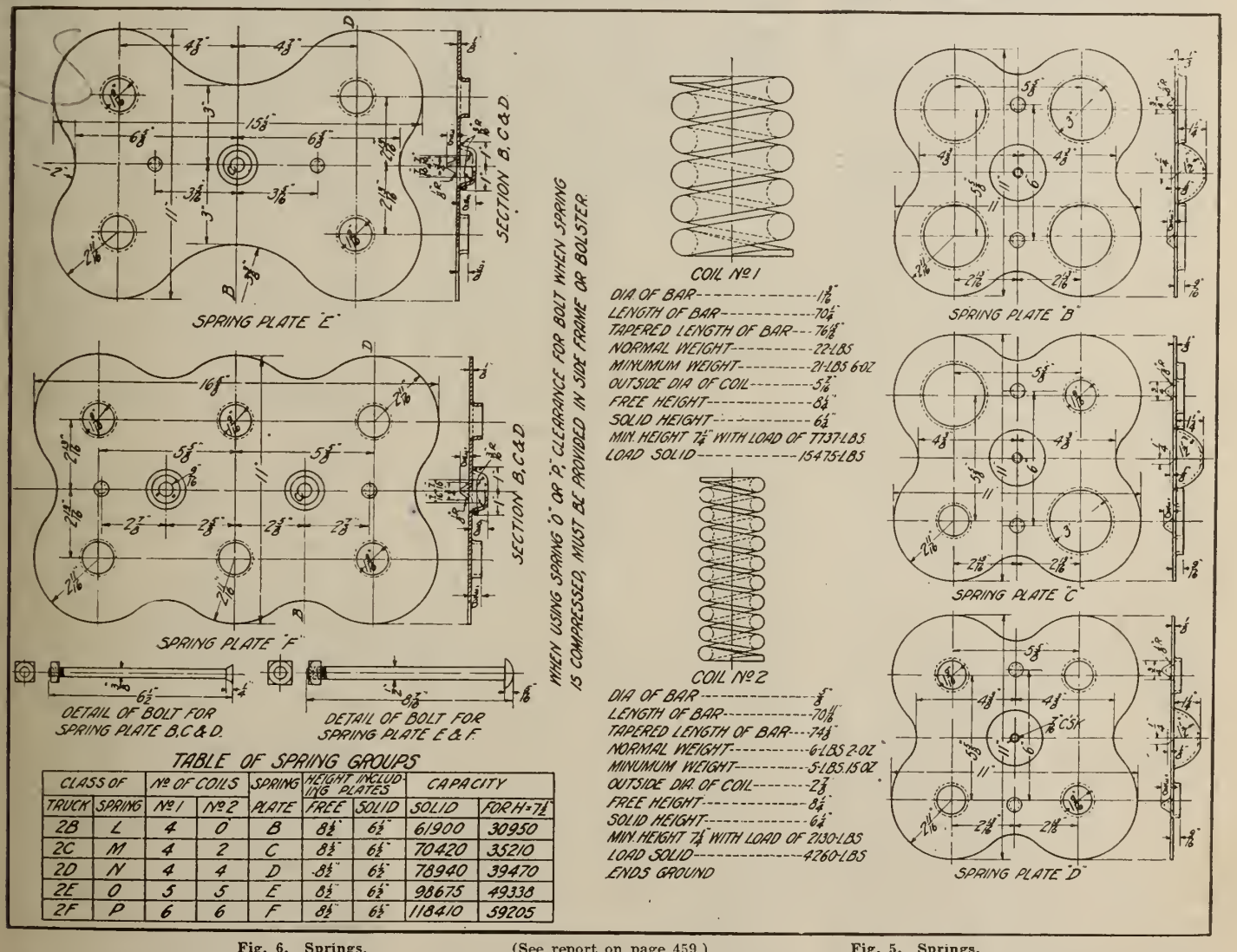

SPRING PLATE 'E'
SECTION B, C & D
SPRING PLATE 'F'
SECTION B, C & D
DETAIL OF BOLT FOR SPRING PLATE B, C & D.
DETAIL OF BOLT FOR SPRING PLATE E & F.
WHEN USING SPRING 'D' OR 'P' CLEARANCE FOR BOLT WHEN SPRING IS COMPRESSED, MUST BE PROVIDED IN SIDE FRAME OR BOLSTER.
COIL No 1
DIA OF BAR---1⅛"
LENGTH OF BAR---70⅛"
TAPERED LENGTH OF BAR---76⅛"
NORMAL WEIGHT---22 LBS
MINIMUM WEIGHT---21 LBS 6 OZ
OUTSIDE DIA OF COIL---5⅞"
FREE HEIGHT---8¼"
SOLID HEIGHT---6¼"
MIN HEIGHT 7¼" WITH LOAD OF 7737 LBS
LOAD SOLID---15475 LBS
COIL No 2
DIA OF BAR---⅞"
LENGTH OF BAR---70⅛"
TAPERED LENGTH OF BAR---74⅜"
NORMAL WEIGHT---6 LBS 2 OZ
MINIMUM WEIGHT---5 LBS 15 OZ
OUTSIDE DIA OF COIL---2⅞"
FREE HEIGHT---8¼"
SOLID HEIGHT---6¼"
MIN HEIGHT 7¼" WITH LOAD OF 2130 LBS
LOAD SOLID---4260 LBS
ENDS GROUND
SPRING PLATE 'B'
SPRING PLATE 'C'
SPRING PLATE 'D'

TABLE OF SPRING GROUPS

CLASS OF		No OF COILS		SPRING	HEIGHT INCLUDING PLATES		CAPACITY	
TRUCK	SPRING	No 1	No 2	PLATE	FREE	SOLID	SOLID	FOR H=7¼
2B	L	4	0	B	8½"	6½"	61900	30950
2C	M	4	2	C	8½"	6½"	70420	35210
2D	N	4	4	D	8½"	6½"	78940	39470
2E	O	5	5	E	8½"	6½"	98675	49338
2F	P	6	6	F	8½"	6½"	118410	59205

Fig. 6. Springs.

(See report on page 459.)

Fig. 5. Springs.

growth in the number of tank cars is shown by a recent tabulation from Boyd' Tank Car Circular, which shows a total of about 137,000 tank cars in service, of which 125,500 were of private ownership and 13,500 of railway ownership. This compares with figures for Jan. 1, 1913, given in one of the I. C. C. reports, viz.: 30,039 of private ownership and 9,150 of railway ownership, a total of 39,189.

Of the present five classes of cars, Classes I, II and III are general service cars; Class IV is an insulated car for handling very volatile products where losses from evaporation are especially objectionable and costly; and Class V, of which there are very few in service, is an insulated car for handling dangerous products normally under considerable pressure. Welded tanks are required for the Class V car to secure absolute tightness, which is necessary because of the toxic character of the lading. Classes I, II, III and IV cars have riveted tanks.

Welding.—In its 1912 report the committee called attention to the desirability of the welded tank, and in 1919 provision was made in the specification to permit the experimental use of welded tanks for Class III cars. Several welding concerns have given the question attention, but so far the cost of tanks welded by the forge welding process has been so high as to be prohibitive. Recently one of the large pipe manufacturing concerns proposed the use of its forge welded pipe for this purpose. If this proposition assumes definite form, your committee will be prepared to take up the question of this construction as an alternative to the riveted tank.

Various overtures have been made to permit the use of autogenously welded tanks, but the committee is not prepared to recommend the acceptance of such tanks in advance of definite proof of the reliability of this method of welding. At present there are too many uncertainties as to the character of the welds made by different operators, and particularly as to the ability of such welds to stand the alternating bending stress to which tank cars are subject.

The one exception which has been made is in the case of anchorages on welded Class V tanks. It was originally required that this should be forge welded, and during the war a number of tanks for the Government were so welded, but the results were unsatisfactory. Owing to the nature of the lading, exposed anchorage rivets are objectionable and the latest construction approved by the committee consists of riveted anchorages with the rivet heads on the inside covered by autogenously welded cup shields.

In this connection the attention of the committee has been called to the fact that in some cases cracked shells have been repaired by autogenous welding and that the result has not been satisfactory. Your committee recommends that, for the present at least, repairs to shells of tanks shall not be made by autogenous welding.

A. R. A. Standards and Recommended Practice.—The specifications for Classes III, IV and V tank cars, under the head of Couplers, Brakes and Trucks, prescribe A. R. A. Standards and Recommended Practice. It has developed that this, in connection with the Rules of Interchange, makes the standards and recommended practice mandatory in the case of tank cars, where they are not so in the case of freight cars generally. It was not the committee's intention to single out tank cars for greater compliance with the standards and recommended practice than is required in the case of other kinds of freight cars, and the committee recommends amending this requirement to read: "A. R. A. Standards and Recommended Practice as in the case of other classes of freight equipment cars."

Brakes.—Question has been raised as to the difference in the wording of the brake requirements for Classes I and II cars, reading: "Each car shall be equipped with air brakes of a capacity equal to not less than 70% of the light weight of car, and at least one hand brake operating the brakes of both trucks"; and those for later classes of cars, reading: "A. R. A. Standards and Recommended Practice."

When the general revision of the specification was made in 1916 the committee, in accordance with its policy of avoiding as far as possible retroactive requirements, did not recommend any change in this respect so far as Classes I and II, which were the existing cars, were concerned. The difference is more in form than in substance, the original 70% brake power being based on 60 lb., the pressure due to emergency application, while the 60% is based on the 50 lb. due to equalized service application. As there is so little difference in the final results, it is believed that the situation can be satisfactorily covered by adding, in the case of Classes I and II cars: "When any change is made in the brake arrangement it shall be made to conform to A. R. A. Standards and Recommended Practice."

Tank Cars for Hydrochloric Acid.—Certain products such as hydrochloric (muriatic) acid, vinegar, etc., because of their chemical reaction, cannot be successfully handled in the ordinary metallic containers. In the case of hydrochloric acid, which is extremely corrosive, it has been handled in wooden tanks mounted on flat cars. The tank car committee has not, so far, recommended any specification for such cars, but, at the suggestion of the Bureau of Explosives, in view of complaints as to leakage with existing designs of cars, the question of developing a standard specification has been taken up, and a sub-committee of five representatives of the largest acid shippers, in co-operation with the Bureau of Explosives, is engaged in experiments with steel and wooden tanks with glass and rubber linings, and with wooden tanks enclosed in steel shells insulated by plastic bituminous materials.

Summary of Recommendations.

Safety Valve.—Spring case, fig. 10-A. Make outside face of top rim straight instead of recessed as at present.

Spring case, figs. 9-A and 10-A.—Increase inside length of spring chamber from 6⅛ to 6¾ in. In spring case, fig. 10-A, vertical height of ports to be increased by same amount (⅝ in.) and bridges of ports widened so that area of ports will remain the same.

Valve disc, fig. 9-A.—Add fillet at junction of wings and disk tapering from ⅝ in. radius at the central boss to ⅛ in. at the rim, the thickness of wings to remain ⅜ in.

Valve disc, fig. 9-A.—Carry top contour out straight to a thickness of ⅝ in., with small top radius at the outside edge.

Valve plug, fig. 9-A.—Make straight cylindrical portion ½ in. wide instead of 3-16 in. as at present.

Bottom Outlet.—Classes III and IV cars, sec. 7 (c), first paragraph.—Omit sentence: "Additional attachments thereto having threads of other dimensions may be used," so that paragraph will read: "The bottom of the main portion of the outlet valve casting, or some fixed attachment thereto, shall have external V threads 5¼ in. in diameter, and a pitch of 4 threads to the inch."

Classes III and IV cars, sec. 7 (d).—Change first paragraph to read: "Effective July 1, 1922, in the case of new cars and replacements on existing cars, the bottom outlet pipe when applied to tanks of cars with center sills shall not project below the bottom line of sills more than the threaded length necessary to permit the application and removal of the bottom outlet cap."

Bottom Outlet.—Classes I and II Cars. Insert new paragraph in sec. 7 (d) as follows: "Effective July 1, 1922, in the case of replacements on existing cars, the bottom outlet pipe, when applied to tanks of cars with center sills, shall not project below the bottom line of sills more than the threaded length necessary to permit the application and removal of the bottom outlet cap."

Dome Closure Arrangements.—Dome cover, class IV car, sec. 6 (c).—Substitute for first and second paragraphs the following: "For cars built after July 1, 1922, the dome cover, if external, shall be secured by bolts; or if internal, by yoke and screw."

Welding.—That repairs to shells of tanks shall not be made by autogenous welding.

Couplers, etc.—Couplers, sec. 15; brakes, sec. 16; trucks, sec. 17; classes III, IV and V cars.—Add: "as in the case of other classes of freight equipment cars" to the requirement of A. R. A. Standards and Recommended Practice.

Brakes, classes I and II cars, sec. 16.—Add: "When any change is made in the brake arrangement it shall be made to conform to A. R. A. Standards and Recommended Practice."

Miscellaneous Committee Reports.

Loading Rules.—The committee, of which R. L. Kleine, Assistant Chief of Motive Power, Pennsylvania Rd., was chairman, and of which E. J. Robertson, Superintendent Car Department, Minneapolis, St. Paul & Sault Ste. Marie Ry., was a member, reported that it had given consideration to a number of proposed modifications in existing rules. Conferences were held with steel shippers, and also with the stone shippers of the Bedford, Indiana, district, to consider suggestions offered by them for changes in the rules. Trial shipments of twin loads of structural steel over 5 ft. high, and having the center binder omitted, were sent out at request of steel shippers to determine the necessity for center binders. The information obtained through these trial shipments was not conclusive and the trial has been further extended. The committee submitted a number of changes in loading rules for approval.

Arbitration.—The committee, of which T. H. Goodnow, Superintendent Car Department, Chicago & Northwestern Rd., was chairman, reported as follows:—During the year, cases 1167 to 1183, inclusive, were decided and copies sent to members. A copy of these decisions

is made part of the report. A vote of concurrence in the decisions is requested by the committee. With the approval of the general committee, your committee has continued the rendering of interpretations of such questions as have been asked by the members regarding the rules of interchange. The more important of these interpretations have been issued to the members in Supplement 1 to the 1920 Rules of Interchange. All recommendations for changes in the rules of interchange submitted by members, railway clubs, private car owners, etc., have been carefully considered by the committee and, where approved, changes have been recommended. Full particulars of changes in the rules of interchange recommended by the committee are appended to the report.

Brake Shoe and Brake Beam Equipment Committee's Report.

The committee, of which W. J. Bohan, Assistant General Mechanical Superintendent, Northern Pacific Ry., was chairman, and of which G. E. Smart, General Master Car Builder, Canadian National Rys., was a member, reported as follows:—

The 1920 brake shoe and brake beam committee, in its report presented at the last annual meeting engaged for the 1921 committee to give attention to eight subjects. These have been given careful consideration and are hereinafter reported on as follows:

1. Development of a Gauge to be Used for the Purpose of Determining the Hanging Heights of Existing Beams.—The committee believes the value of such a gauge is insufficient to warrant the expense incident to its development and manufacture for general distribution, for the reason that the old types of cars on which wide variations of hanging heights exist, and which prompted the idea of such a gauge, are gradually being eliminated, and there is an increasing demand and tendency to standardize brake beams and hangings, which will eliminate the necessity for such a gauge.

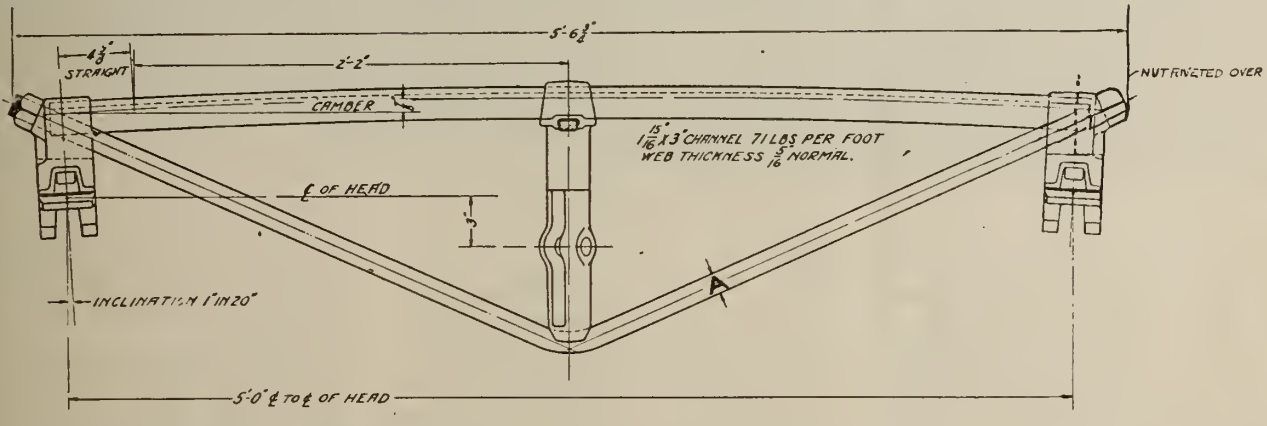
2. Code of Instructions Governing Brake Beam Maintenance Practices.—The committee considers this subject to be one of first importance, not only in the interests of efficiency and economy, but in being consistent with present standard practice, and recommends, as the first progressive step in this direction, the early adoption of a standard practice covering the reclamation of brake beams in such a manner that they will meet the standard specifications used in the purchase of new brake beams. A sub-committee was appointed to submit a tentative standard practice and has submitted one which is quite in detail and deserving of the careful consideration of the association. It is submitted herewith as a progress report and it is recommended that the report be submitted to the members of the association with the request that each give it careful consideration and submit his criticism to the committee to assist it in the final development of a standard practice that will satisfactorily meet the requirements.

3. Advisability of Introducing Into the Specifications Some Form of Brake Head Strength Tests.—This subject was referred to a sub-committee of engineers of tests, which conducted some laboratory tests on 21 different types and capacities of brake beams, representing the products of 7 different manufacturers, at the Collinwood laboratory, New York Central Lines, and submitted the report which is incorporated herein as a progress report. The conclusions reached by the sub-committee read in part as follows: "Tests of brake-beam heads do not appear necessary if the load in service always comes upon the center lugs. However, if in the opinion of the brake beam committee, the load is not always restricted to the center lugs, but is frequently carried principally on the toes, then a standard strength of head, and standard method of test for determining same, is desirable."

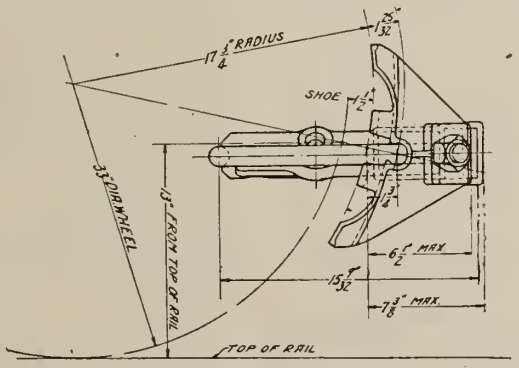
The committee believes that all of the stress on brake heads is frequently sustained by the top and bottom lugs, and that brake head strength tests are a proper and reasonable requirement and should eventually be incorporated in the specifications. Accurate and practical methods of making such tests are, however, still obscure and will require further careful study and investigation by the committee.

4. Advisability of Increasing the Initial Brake Shoe Thickness from 1½ to 1¾ in.—In view of the adoption as standards of the association, of brake heads of the A, B and C depths last year, to take care of existing brake beam clearance conditions, the committee deems it advisable that no changes be made in the standard brake shoe thickness of 1½ in. at this time.

5. Details of Contour for Top and Bottom Head Lugs and the Recesses in Brake Shoes Adjacent Thereto.—This subject refers to the recesses in the top and bottom brake head lugs which receive the top and bottom brake shoe lugs. The standard drawing does not show all of the dimensions and manufacturers were conferred with to determine the practice. It was found that the depth of the recesses is uniformly 1¼ in. from the 17¾ in. radial line; the width at the opening is in practically all cases 1⅝ in. and at the bottom varies from 1⅛ in. in the majority of cases to 1 7-16 in. Inasmuch as the width of the recesses at the bottom is 1⅛ in. in the majority of cases in practice, and that this dimension provides ample clearance, the committee recommends that section CC, sheet M. C. B. 17, be revised to show the dimension 1⅛ in. as the width of the bottom of the recesses adjacent to the top and bottom brake head lugs, and that the secretary be so authorized.



BEAM NUMBER	ROD DIA.	BEAM CAPACITY	THREADING OF ROD
"2	1⅛"	12000#	U.S.STD 1⅛"-7 THDS. 2½" LONG
"2+	1¼"	15000#	U.S.STD 1¼"-7 THDS. 2½" LONG



Recommended Brake Beam No. 2 and No. 2 plus capacity.

6. Brake Shoe Key Design and Details Involved in the Fit of Shoes, Head Face and Key.—This subject was referred to a sub-committee for investigation and its report is submitted herewith as a progress report with the understanding that the investigation will be continued by the committee.

7. General Brake Beam Hanging.—This subject was referred to a sub-committee for investigation, and its report was forwarded to the committee on car construction, which has the matter under consideration in connection with standard truck design.

8. Reversible Strut.—This subject is still under consideration and the committee has nothing to report at this time.

Standard Depth of Brake Head.—Last year there were adopted as standards three depths of brake heads designated as A, B and C, to meet clearance conditions obtaining on various cars. It seems to the committee that but the one designated A should be standard, and the others permissible for use only when the standard cannot be applied, maximum depth head that can be applied to be used in all instances. The committee recommends that heads B and C be removed from the standards and their use be permitted as alternates where the standard A head cannot be applied.

Status of No. 2 and No. 2 Plus Standard Brake Beams.—The status of the no. 2 and no. 2 plus standard brake beams, as regards the weights of cars to which each should be applied, has received special consideration at different times during the year. The train brake and signal committee and the brake shoe and brake beam equipment committee were requested by the car construction committee to submit their joint recommendations on this subject. The joint meeting of the two committees referred to was held at New York on April 5, 1921, and the following motion was carried by a majority, but not unanimous, vote:

"The brake shoe and brake beam equipment and the train brake and signal equipment committees have considered the matter of no. 2 and no. 2 plus brake beams, and recommend that these beams be used on cars of the following weights for four-wheel trucks:

Brake beam.	Car weight.
2. .	35,000 to 48,000 lb.
2 plus	48,000 to 58,000 lb.
3. . .	Over 58,000 lb.

"In the case of six-wheel trucks, the above weights should be increased 50% for the beams specified."

Report of this action was submitted to the car construction committee.

Formula for Brake Power on Freight Cars.—The car construction committee, in its last year's report, recommended a new formula for brake power on freight cars as follows:

$$0.40\left(\frac{W-w}{4}+w\right) = 0.1W + 0.3w$$

but not more than $0.75w$

in which W = loaded weight of car, maximum.
w = empty weight of car.
$W - w$ = maximum allowable load.

The association requested the train brake and signal equipment and the brake shoe and brake beam equipment committees to submit the joint recommendations of their committee on this subject. The joint meeting was held Nov. 18, 1920, and a proposal to change the brake ratio as suggested was unanimously disapproved. The following report was submitted to the car construction committee:

"The purpose of the proposed change in braking power, is to make the percentage of braking power more uniform on partially loaded cars, in which there is a wide range in the ratio of light weight to loaded weight. While the proposed change will accomplish in a small measure the object sought, it will do so only by sacrificing the uniformity of braking power on empty cars. As the factor of retardation is highest when the cars are empty, it is essential that uniform braking power be maintained for empty cars.

"The adoption of the proposed braking power formula will result in increasing the percentage of braking power on high capacity cars, such as 70-ton hoppers having 6 x 11 journals, to a point in excess of the capacity of standard 10-in. freight brake equipment, and for comparatively low capacity tank cars the application of the formula will in some cases reduce the effectiveness of the hand brake.

"It also provides for a lower percentage of braking power on refrigerator cars weighing approximately 55,000 lb. and having 5 x 9 journals. As a rule, such cars are handled in short, high speed trains. Because of the relatively high speed at which these cars are handled and the character of lading carried by them, a reduction in braking power is not considered desirable, especially in view of the fact that they are handled in short trains in which a high percentage of braking power is less objectionable than in the case of long trains.

"In view of the foregoing, the committee does not consider it advisable to adopt the proposed formula for braking power and brake beam capacities."

"The matter of necessary changes in the Rules of Interchange to take care of the no. 2 and no. 2 plus brake beams, having 12,000 and 15,000 lb. capacity respectively, was then considered. In view of the fact that the status of the 12,000-lb. and the 15,000-lb. brake beams has not been established as regards their application, it was not possible for the committee to submit definite recommendations to the committee on car construction at this time.

"This docket was considered jointly by the committee on train brake and signal equipment and the committee on brake beam and brake shoe equipment, and the Secretary was instructed to advise the committee on car construction that the report prepared by the subcommittee, above referred to, was the unanimous opinion of these two committees."

Standardization of Brake Beams Having Central Head Hangings.—The committee believes that a start should be made to standardize brake beams having central head hangings only, and having a maximum depth of brake head of 6½ in. and a maximum depth of brake beam of 7⅜ in., and wishes to submit to the Association as recommended practice the accompanying drawing showing such a beam of the no. 2 and no. 2 plus capacity.

Accompanying the report were the following appendices: Recommended practices on brake beam reclamation and repairs; report of sub-committee on brake beam head strength tests; brake shoe key design and details involved in the fit of shoes, head faces and key.

Labor and Material Prices Committee's Report.

The committee on labor and material prices, of which A. E. Calkins, District Master Car Builder, New York Central Rd., was chairman, and of which I. N. Clark, Master Car Builder, Grand Trunk Ry., was a member, reported as follows:

During the past year your committee has made certain investigations, and as the result of same, submits the following report on Freight Car Rules 101, 107, 111 and 112, and Passenger Car Code Rules 21 and 22:

The material prices set forth in the accompanying recommendations for 1921-22 rules are based on the average prices paid by five large representative roads during 1920, supplemented by numerous current quotations from several large railway supply houses. As in the present code, all material prices include suitable allowances to cover freight transportation charges, direct and indirect store expense, fabricating labor when involved, and interest on stock investment, based on average monthly inventory balance multiplied by interest rate and result divided by total annual material disbursements. In recommending many of the material prices, due consideration was given to the fact that the roads had stocked up on materials at prices effective before the decline, and therefore the full effect of the recent decline in prices will not be represented in the prices recommended for next year. In establishing prices for practically all second-hand materials, the same percentage of cost new as prevails in the present rules was used. Scrap materials were averaged and current market prices less transportation charges to scrap plant were set up as credits.

Labor allowances shown in hours and tenths are substantially the same as those in the present code, which were based on time studies in 1915 and 1916, one of the most important exceptions being the fact that certain allowances for sills, bolsters, etc., which in the present code include jacking of the car, have been modified so that the jacking cost is omitted and is to be added as a separate operation where consistent. It is felt that this will be of considerable advantage to bill clerks throughout the country, in that there will be removed the necessity for deducting, under certain combinations, the jacking price heretofore included in two or more of the operations in the combination.

The principal labor rate per hour (item 172, rule 101), is recommended at $1.20, the same as authorized in the existing rules. As noted above, no changes have been made in the labor allowances as a whole, nor in the rates per hour, this for the reason that overhead studies made on six representative roads during Oct. and Nov. 1920, also investigations made in Feb. and March, 1921, as to actual time consumed on these roads in performing the work as compared to the arbitrary allowances authorized under the rules, indicate that the roads of the country, on the average, are being fairly compensated under the rules for the work performed by them on foreign cars. Your committee therefore feels that if its recommendations in the annexed report are adopted it will be possible throughout the coming year for all roads to handle repairs of foreign equipment without losses to the repairing line.

New Sleeping Cars, Canadian National Railways.

Additional passenger equipment, delivered to the Canadian National Rys. during this year included 18 sleeping cars, 12 dining cars, and 20 baggage cars, specifications for all of which were given, in connection with the information as to the placing of orders, in Canadian Railway and Marine World for May, 1920. The sleeping cars' general dimensions, etc., are as follows:—

Length over end sills	73 ft. 6 in.
Length between truck centers	57 ft. 6 in.
Length over buffing (approximate)	82 ft. 4½ ins.
Width over side sills	9 ft. 9⅝ in.
Width over all at eaves	10 ft. 1⅞ in.
Width at clerestory	5 ft. 11¼ in.
Height, track to roof at centers	14 ft. 2 in.
Height over lamp jacks approx.	14 ft. 5 in.

Sleeping Car, Canadian National Railways.

Height, rail to eave moulding	11 ft. 2½ in.
Height, track to sill at end	3 ft. 7⅝ in.
Height, track to sill at center	3 ft. 9 in.

They are of steel underframe, steel superstructure construction, with steel plate exterior and wood interior, and follow closely the Canadian National standards of design. The cars are 73½ ft. long over the end sills, carried on 6-wheel trucks, the interior arrangement consisting of 12 sections and one drawing room.

The underframe construction consists of a built-up center sill 26 in. deep, made up of two 5-16 in. plates, having 6 x 4 x ⅝ in. angles on the outside at the top, and 3 x 3 x ⅜ in. angles both inside and outside at the bottom. The side sills are 5 in. x 11.6 lb section Z bars with a 2½ x 3 x ¼ in. angle attached to the same with ¾ in. rivets. The side and center sills are fastened together by ¼ in. pressed steel pans, forming the body bolster, securely riveted to side and center sills. In addition, tie-straps ⅝ in. thick, are riveted to the lower side of pressed pans, lower angles of built up center sill, and center sill filler. In the center of the car are two cross bearers, built up of 5-16 in. pressed pans, connected to the plates forming the sills by ¾ in. rivets. For carrying the flooring, pressed steel pans, spaced 2 ft. apart, are securely riveted to side and center sills. The body center bearings are of cast steel, and equipped with the Coleman center pin locking device to lock the truck to the body of the car.

The pressed steel floor carriers referred to above are 1-16 in. thick, and support 6 fir floor stringers, securely fastened to the steel plate by ⅜ in. carriage bolts. Between the stringers, next to the 1-16 in. plate, is red rope paper, a course of 3 ply salamander, a 7-16 in. air space, and a ½ in. layer of Keystone hair felt, the top of this being even with the tops of the floor striners. On top of this is another layer of red rope paper, throughout, then no. 22 galvanized steel chanarch, and finally a layer of flexolith composition flooring ⅝ in. thick.

The side and end framing closely follow C.N.R. standard practice, consisting of posts of pressed steel riveted to the side sill Z bars at the bottom, and to plate Z bars at top, to the top part of which Z bars the carlines are riveted. Pressed sections are used for the window casings. The end framing door posts are of I beam section, and the corner posts are built up of angle irons riveted to Z bars. A continuous steel rail extends the length of the car body. The open hearth steel plates are 3-16 in. thick below the belt rail, and at the ends, and the portions above the belt rail, and the letter boards, are ⅛ in. thick. All cars are equipped with the latest standard anti-telescoping device. Superstructure insulation consists of an outer course of 3 ply salamander, and an inner course of ½ in. Keystone hair felt, applied to sides and ends of car, and securely attached to the frame of car by clips.

In the roof construction, the carlines are of pressed steel, with yellow pine furrings bolted to them for the application of the wood roofing. The roof boards are 13-16 in. poplar, 3¼ in. face in the upper deck, and 2¼ in. face in the lower deck. The hood roof boards are of basswood. Roof and hood covering consists of national standard roofing canvas for both decks; copper gutters are provided over vestibule side doors. Roof insulation consists of one course of 3-ply salamander, applied to the back of deck panel plates, and, back of all, agasote head lining.

The interiors are finished in Mexican mahogany throughout, except above the wainscoting in men's and women's saloon, lavatory and drawing room annex, which is finished in poplar, and the deck sill moulding and upper deck finish, which are steel. The upper portions of men's and women's saloons, lavatory and drawing room annex are painted a light color and varnished. A feature of the interior finish is the absence of any sharp corners against which passengers might injure themselves.

The mahogany body end doors, are painted on the outside to match the interior of the vestibule, and on the inside to match the interior finish. All interior doors are of wood, to match the interior finish. The end doors are equipped with drop sash, arranged with a latch so that the sash can be dropped to give an opening of about 2 in., with the next stop arranged so that the sash will be half-open. Anti-pinch end door hinges are applied. The window lay-out is clearly shown in the accompanying illustrations. All sashes are double, the outside sashes being of mahogany, the inside sashes matching the interior finish. The cars are completely fitted with the latest arangements of weather stripping, brass frame and copper wire sliding screens, sash locks and metal window deflectors. The end doors are fitted with one light of 3-16 in. plate glass in the drop sash, 14 x 24 in. The cars are well equipped with mirrors, there being one 28 x 52 over washstand in smoking room; one 28 x 38 in. over washstand in women's lavatory; one 28 x 52 in. over sofa in

Floor Plan, Sleeping Car, Canadian National Railways.

smoking room; one 16 x 30 in. over dresser shelf in drawing room annex; one 20 x 60 in. on partition in drawing room; one 12 x 60 in. on entrance door to saloon in women's lavatory, and 13 section mirrors 3½ in. x 27 in.

The portieres and draperies are of C.N. standard quality, with window shades of no. 77 silk faced pantasote. Berth curtains are of green mohair, and luminous berth numbers are sewn on the upper and lower curtains for each section. Seats are of metal frame, with standard seat slides, with wooden ends to match the interior finish, and covered in short nap plush friezette. The smoking room and women's lavatory each contain a comfortable chair, the smoking room contains two upholstered chairs and sofa finished in Spanish leather, and the drawing rooms contain standard sofas. The berths are of the latest standard design. The cars are equipped with 2-compartment water coolers, paper cup-vending machines conveniently located, and half gallon silver plated thermos bottles in each drawing room. Each drawing room annex is equipped with a white metal single bowl washstand, with dental faucet. The women's lavatory is equipped with a 2-bowl washstand, with combined dental bowl, and the smoking room contains a 3-bowl washstand with 2 dental bowls. Fittings are nickel plated, and sanitary towel holders are applied throughout.

Sleeping Car, Canadian National Railways.

The cars are equipped with the C.N.R. standard air pressure water system, with 26 x 96 in. water tank and metal tank box; also a temperature control device for heating water, and 1¼ in. pipe applied around the upper part of water tank to prevent freezing, in addition to the loop of 1¼ in. heater pipes. The Vapor Car Heating Co's system of heating is used, and is arranged with 5 pipes 1½ in. diam. on each side of car, controlled by 2 valves, one controlling 2 pipes and the other 3, thus permitting convenient regulation of the heat, as 2, 3 or 5 pipes can be cut in as desired. The exhausts from the steam traps are located under the cars, in such a way that there is no liability of condensation blowing on to the axle generator, thus removing a common cause of belt slipping. The steam train line is of 2 in. extra heavy steel pipe, and the heater coil pipes are extra heavy lap welded wrought iron, of C.N. standard design.

Ventilation is provided by 21 Mudge peerless ventilators, with slope conforming to contour of roof, 8 in body of car, 4 in smoking room, 4 in drawing room, 2 in women's lavatory, and one in each of 3 saloons.

The floor covering is rubber tiling ¼ in. thick, with standard 1½ in. red and green squares, in smoking room, men's saloon and passageways, with high quality carpet of C.N. standard pattern throughout the remainder of the car.

The electric lighting system includes a ball bearing, body-hung generator, belt driven from axle, of 3 k.w. capacity, and 350-amp. hr. batteries. The cars are fitted with luminous push buttons and switches to the berth lights, in upper and lower berths, and annunciators and all wiring, and switchboard installation details, are in accordance with the railway's standard practice.

Miner friction draft gear, type A-5-p, and Sharon couplers, are used, together with the Chaffee drawbar centering device. The vestibules are of the latest standard steel construction wide type, the end sheets of which are solid and contain no glass. The vestibules are of wood and contain a 25 x 28½ in. sheet of ¼ in. polished glass. The vestibule diaphragms are of C.N. standard design.

The air brake system is the Westinghouse schedule single LN-18-12, withK-1 slack adjuster, designed for 105 lb. brake cylinder pressure, a feature being the use of American Steel Foundries' clasp type brakes. Braking power is 75% of light weight of car, with brake cylinder pressure 50 lb. per sq. in. Each car is fitted with two conductors' valves, type B-3/A; the air signal system is Westinghouse schedule K, and each car has two valves. The brake pressure cord is red and the signal pressure cord is white, and these cords extend from each end of car to bulkhead partition, and not through the body of the car.

The car bodies are mounted on Commonwealth 6-wheel cast steel trucks, with an 11 ft. wheel base, equalized as shown. Miner type H-445 side bearings are used. Wheels are C.N.R. standard 36½ in. steel tired, with M.C.B. standard axles and 5 x 9 in. journals.

The cars were built by the Canadian Car and Foundry Co., Montreal from specifications prepared by the C.N.R. They are operating between Toronto and Ottawa, and in main line service out of Montreal, and are numbered 1541 to 1558 inclusive, and named after Canadian towns and cities. The names in accordance with the above numbers, consecutively are, Ottawa, Portage-la-Prairie, Dauphin, Canora, Yale, New Westminster, Neepawa, North Bay, Somerset, Bathurst, Chaudiere, Bridgewater, Souris, St. Jerome, Yarmouth, Strathcona, Rideau and Borden.

Reduction of Live Stock Freight Rates.

Following the conference at Ottawa, on July 19, between some members of the Board of Railway Commissioners and freight officials of the principal railways, the following letter was sent on July 26 by W. B. Lanigan, Freight Traffic Manager, C.P.R.; F. J. Watson, General Freight Agent, G.T.R., and Geo. Stephen, Freight Traffic Manager, Canadian National Rys., to the Chief Commissioner:

"The carriers have given very careful consideration to the different representations made. In reply they must emphasize, as was shown by the schedules submitted, that the present rates cannot of themselves be considered as unduly high or unreasonable. The carriers, however, appreciate the importance, from a national standpoint, of their co-operation at this critical stage of the live stock industry; the necessity for preserving the breeding, dairy and feeding herds on Canadian farms; the maintenance of the fertility of the land; the development of agriculture, and the necessary conservation of feed supply. Subject to the concurrence of the interested parties, and relying on your assurance that rate reductions on live stock for the furtherance of these objects would be regarded by your Board as dictated by the national necessity of preserving a basic industry, and therefore not as a precedent in connection with tolls on other commodities, we beg to advise that the carriers will publish rates as follows:—

"Western Canada and British Columbia, restore rates in effect prior to Sept. 13, 1920.

"Eastern Canada locally, restore rates in effect prior to Sept. 13, 1920.

"Western Canada to Eastern Canada, i.e., to Montreal, Toronto and west:—From Winnipeg, 85c.; Moose Jaw, $1.10½; Saskatoon, $1.12½; Prince Albert, $1.13½; Calgary and Edmonton, $1.14½ per 100 lb. in each case, with corresponding reduction from other points.

"It is the carriers' hope that this assistance will help to tide the industry over the present crisis, and preserve the breeding, dairy and feeding herds of Canadian farms until the industry resumes, as it undoubtedly will, a more profitable basis."

Railway Operating Revenues, Expenses, and Other Statistics for May.

Steam railway operating revenues, expenses and other statistics for April are given very fully on page 482 of this issue. Since the pages went to press, the May statistics have been received, which show that the railways as a whole made a slight improvement over April, in so far as operating ratio is concerned, although gross revenues continued to decrease. The latter show a decrease of $734,217 from April, and a decrease of $3,149,800 from May 1920, which, considered in connection with the higher rates prevailing in 1921, indicates the great falling off in traffic in May 1921 as compared with May 1920. The gross operating revenues of the Canadian Government Rys. decreased from $3,071,611 in May 1920 to $2,914,972 in May 1921; those of the Canadian Northern from $4,718,730 to $4,427,993; those of the C.P.R. from $16,759,316 to $14,122,538, and those of the G.T.R. from $6,098,104 to $5,957,778; while the Grand Trunk Pacific gross revenue increased from $875,476 to $956,762 in May 1921.

Although the total operating revenues decreased so materially, the operating expenses showed a better percentage of decrease, being 3% less than in April 1921, and 9% less than in May 1920. The greatest decreases in the expenses are in the amounts for maintenance of way and structures, and maintenance of equipment, but transportation expenses did not show much decline from those for May 1920. The most striking decrease in expenses as between May 1320 and May 1921 in C.P.R. expenses for maintenance of way, and maintenance of equipment. Maintenance of way cost $2,681,145 in May 1920 and $1,927,082 in May 1921, while maintenance of equipment cost $3,573,093 in May 1920 and only $1,983,998 in May 1921. The G.T. Pacific also cut its expenditures for maintenance of way, and maintenance of equipment, a great deal as compared with May 1920. The figures for expenses throughout indicate that the railways are practising economies in all directions, and keeping expenditures down to a minimum.

That the railways, considered as a unit, are slowly, but surely, bringing the operating ratio down, is seen in the fact that the figure was 108 for Jan. 1921; 105.1 for February; 96.64 for March; 96.17 for April, and 95.29 for May. This latter figure is better than that for May 1920, when it was 95.55. An examination of the statistics shows, however, that the decrease in the operating ratio of the lines as a whole is largely due to the results being secured by the C.P.R.; all of the other large roads, except the G.T. Pacific, showing a more unfavorable operating ratio for May than for April. The C.P.R.'s operating ratio decreased from 81.21 for April to 76.57 in May, and the G.T. Pacific decreased from 181.24 to 142.23; the Canadian Government Rys. increased from 116.44 to 127.92, Canadian Northern from 126.71 to 129.67, and G.T.R. from 92.60 to 93.93 in May. These figures, however, are but logical results of the traffic conditions under which the various railways operate, in combination with the operating conditions obtaining. Only five of the large U.S. roads had a more favorable operating ratio in May than did the C.P.R.

The tons of freight carried decreased from 8,589,270 in May 1920, to 6,856,595 in May 1921, the figure for April 1921 being 7,188,000. The average haul for May was 232.2 miles, compared with an average haul of 260.7 miles in May 1920, and 243.3 miles in April 1921. The ton mileage of revenue freight in May 1921 decreased 26.5% from that of May 1920. The passengers carried decreased 11%, from May 1920, and the average passenger journey decreased from 68.4 to 64 miles. This meant a decrease in revenue passenger mileage of about 17% from May 1920. The number of passengers carried in May 1921 was 3,463,747, and in April 3,511,000, the average journey being 62.4 miles.

The average freight receipt per ton per mile for May 1921 was 1.372c., against 1.087c. for May 1921, an increase of 26%. The average receipt per passenger mile increased from 2.814 in May 1920 to 3.164 in May 1921, or 12%.

The payroll was $19,415,037 for May 1921, against $23,076,014 for May 1920. In May 1920 the payroll was 64.54% of revenue and 67.55% of the operating expense; in May 1921 is was 59.55% of revenue and 62.49% of expenses.

As above noted, the Grand Trunk Pacific showed a remarkable improvement in May 1921, over May 1920, and the results as shown are of particular importance in illustrating the conditions which confront the G.T.P. and other Government roads. The G.T.P. transportation expenses in May 1920 were $570,856, and for May 1921 they were $670,164; in May 1920 the railway handled 49,892,015 ton miles of revenue freight, and in May 1921 it handled 89,245,788 ton miles. Passenger train miles increased in May 1921 over May 1920. On comparing the figures for transportation expenses and for freight tonnage handled, it is evident that the increase in revenue tonnage is much greater proportionately than the increase in transportation expenses, or, conversely, the additional tonnage handled by the G.T.P. was carried at a lower unit cost. The average receipt per ton mile was but $0.799 in May 1921, against $1.184 in May 1920. If the rate had been the same as in 1920 the operating ratio would have shown still more improvement than it did. The figures given illustrate the great necessity of this and the other Government roads — more traffic.

Joint Section Disputes Between C.P.R. and G.T.R. — In reference to the article on this subject published in Canadian Railway and Marine World for August, on page 432, we are advised that one point at issue is whether or not the C.P.R. has the right, under the agreement for its use of G.T.R. tracks between Toronto and Hamilton, to the use of the industrial tracks coming off what is known as the old belt line, on the joint section, and also the industrial spurs at Swansea, and whether the Y at Burlington is part of the joint section. As stated previously, the matter has been referred to arbitration, J. T. Arundel, formerly General Superintendent, Ontario District, C.P.R., representing that company, and F. H. McGuigan, formerly Fourth Vice President, G.T.R., representing the latter company. The question of the C.P.R.'s right to handle express business on the joint section is being discussed.

Traffic Orders by Board of Railway Commissioners.

Carload Shipments of Fruit and Vegetables.

31,311. July 26.—Re application of the Dominion Agriculture Department on behalf of Ontario Fruit Growers' Association, Niagara Peninsula Fruit Growers' Association, Niagara Peninsula Growers' Limited, the Fruit Growers of the Niagara District, et al, for an order directing the suspension of regulation governing partial unloading of carload shipments of fruits and vegetables as provided in Canadian Express Co.'s tariff C.R.C. 1837, issued March 24, 1921, effective May 1, 1921, and Dominion Express Company's tariff 86, C.R.C. 4576, issued March 24, 1921, effective May 1, 1921. Upon hearing the application at Ottawa on May 17, 1921, the Dominion, Canadian and Canadian National Express Companies, the Express Traffic Association of Canada, the Dominion Agriculture Department, the Niagara Peninsula Fruit Growers' Association, and the fruit shippers being represented at the hearing, and what was alleged, the Board orders that the application be dismissed.

Grain Export Rates, Georgian Bay to Quebec.

31,313. July 26.—Re application of Quebec Harbor Commissioners, and Quebec Board of Trade, for an order under the provisions of the Railway Act, directing that export rates on grain between Georgian Bay ports and the City of Quebec be placed on the same basis as to Montreal. Upon hearing the application at Quebec, Feb. 3, 1921, in the presence of counsel for the Quebec Harbor Commissioners, the Quebec Board of Trade, the Grand Trunk, Canadian Pacific, and Canadian National Railways, and what was alleged; and upon reading the exhibits filed, and what has been submitted in support of and against the application, the Board orders that the application be dismissed.

Flax Rates to Port Arthur and Fort William.

31,314. July 27.—Re application of Winnipeg Grain Exchange, for an order disallowing tariffs filed with respect to bulk shipments of flax, western points to Port Arthur and Fort William, Ont., and for an order requiring the Canadian Pacific, Grand Trunk Pacific, and Canadian National Railways to file tariffs restoring the differential of 1c. per 100 lb. on bulk shipments of flax, Port Arthur or Fort William, over the rate on wheat. Upon hearing the application at Ottawa, Nov. 23, 1920, in the presence of counsel for Winnipeg Grain Exchange, Winnipeg Board of Trade, Montreal Board of Trade, Toronto Board of Trade, the Canadian Pacific, Grand Trunk and Canadian National Railways, and what was alleged; and upon the report and recommendation of the Board's Traffic Officer, the Board orders that the application be dismissed.

Nipissing Central Railway Passenger Fares.

31,317. July 27.—Re application of Nipissing Central Railway Co. for a general advance in tolls for the carriage of passengers. Upon hearing the application at Haileybury, Ont., May 14, 1921, in the presence of counsel for the Nipissing Central Ry., the Town of New Liskeard, and the Township of Buck, and what was alleged; and upon reading the

written submissions filed, the Board orders that the company be authorized to file with the Board a tariff providing for an average increase of 20% in existing passenger rates; said tariff to be effective thereafter on five days notice, posted in accordance with the requirements of the Railway Act, 1919; and the Board further orders that the company file with the Board monthly statements showing, in detail, its earnings and expenses, and such other details, if any, as may be called for from time to time by the Board.

Classification of Office Furniture, Etc.

31,318. July 28.—Re application of Canadian Manufacturers Association, on behalf of the Office Specialty Co., for a reduction in the classification minimum weight of mixed carloads of office furniture, filing cases, and supplies. Upon hearing the application at Ottawa, Dec. 21, 1920, the Canadian Manufacturers' Association, the Canadian Freight Association, the Canadian Pacific, and Grand Trunk Railways being represented at the hearing, and what was alleged; and upon the report and recommendation of the Board's Traffic Officer, the Board orders that the application be dismissed.

The United States Railways' Financial Position.

The negotiations between the U.S. Railroad Administration and the railway executives, with a view to a speedy settlement of the financial relation between the Government and the railways, were reviewed in Canadian Railway and Marine World for August, up to the point to which they had then been carried, and further information in connection with the U.S. railways' financial position was given. The May operating figures showed a net representing a return of 2.41% on the capital invested in railway properties, but even though this was a vast improvement over May 1920, examination shows that this result was obtained only by cutting expenditures for maintenance of way and structures, and maintenance of equipment, by over $89,000,000, compared with 1920. As the total net operating income was only $37,000,000, it is evident that if maintenance had been kept up in accordance with former standards, the roads would have suffered a large deficit. The Transportation Act provided for a return of 6% to the holders of railway securities, but, taking the U.S. roads as a unit, it is evident that net earnings will have to be materially increased before capital receives the return which has been decided upon as reasonable and just.

The June earnings showed some improvement, the net operating income being $51,778,000, representative of an annual return of 3.1% on the investment. However, to earn the 6% allowed by law, the railways should have earned a net $47,000,000 greater than they did.

The result of the negotiations between U.S. President Harding and his advisers, on the one hand, and the railway executives, on the other, as reviewed in our August issue, and in which the Director General of Railroads and the War Finance Corporation's directors participated, was that the members of the Administration became thoroughly convinced of the advisability, in the national interest, of restoring railway credit by funding the debts of the railways to the Government, and of making arrangements for the Government, as represented by the Railroad Administration, to pay the railways what it owes them, as quickly as possible. As pointed out in our previous article on this subject, the railways have cut their purchases of new material and equipment to the absolute minimum, are laying up their bad order equipment, instead of repairing it, and in many cases have not been able to pay their bills for material and supplies secured previously, which has resulted in credit restriction, business stagnation and widespread unemployment. In a message to Congress dealing with the matter, and advising the funding of the debts of the railways to the Government, President Harding said: "In the case of the railways there is a contractual and moral obligation . . . . Railway solvency and efficiency are essential to our healthful industrial, commercial and agricultural life. Everything hinges on transportation."

After further conference, a method of funding the railways' debts to the Government was decided upon, and the necessity of asking Congress for an appropriation with which to pay the Government's debts to the railways was obviated. The Administration's proposal is that the railways be allowed to issue securities, bearing interest at 6%, for what they owe the Railroad Administration, for additions and betterments made by it during the period of Federal control, and charged to the railways. The railways would hand these securities over to the Railroad Administration. It is further proposed that the War Finance Corporation, which has large sums on hand, buy these securities from the Railroad Administration. This would furnish the Railroad Administration with the funds necessary to pay its debts to the railways, arising from the period of Federal control, and the 6 months' guarantee period immediately following. The War Finance Corporation, it is proposed, will hold the securities for the time being, and, when conditions become more favorable, will sell them to investors. Viewing the subject broadly, it is seen that the ultimate effect of the proposal is to have the public extend the necessary credit to the railways indirectly, instead of the Government doing so directly.

It will be remembered that great differences of opinion have existed between the Railroad Administration officers and the railway executives, as to the amounts which the Railroad Administration owes the railways, for alleged undermaintenance of the railway proporeties during Federal control. The railway executives based their claims largely on the inefficiency of labor during that period, and held that the accounting method of determining adequacy of maintenance, wherein the amount of money spent for labor and material serves as the standard of maintenance, is unsatisfactory; and that actual physical condition is the only fair means of judging. The Railroad Administration has consistently taken the stand that these claims are excessive, and has been supported in this by a recent Interstate Commerce Commission judgment. It is, therefore, a condition of the funding privilege which it is proposed to extend to the railways that these claims be modified considerably, and, so far as they are based on alleged inefficiency of labor during the period of Federal control, be dropped altogether. The figures in connection with the amounts owed each other by the railways and the Government were given in our August number. It may be added that if any railway is convinced of the justness of its undermaintenance claims, there is nothing in the proposed legislation to prevent it from attempting to secure a favorable legal decision, but in doing so, it would automatically lose the opportunity of taking advantage of the refunding proposition.

Bills to carry out the recommendations of President Harding and his Cabinet, as above outlined, have been introduced in both houses of Congress. That in the House was introduced by Chairman Winslow, of the House committee on interstate and foreign commerce, and provides that the amount which can be expended by the War Finance Corporation in purchasing the funding securities shall not exceed $500,000,000. The Senate bill, which is to the same effect, was introduced by Senator Townsend, a member of the Senate committee on interstate commerce. In his message to Congress concerning the proposed legislation, President Harding further said: "I can readily believe that so simple a remedy will have your prompt sanction. The question of our obligation cannot be raised, the wisdom of affording early relief is not to be doubted, and the avoidance of added appropriation or liability will appeal to Congress and the people alike."

Hearings on the bill introduced by Senator Townsend were begun before the Senate committee on interstate commerce, one of the first witnesses to be examined being Eugene Meyer, Jr., Director of the War Finance Corporation, who expressed a favorable opinion of it. Director General Davis, of the Railroad Administration, also spoke in favor of it. It is stated that President Harding and his Administration are anxious that this legislation be passed with as little delay as possible. It may be safely said that the proposed legislation is fully recognized as being highly desirable, and it is felt that with the return of adequate railway credit, and purchasing power, the cause of a great many economic ills will be eliminated, and that an important forward step will have been taken in the restoration of normal business activity. In view of the close relationship which has always existed between the economic situation in the U.S. and that in Canada, it may confidently be expected that this action in connection with the U.S. transportation industry will tend to favorably influence the Canadian situation.

The examination of various railway executives before the Senate committee of investigation into the railway situation, reported fully in previous issues of Canadian Railway and Marine World, has been completed. Examination of shippers and representatives of labor organizations before this committee has not been proceeded with, and it is not likely that it will be started until some time in September.

The Dominion Iron & Steel Corporation is negotiating with the Canadian National Rys. for running rights between the Sydneys, Nova Scotia, for hauling raw materials, etc.

Consolidation of Canadian National and Canadian Express Companies.

The announcement made in Canadian Railway and Marine World for August, that the Canadian National and Canadian Express Co's were to be consolidated, and that John Pullen and W.C. Muir would be President, and Vice President and General Manager respectively, was confirmed by a circular dated Aug. 1, issued by D. B. Hanna, Chairman of Board of Directors, Canadian National Ex. Co. and H. G. Kelley, Chairman of Board of Directors, Canadian Ex. Co. as follows:—"Effective Sept. 1, the operation of the Canadian Ex. Co. and the Canadian National Ex. Co. will become consolidated and the combined business will be continued thereafter under the name of the Canadian National Express Co. Mr. John Pullen, heretofore President, Canadian Ex. Co., will be President, Canadian National Express Co., and W. C. Muir, heretofore General Manager, Canadian National Express Co., will be Vice President and General Manager."

The President, Vice President and General Manager, and other officials with jurisdiction over the company's entire system, have their offices at 95 McGill St., Montreal, known heretofore as the Canadian Express Building, and which is owned by the G.T.R. Co.

Jno. Pullen, as President, Canadian National Ex. Co., issued the following circular, post-dated Sept. 1:—"The management of the Canadian National Ex. Co. and the Canadian Express Co. having been combined, the business of those companies, on and after Sept. 1, will be carried on in the name of the Canadian National Express Co. Announcements of the official organization are being made, and instructions are being issued by heads of departments. Until otherwise instructed, all employes in the service of the two companies will continue their present duties. Until new forms and book records can be printed and distributed, agents will continue to use the present stock. The joint tariffs and classifications issued by the Express Traffic Association of Canada, or other traffic agencies, and by the two express companies, also the general rules and instructions, will be continued in effect. The management has every reason to know and appreciate the faithful services of the employes in the past, and confidently expects the same loyalty and efficiency in the future."

General Officials—President Pullen also issued another circular, post-dated Sept. 1, announcing the following appointments of officials for Canadian National Ex. Co. effective that date.

W. W. Wiliamson, heretofore General Auditor and Superintendent of Tariffs, Canadian Ex. Co. to be General Auditor, office, Montreal.

W. H. Bryce, heretofore Superintendent, Money Order Department, Canadian Ex. Co. to be Manager, Money Order Department. Office, Montreal.

J. H. Sonne, heretofore Assistant Treasurer, Canadian Ex. Co. to be Assistant Treasurer. Office, Montreal.

The circular also stated that the following Canadian National Rys. local treasurers will also act in the same capacity for the Canadian National Ex. Co.:—S. J. Potter, Toronto, W. LeB. Ross, Winnipeg, C. E. Buckley, Vancouver.

W. W. Williamson, General Auditor, issued a circular, post-dated Sept. 1, announcing the following appointments of officials for Canadian National Ex. Co., effective that date.

J. G. Swalwell, heretofore Auditor, Miscellaneous Accounts, Canadian National Rys., Toronto, to be Assistant General Auditor. Office, Montreal.

J. A. Hill, heretofore Auditor, Canadian National Ex. Co., Toronto, to be Auditor of Revenues. Office, Montreal.

The circular added "All instructions from these officials concerning the auditing of the company's accounts should receive prompt atention. Waybill statements and abstracts, and all correspondence connected with auditing of waybills and money orders, should be addressed to Auditor of Revenues, Montreal."

Vice President and General Manager Muir issued a circular, post-dated Sept. 1, announcing the following appointments of officials for Canadian National Ex. Co.

John Pullen,
President, Canadian National Express Company.

G. E. Bellerose, heretofore Assistant to General Manager, Canadian National Ex. Co., Winnipeg, to be Assistant to General Manager. Office, Montreal.

W. C. Webb, heretofore Claim Agent, Canadian National Ex. Co., Winnipeg, to be General Claim Agent. Office, Montreal.

W. P. Stericker, heretofore Claims Agent, Canadian Ex. Co., Montreal, to be Assistant General Claim Agent. Office, Montreal.

J. H. Moore, heretofore Line Inspector, Canadian Ex. Co., Montreal, to be Superintendent of Equipment and Supplies. Office, Montreal.

District and Division Officials.—F. N. Wiggins, heretofore Superintendent, Canadian National Ex. Co., Toronto, to be General Superintendent, Eastern District. Territory east of Cochrane, Ont., Joliette, and Chaudiere, Que. Office, Moncton, N.B.

H. C. Creighton, heretofore Superintendent, Atlantic Division, Canadian Ex. Co., to be Claim Agent. Eastern District. Office, St. John, N.B.

H. R. Hauch, heretofore Assistant to Superintendent, Canadian National Ex. Co., Toronto, to be Superintendent, Maritime Division, Eastern District. Territory, Edmundston and Campbellton, N. B., and east. Office, Moncton, N.B.

C. L. Bowles, heretofore Assistant Superintendent, Canadian National Ex. Co., Winnipeg, to be Superintendent, Quebec Division, Eastern District. Territory, east of Cochrane, Ont., Joliette and Chaudiere, Que., to, but not including, Edmundston and Campbellton, N.B. Office, Quebec, Que.

W. E. Norman, heretofore Superintendent, Western Division, Canadian Ex. Co., Toronto, to be General Superintendent, Central District. Territory, east of Armstrong, and Port Arthur, Ont., to, and including, Cochrane, Ont., Joliette and Chaudiere, Que. Office, Toronto.

F. Gillespie, heretofore Claim Agent, Canadian National Ex. Co., Toronto, to be Claim Agent, Central District. Office, Toronto.

A. J. Seaton, heretofore Superintendent, Eastern Division, Canadian Ex. Co., Montreal, to be Superintendent, Montreal Division, Central District. Territory (including Belleville Subdivision), Chaudiere and Joliette, Que., and west to and including Scarboro Jct., Ont., to, but not including, Orillia, Scotia Jct. and North Bay, Ont. Office, Montreal.

A. F. Stillman, heretofore Travelling Agent, Canadian National Ex. Co., Belleville, Ont., to be Assistant Superintendent, Belleville Subdivision, Montreal Division, Central District. Territory, Rideau Jct. and Brockville, Ont., and west to and including Scarboro Jct., Ont., to, but not including, Orillia, Ont. Office, Belleville, Ont.

R. H. Jones, heretofore Assistant Superintendent, Western Division, Canadian Ex. Co., Toronto, to be Superintendent, Toronto Division, Central District. Territory (including North Bay Subdivision), east of Armstrong, Port Arthur, Owen Sound, Durham, Palmerston, Stratford, Paris, Norwich Jct., Simcoe and Port Dover, Ont., to, and including, Cochrane, North Bay, Scotia Jct. and Orillia, Ont., to, but not including, Scarboro Jct., Ont. Canadian National Rys. Toronto-Washago section included. Office, Toronto.

S. H. Bullett, heretofore Route Agent, Canadian Ex. Co., Toronto, to be Assistant Superintendent, North Bay Subdivision, Toronto Division, Central District. Territory, east of Armstrong and Port Arthur, Ont., to, and including, Cochrane, North Bay, Scotia Jct. and Depot Harbor, Ont., to, but not including, Parry Sound, Ont. Office, North Bay, Ont.

G. J. Bothwell, heretofore General Agent, Canadian National Ex. Co., Winnipeg, to be Superintendent, London Division, Ceneral District. Territory, Owen Sound, Durham, Palmerston, Stratford, Paris, Norwich Jct., Simcoe and Port Dover, Ont., and west. Office, London, Ont.

C. A. Cunningham, heretofore Superintendent, Canadian National Ex. Co., Winnipeg, to be General Superintendent, Western District. Territory, Armstrong and Port Arthur, Ont., and west. Office, Winnipeg.

C. A. Mulligan, heretofore chief clerk, Claim Department, Canadian National Ex. Co., Winnipeg, to be Claim Agent, Western District. Office, Winnipeg.

F. Norman, heretofore Superintendent,

Northwestern Division, Canadian Ex. Co., Winnipeg, to be Superintendent, Winnipeg Division, Western District. Territory (including Saskatoon Subdivision), Armstrong and Port Arthur, Ont., and west, to, but not including, North Battleford, and Battleford, Sask., Butze, and Sibbald, Alta. Office, Winnipeg.

B. A. Latta, heretofore Traffic Supervisor, Canadian National Ex. Co., Winnipeg, to be Assistant Superintendent, Saskatoon Subdivision, Winnipeg Division, Western District. Territory, east of North Battleford and Battleford, Sask., Butze and Sibbald, Alta., to, and including, Tisdale, Regina, Northgate and Radville, Sask., to, but not including, Canora and Melville, Sask. Luxton-Estevan, Luxton-Radville, and Regina-Melville Sections are not included. Office, Saskatoon, Sask.

Z. M. Middeton, heretofore General Agent, Canadian National Ex. Co., Vancouver, B.C., to be Superintendent, Edmonton Division, Western District. Territory (including Vancouver Subdivision), North Battleford and Battleford, Sask., Butze and Sibbald, Alta., and west, including steamship routes. Office, Edmonton, Alta.

W. C. Cranston, heretofore Agent, Canadian National Ex. Co., Saskatoon, Sask., to be General Agent, Vancouver Subdivision, Edmonton Division, Western District. Territory, Resplendent, B.C., and west. Steamship routes, Vancouver-Stewart and Anyox, including Prince Rupert, for steamship traffic only. Office, Vancouver, B.C.

The following statement was also issued:—'In announcing the appointments of its operating officials, the Canadian National Ex. Co.'s management states that it has had constantly in mind the improvement of the express service rendered to the public, and the selection and promotion from the ranks of men of proven ability and experience. The recognition of the public needs is demonstrated by clothing its general superintendents with large local administrative authority, and placing them in centers of large population, where they may be readily accessible to the company's patrons, and where they will be in the closest touch with the operating officials of the railways who have in their charge the service of trains which carry the express. With these general superintendents, having jurisdiction over large districts, there will be associated superintendents, directly in charge of smaller territories or divisions, the extent of the mileage being only such as can frequently be traversed, for the purpose of inspection and careful instruction of the numerous employes who are called upon daily to handle the hundreds of thousands of parcels representing as many commercial transactions between the public. It is only by this close personal supervision that a well trained staff can be developed and thereby the public service perfected. These supervising operating officials will further be assisted by claim agents, who, having only comparatively small territories under their care, may be able to give close and prompt personal attention to the investigation and adjustment of claims or irregularities which are inevitably connected with such a large number of small transactions. Small and numerous though these shipments be, they are by the public considered to be of the largest importance, and so long as the cause of claims is not prevented, they provoke much irritation, disappointment and loss to the company's patrons. It is therefore the intention to carefully analyze the cause of such claims and remove the cause where possible; but, in any event, to pay such lawful claims with business like promptitude, as soon as the liability has been established. All these officers, of whatever grade, reporting upwards through their next superior, officer come indirectly, but none the less certainly under the observation of the chief operating officer, the Vice President and General Manager, located at executive headquarters, where he is at all times easily accessible, and where he can, by means of telegraph, telephone, mail, and personal contact, direct the numerous and intricate details of the administration of the express operations over 22,000 miles of railway."

European Organization.—At the time of writing no official information is available as to the Canadian National Ex. Co.'s organization in Great Britain. The

W. C. Muir,
Vice President and General Manager, Canadian National Express Company.

Canadian Ex. Co. has heretofore been represented by F. C. Salter, European Traffic Manager, London, who was also European Traffic Manager, G.T.R.; E. J. Wearing, General Agent, Liverpool, also General Agent, G.T.R.; and J. M. Walker, General Agent, Glasgow, also General Agent, G.T.R. Canadian Railway and Marine World has reason to believe that it is probable that the work in Great Britain will be carried on under the direction of Wm. Phillips, European Manager, Canadian National-Grand Trunk Rys., London. F. C. Salter is said to be being transferred to Canada, but his position has not been announced. E. J. Wearing will probably, it is said, be appointed European Agent, Canadian National Ex. Co., and it is said that a clerk will be attached to Mr. Phillips' London staff, to give his whole time to express matters. It is also said that the Express Accounting Department will be in Liverpool, and that it will be kept entirely separate from the Canadian National-Grand Trunk Rys. Freight and Passenger Departments.

Standard Colors.—The Canadian National Ex. Co. has adopted royal blue as its standard color for wagon, motor and station truck equipment, in place of the Canadian National Ex. Co.'s present orange, and the Canadian Ex. Co.'s green and red. Specifications have been distributed to the company's officials, with instructions to have the new color adopted as standard, as rapidly as the equipment is put through the shops for repairs. It will take a few months before this work can be completed.

Biographical information respecting Messrs. Pullen and Muir is given on page 497 of this issue.

Co-ordination of C.N.R. and G.T.R. Offices and Staffs in England.

The co-ordination of the Grand Trunk Ry. with the Canadian National Rys. is in the hands of a committee of two directors from each board. D. B. Hanna, President, C.N.R., and A. J. Mitchell, Vice President, C.N.R., who is also a G.T.R. director, represent the C.N.R.; and Sir Joseph Flavelle, Chairman of the Board, G.T.R., and H. G .Kelley, President, G.T.R., represent that company, Sir Joseph Flavelle being Chairman of the Committee.

A. J. Mitchell visited England recently in connection with the co-ordination of the C.N.R. and G.T.R. European offices and staffs, and on finanical business, and a number of changes in the staffs which resulted are given under "Transportation Appointments," on another page of this issue. Wm. Phillips, heretofore European Manager, C.N.R., who has been appointed European Manager, Canadian National-Grand Trunk Rys., is moving from Orient House, 42-45 New Broad St., London, to the former G.T.R. offices, 17-19 Cockspur St., London, S.W.

The G.T.R. has a lease of Dashwood House, 9 New Broad St., London, where ts former Chairman, Sir Alfred Smithers, and the Secretary and other officials are located. It is expected that after the G.T.R. arbitration is concluded these premises will be sublet, and both the C. N.R. and G.T.R.'s financial business will be concentrated at Orient House, 42 New Broad St., London. The G.T.R. Co.'s head office has already been removed from London to Montreal. The present G.T.R. Secretary, H. Deer, will probably retire; H. W. Harding, now Local Secretary, Canadian National Rys., will probably be Local Socretary, Canadian National-Grand Trunk Rys., and there are likely to be two assistant secretaries in London, viz., A. H. Coneybeare, now Assistant Secretary, Canadian National Rys., to deal particularly with C.N.R. matters, and W. H. Hamerton, now Assistant Secretary, G.T.R., to deal particularly with G.T.R. matters.

The Minneapolis, St. Paul & Sault Ste. Marie Ry., which is a C.P.R. subsidiary, has been authorized by the Interstate Commerce Commission to acquire the Wisconsin & Northern Rd. and to issue $2,671,000 of its first consolidated 5% mortgage bonds, to be used in part payment therefor. The W. & N. Rd. extends from a junction with the M. St. P. & S.S.M. Ry. 6.3 miles from Crandon, Wis., to Appleton, Wis., 114.3, miles, with a branch of 10.7 miles.

The Canadian Ticket Agents' Association will hold its 35th annual meeting at Ottawa, on Oct. 11, instead of Sept. 20, as fixed originally.

Mainly About Railway People Throughout Canada.

W. A. Allan, of Allan & Fleming, died at Ottawa, Aug. 16, aged 73. His firm carried out several large construction works, notably those of the locks at the entrance to the Sault Ste. Marie Canal, and other marine public works, on the St. Lawrence River.

W. R. Baker, C.V.O., formerly Assistant to the President, and Secretary, C.P.R. Co., has resigned the presidency of the Royal Montreal Golf Club on account of ill health, after occupying the position for six years, and has been asked to become Honorary President. He is also President of the Sanadian Seniors Golf Association.

Ulric Barthe, who died at Quebec, Que., Aug. 3, following an operation, was secretary of the Quebec Bridge Co., which started to build the first Quebec bridge across the St. Lawrence, a portion of which collapsed.

E. W. Beatty, K.C., President, C.P.R., has given $5,000 towards the construction of a rink at Kingston, Ont., as a memorial to the late J. J. Harty, formerly Vice President and General Manager, Canadian Locomotive Co.

Hon. M. E. Bernier, who died at St. Hyacinthe, Que., July 29, was born there, Sept. 28, 1841, and became a notary in 1867, and a member of the Quebec Notarial Board. He took an interest in farming, owned a farm near his birthplace, and was, for several years, president of the local agricultural society, and also connected with local industrial and banking concerns. He was a member of the House of Commons from 1882 to Jan. 1904, and Minister of Inland Revenue from 1900. In Jan. 1904 he was appointed Deputy Chairman of the Board of Railway Commissioners, for 10 years, and retired at the end of 1913.

C. B. Brown, Engineering Assistant, Canadian National Rys., Toronto, returned Aug. 20, from Youghall, N.B., where he and his family spent a few weeks, while he recuperated from his recent illness.

Lt. Col. George Cantlie, D.S.O., formerly General Superintendent, Car Service, C.P.R., has returned to Montreal, from England.

Senator James Domville, who died at Rothesay, N.B., July 30, was associated with the Central Ry. Co. of Canada, a project which did not materialize, and was also responsible for the building in 1898 of the s.s. James Domville, which is claimed to have been the first steamship flying the British flag, to navigate the Behring Sea to the Yukon.

J. M. R. Fairbairn, Chief Engineer, C. P.R., Montreal; G. H. Duggan, LL.D., President, Dominion Bridge Co., Montreal; R. A. Ross, E.E., consulting engineer, Montreal; and T. Kennard Thompson, consulting engineer, New York, all of whom are doctors of science of Toronto University, were entertained at dinner recently in Montreal, by the Montreal Branch, Engineering Alumni of Toronto University.

J. M. R. Fairbairn, Chief Engineer, C. P.R., Montreal, and President, Engineering Institute of Canada, was the chief guest at the Institute's Sault Ste. Marie Branch annual meeting recently.

Brower C. Gesner, who died at Moncton, N.B., July 20, aged 62 after having been in poor health for some two years, was born at Halls Harbour, N.S., and had lived in Moncton for about 45 years. He was in the Intercolonial Ry. service for some 25 years, as locomotive man and afterwards as Air Brake Inspector, and subsequently was the Galena Signal Oil Co's Mechanical Expert and Eastern Sales Representative, for some 17 years, retiring on pension May 1, 1920. He had pronounced literary tastes and was especially interested in astronomy, and had probably the largest telescope in eastern Canada.

Grant Hall, Vice President, C.P.R., returned to Montreal, towards the end of August, from a western trip.

D. B. Hanna, President, Canadian National Rys., accompanied by Mrs. Hanna, returned to Toronto, Aug. 18, from a western trip.

Sir Herbert Holt, one of the C.P.R. directors, returned to Montreal, from England, Aug. 18.

W. B. Howard, District Passenger Agent, C.P.R., Toronto, is the father of twin boys, born Aug. 23.

William Phillips,
European Manager, Canadian National-Grand Trunk Railways.

C. T. Knowlton, Superintendent of Car Ferries, Canadian Government Rys., Moncton, N.B., is on indefinite leave of absence.

Sapper Douglas Gordon McCowan, aged 22, who was drowned at Laurentia Beach, Lake Manitoba, July 17, was a son of Andrew McCowan, Master Car Builder, Canadian National Rys., Winnipeg, and had just completed his apprenticeship in the railway shops. He was boating, with his brother Charles, and T. Clegg, Air Brake Supervisor, Western Lines, C.N.R., when the boat was capsized by a sudden gust of wind. It was nearly two hours before the accident became known, and when a rescue party arrived C. McCowan and T. Clegg were found clinging to the boat, in a very exhausted condition, but no trace could be found of Douglas McCowan, who had started to swim, resting on an oar. His body was found July 20, by a search party from the C.N.R. Fort Rouge shops in Winnipeg, who were assisted by the Provincial Police. He was buried in Winnipeg July 22.

Major Jas. McGregor, formerly Superintending Engineer, Halifax Ocean Terminals, Canadian National Rys., who was Major of the 3rd Battalion 1916-1919, has, since leaving Canada in 1920, been Chief Engineer for Stewart & McDonnell, which firm is composed of Major General J. W. Stewart, C.B., C.M.G., and Col. the Hon. Angus McDonnell, both of Vancouver, B.C., their London office being in Westminster. He has had charge for them of the harbor surveys in the Gold Coast Colony, Africa, in collaboration with Vice Admiral Sir John F. Parry, K.C.B., late Chief Hydrographer of the British Navy, both in the colony, and afterwards in London, where the plans were prepared and approved for the Takoradi deep sea harbor, railway connecting line and terminals, and new townsites, etc., for which Stewart & McDonnell have been appointed consulting and constructional engineers to the Colonial Government, and on which it is probable that construction will be begun this autumn. Considerable information about this contract was given in Canadian Railway and Marine World for April, 1921, pg. 196. In writing Canadian Railway and Marine World, while at sea on the R.M.S. Akabo, near Sierra Leone, a short time ago, Major McGregor said: "I was careful to arrange for copies of your valuable paper to be forwarded to me regularly, both to London and the Gold Coast, and month by month have greatly enjoyed your most interesting and instructive reports and articles on the Canadian transportation systems. Please continue to send me copies of your paper."

A. J. Mitchell, Vice President, Canadian National Rys., and one of the G.T. R. directors, returned to Toronto, Aug. 21, after a business trip to England.

Hon. W. B. Nantel, Deputy Chief Commissioner, Board of Railway Commissioners, has been ordered, by the county judge at Ottawa, to pay that city $214 income tax for 1920, the judge holding that the salary is not exempt from municipal taxation.

G. O'Flaherty, chief clerk to Superintendent of Transportation, G.T.R., Toronto, was killed near Aldershot, between Toronto and Hamilton, Aug. 16, when the automobile in which he was riding turned over.

William Phillips, who has been appointed European Manager, Canadian National-Grand Trunk Rys., and Canadian Government Merchant Marine, London, Eng., was born at Toronto, Jan. 31, 1870, and entered transportation service Apr. 1886, since when he has been to, Mar. 31, 1896, in G.T.R. offices, Toronto; Apr. 1, 1896, to Feb. 28, 1902, Northwest Agent, Northwest Transportation Co., Winnipeg; for a portion of this time he was also General Agent, Chicago Great Western Ry., and from Apr. 1, 1900, also Northwest Agent, Northern Navigation Co.; Mar. 1, 1902 to May 1911, General Eastern Agent, C.N.R., Toronto; in Nov. 1906, he was also appointed General Freight and Passenger Agent, Canadian Northern Ontario Ry., and in Apr. 1910,

also acting Traffic Manager, Canadian Northern Steamships, Ltd., and in April 1911, his last position was changed to General Freight and Passenger Agent, Canadian Northern Steamships, Ltd.; May 1911 to May 1912, he was General Freight Agent, Canadian Northern Ontario Ry., Central Ontario Ry., Bay of Quinte Ry., Irondale, Bancroft & Ottawa Ry., and Niagara, St. Catharines & Toronto Ry. and Navigation Cos., and also General Freight and Passenger Agent, Canadian Northern Steamships, Ltd.; May 1912 to Nov. 1914, European Traffic Manager, C.N.R., London, Eng., and from Nov. 1914 until the absorption of Canadian Northern Steamships, Ltd., by the Cunard Steamship Co., European Railway and Steamship Manager, C.N.R., and Canadian Northern Steamships, Ltd.; Nov. to Dec. 1916, Freight Traffic Manager, Eastern Lines, Canadian Northern Ry., Toronto; Jan. 1, 1917 to March 1, 1920, Canadian Representative, Cunard Steamship Co., and director, Robert Reford Co., Montreal; March 1, 1920 to Aug. 1921, European Manager, Canadian National Rys. and Canadian Government Merchant Marine, London, Eng.

Samuel Rea, President, Pennsylvania Rd., celebrated recently the fiftieth anniversary of his association with the company. He entered the Pennsylvania service as a rodman in 1871 and was promoted through the various grades of the engineering department until in 1899 he was appointed Fourth Vice President. He became President in 1912, succeeding James McCrea.

Alex. C. Ross, who died at Montreal, July 30, was at various times associated with transportation interests in the Maritime Provinces. He was born at Margaree, N.S., May 29, 1857, and in his earlier years, was engaged, with his father, in opening up the first submarine coal area in Cape Breton, now controlled by the British Empire Steel Corporation. For some time after, he was a ship broker, and acted as Lloyd's agent in connection with the salving of wrecked ships, and at one time he owned a passenger steamboat which plied between Sydney and North Sydney. He promoted the Dartmouth Ferry Co., the Plant Line between Halifax and Boston, the Cape Breton Electric Tramways & Ferry Co., now Cape Breton Electric Co. and owned coal properties, acquired later by the Inverness Ry. & Coal Co.

Angus Sinclair, railway contractor, Toronto, died there, Aug. 24 ,after a long illness. He was born at Chatham, N.B., in 1849, and was educated at Campbellton and Dalhousie, N.B. After studying practical engineering, he was engaged on the Western Extension Ry., between St. John, N.B., and Bangor, Me., and in 1869 entered Intercolonial Ry. service, and supervised the completion of a portion of the line between Bathurst, N.B., and Matapedia, Que. He entered C.P.R. service in 1875, and served for three years in the neighborhood of Port Arthur, Ont. In 1878 he commenced business as a contractor, and built sections of the C.P.R. between Thamesville and Windsor, Ont., and another section east of Toronto, in partnership with W. Doheny, and in partnership was A. R. McDonnell, built sections of the C.P.R. through Maine, a section of railway at Walkerville, Ont., and a section of the Maine Central Ry., between Stratford and Hazen Jct., Vt. From 1898 he was continuously engaged on Canadian Northern Ry. contracts, until 1903 in Nova Scotia, and from 1903, in Ontario. He also had an excavation contract in connection with the C.N.R. Mount Royal tunnel. He was buried at Toronto, among the pall bearers being D. B. Hanna, President, Canadian National Rys.; Sir William Mackenzie, formerly President, Canadian Northern Ry.; A. J. Mitchell, Vice President, Canadian National Rys.

Josiah Gershon Sing, C.E., District Engineer, Dominion Public Works Department, Toronto, died suddenly of heart failure while walking in Meaford, Ont., on July 29. He was born there, Sept. 3, 1857, and was an Ontario and Dominion Land Surveyor. In 1881 he was appointed to survey the Dominion Government lands in the Northwest Territories, along the projected C.P.R., and later did considerable land survey work for the Government along Georgian Bay. Among other works, he supervised the construction at the western channel, Toronto; harbor improvements and C.P.R. lake terminals at Port McNicoll, Ont., and harbor improvements at Tiffin, Midland, Hamilton, Cobourg, Owen Sound and Sault Ste. Marie, Ont. He was also supervising harbor work at Toronto, and with the consent of the Public Works Department, acted as Consulting Engineer for the Toronto Harbor Commissioners. He was a past President of the Engineers' Club, Toronto.

V. M. Smith, M.L.A., Camrose, has been appointed Minister of Railways and Telephones, in the new Alberta Government. He is a native of Prince Edward Island.

C. E. Spens, Vice President, Traffic, Chicago, Burlington & Quincy Rd., Chicago, Ill., visited Vancouver, B.C., in August.

A. F. Stewart, Chief Engineer, Canadian Government Rys., Moncton, N.B., who was operated on for appenticitis early in June, and who left the Royal Victoria Hospital, Montreal, on July 22, for the Laurentian Mountains, is now further recuperating at Halifax, N.S.

Hugh Sutherland, formerly Executive Agent, Canadian Northern Ry., Winnipeg, is to be married there on Sept. 3, to Miss Constance Denholm, a newspaper society editor. They will spend a year travelling abroad. Mr. Sutherland was born at New London, P.E.I., Feb. 22, 1845.

J. L. Thomson, station ticket agent, Canadian National Rys., Charlottetown, P.E.I., has retired on the Provident Fund, and has been succeeded by W. M. Flynn, heretofore Station Agent at Souris, P.E.I.

William Stewart Tilston, who died at Montreal Aug. 2, following two operations for strangulated hernia, was born at Manchester, Eng., Apr. 14, 1877, and entered railway service in 1889, in the Division Freight Agent's office, G.T.R., Toronto, and served there as secretary, rate clerk and chief clerk to Oct. 1, 1906, when he was appointed chief clerk, Import Freight Agent's office, C.P.R., Montreal; resigning in Aug. 1908 on his appointment as Manager of the Montreal Board of Trade Transportation Bureau. The funeral took place at Toronto, Aug. 4.

Herbert Vanderhoff, President, Vanderhoff Advertising Agency, Chicago, who died Aug. 7, aged 46, after a year's illness, did considerable business for Canadian railways, handling U.S. advertising for the Colonization and Development Department, C.P.R., also copy for U.S. magazines for the G.T.R. He founded the Canadian Monthly Magazine. Vanderhoff, B.C., on the Grand Trunk Pacific Ry., was named after him.

Fred. H. Williams, Mechanical Designer, Mechanical Department, Canadian National Rys., Moncton, N.B., has been given the degree of master of science, by McGill University, Montreal.

Electric Storage Battery Car on Canadian National Rys.

The electric storage battery car which is being tried by the Canadian National Rys., was fully described and illustrated in Canadian Railway and Marine World for June, together with its initial trip from Toronto to Trenton, Ont., and its work between Trenton and Belleville was dealt with in our August issue. with some preliminary information as to its transfer to the Bathurst Subdivision, Campbellton Division, Maritime District, and its operation between Bathurst and Campbellton, N.B., 62.96 miles. We are advised that its operation between these points is proving profitable and showing most favorable results. Car mile costs are somewhat higher than they were when it was operating between Trenton and Belleville, Ont., because the power cost, 3.5c. per k.w.h. on the Bathurst Subdivision, is higher than at Trenton, and also because it has been found necessary to supply a brakeman for the car in addition to the conductor and motorman. It was considered advisable to do this on this run for the sake of safety, the line being one of heavy traffic, consisting of three regular passenger trains and four freight trains daily in each direction. The cost per car mile is now running at between 35 and 40c., this figure including an adequate allowance for interest and depreciation.

Power is available at both ends of the run for charging the batteries, that at Bathurst being purchased from the Bathurst Lumber Co., which has a water power plant, and that at Campbellton being generated by a steam plant owned by the railway. That the batteries in the car are capable of showing an output in excess of their rating, which is 450 amp. hours, is evident by the fact that on one trip, where delay was experienced, 530 amp. hours were used, the car operating throughout on the one charging.

A question has been raised as to the car's ability to operate satisfactorily in winter, on account of snow. While the battery containers are hung quite low, the pilot is a little closer to the rail, and in winter it will be covered with iron sheathing, so as to resemble a plough. The battery containers clear the rail 10¼ in. The car's ability to operate in snow conditions under which steam trains can operate without trouble is not questioned; in fact the Cambria and Indiana Rd., a Pennsylvania coal road, uses a similar car, equipped with a pilot plough, to keep its tracks clear of snow.

It is probable that, in view of the favorable results to date, the C.N.R. will get more cars of this type for branch line passenger service and have them built in Canada. It is also likely that the C.N.R. will get a gasoline-propelled passenger car, with seating capacity for 30 persons, and to be equipped with a 4-wheel leading truck, which will be tried thoroughly in the same manner as the storage battery car.

Railway Lands Patented.—Letters patent were issued, during July, to the Canadian North Pacific Ry. for 7.36 acres of railway lands.

The Railway Wages Question in Canada and the United States.

The article on wages and working conditions in Canadian Railway and Marine World for August spoke of the differences which had arisen between the Pennsylvania System and the A. F. of L., Railway Employes' Department, System Federation 90, in connection with who should represent the employes in making of agreements with the railway to replace the national agreements, which had been ordered by the Labor Board to be abrogated July 1. The railway claimed that it could make agreements with the representatives of the employes who had been elected by as many of the employes as cared to vote for them, in accordance with a scheme of election supervised by the railway, and that it was under no obligation to recognize the labor organization. The organization claimed that it, as the representative of the majority of the employes, had the sole right to make the agreements for the entire craft. The dispute was brought before the Labor Board, and in a decision given early in August the railway was upheld in some particulars and the organization in others. The Board censured the railway for undertaking to assume control of the selection of the employes' representatives, and censured the organization for putting out a ballot of its own, with no provision for representation of non-union men, and men belonging to smaller organizations. It held that both elections of employes' representatives were illegal, and said: "Neither of the parties to this dispute can serve the country, or justify themselves in the eyes of the public, by any amount of propaganda, if they permit a controversy over small technicalities to interrupt commerce, and bring loss and suffering upon themselves and the public." The Labor Board forthwith ordered a new election of employes' representatives to be held in such a way that each employe would be furnished with a ballot on which he could indicate his desire to be represented by System Federation no. 90, by the American Federation of Railroad Workers (another organization with membership on the Pennsylvania), or, when at least 100 unorganized employes so desired, by an individual agreed upon. This decision makes it clear that railway labor organizations must be recognized in the U.S.; that an employe can use his own discretion about joining one; that he is entitled to representation in negotiating with the railways, whether he belongs to a union or not; that an organization representing the majority of a class of employes has not the right to negotiate for the entire class; that employes can be represented by an organization, or by an individual, as they wish, and that employes can be represented, if they so wish, by an individual who is not an employe of the road. A similar controversy arose when the Pennsylvania set out to negotiate a new agreement with its clerks, freight handlers, etc. The railroad conducted an election, at which the employes were invited to vote for their representatives. The Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes undertook to represent all the employes in those departments, and held an election also. The dispute was brought before the Labor Board, which held both elections illegal and void, and ordered a new one to be held along the same lines as that for the shopmen, as noted above.

Another development in the U.S. worthy of note was an unauthorized strike by 300 employes of the federated shop crafts in the Cincinnati, Indianapolis & Western shops at Indianapolis, who apparently forgot, or disregarded, what happened to the men undertaking outlaw strikes last year. They went out on a Friday, and were all replaced by the following Wednesday. The railway refuses to discharge any of the new men taken on, and states that any of the strikers taken back will lose their seniority, and have to start as new men.

A new railway labor organization, the Yard, Engine and Trainmen's Association, has been formed in Chicago. It is said that it is an outlaw organization, and declares openly that its express purpose is to destroy the present brotherhoods.

It will be remembered that the U.S. Labor Board's last word concerning the national agreements continued them in effect with some modifications, until further hearing and notice. This action was taken after the Board had ordered them abrogated, because the various railways and their employes could not agree, in attempting to draft new agreements, to replace the national agreements. Hearings concerning these disputes, particularly as applying to the piece work vs. day work issue, were held before the Board during August, but no decision has been announced up to the time of writing (Aug. 25). The Erie Rd. has leased its shops at Marion, Ohio, to a private company, and labor leaders claim this is an attempt to defeat the purposes of the Transportation Act and to deprive the employes of benefits secured for them by schedules negotiated previously. They speak of complaining to the Labor Board concerning the Erie's action.

Briefly the U.S. situation is that the railways and their shop employes are still unable to come to an agreement re working conditions, with the case still before the Board. The wage reduction ordered by the Labor Board has been in effect since July 1, and a Cleveland press report of Aug. 23 stated that ballots were being sent out to 409,000 members of the big four brotherhoods in connection with the proposed vote, prior to Sept. 1, concerning the reduction.

In Canada, as was stated in Canadian Railway and Marine World for August, wage reductions corresponding to those contained in the U.S. Railroad Labor Board's order were put into effect on July 16. On July 28 and 29, railway executives and the chiefs of the big four brotherhoods met at Montreal to discuss wage matters. The railways were represented by Grant Hall, Vice President, C.P.R.; S. J. Hungerford, Vice President, Operation and Maintenance, Canadian National Rys.; W. D. Robb, Vice President, G.T.R.; J. H. Walsh, General Manager, Quebec Central Ry., and the four brotherhoods were represented by W. G. Lee, President, Brotherhood of Railroad Trainmen; W. S. Carter, President, Brotherhood of Locomotive Firemen and Enginemen; W. S. Stone, President, Brotherhood of Locomotive Engineers, and L. E. Sheppard, President, Order Railway Conductors. The Order of Railway Telegraphers was also represented, and numerous general chairmen of labor organizations were present. The labor representatives asked that the railways suspend the recent wage reductions and give assurances that no further reductions would be made and that existing schedules would not be modified unfavorably to the employes. After discussion, the railway executives made it plain that they could not accede to these requests, and that the recent reductions in rates of pay would have to remain in effect, pending a review of the whole matter during the negotiating of the next regular schedules. They pointed out that the employes are amply protected, as, in case of any finding that the reductions were not justified, they would be in position to recover, through a retroactive award. But, in case a conference covering the whole matter showed that the reductions were reasonable and justified, the railways would scarcely be in a position to collect money they had paid out in wages, so that the fact of the reductions going into effect prior to the renewal of regular schedules could be regarded as a means of affording the necessary protection to the railways.

The Canadian Brotherhood of Railway Employes, through its "Grand President," A. R. Mosher, has expressed great dissatisfaction with the wage reductions. The name of this organization is very misleading. It does not embrace in its membership railway employes of all classes throughout the country, as the title would indicate, but the membership is confined to clerks, freight handlers, etc., on the Canadian National and Grand Trunk Rys. Its executive claimed that the matter of wage reductions should go to arbitration, under the Industrial Disputes Investigation Act, and that the reductions affected its membership more adversley than the higher paid employes in railway service. The result of a meeting of the organization's officers at Ottawa in the latter part of July, attended by A. R. Mosher, R. Dykes, Winnipeg, General Chairman, Western Lines, C. H. Minchen, Calgary, Secretary, Western Lines; C. E. Cole and E. Leger, Moncton, Chairman and Secretary respectively of Eastern Lines, and J. E. McGuire and C. Corbin, Chairman and Vice Chairman respectively, Grand Trunk lines, was that an application was made to the Labor Department for a board of conciliation to consider the wage reduction, under the Industrial Disputes Investigation Act. President Hanna, of the Canadian National Rys., refused to join in the application for a board of conciliation when asked to do so by the organization, pointing out that, so far as the Government railways are concerned, the act does not apply except by consent, and stating that, as the reduction was only tentative and subject to revision at the usual meetings and conferences necessary for permanent schedule adjustment, the time was not opportune for a board of conciliation. He also pointed out that the reductions took effect after the expiry of the notice required for the opening of negotiations, and that more than 10 days had expired between the putting into effect of the new rates and the application for a board of conciliation by the C.B.R.E., which meant that the reduced rates of pay would have to be accepted as the prevailing rate, as defined by the Industrial Disputes Investigation Act in any hearing before a board. Mr.

Hanna also pointed out that it would be unfair and discriminatory to afford a board of conciliation to one class of railway employes while other classes were not similarly favored. However, on Aug. 10 the Labor Department granted the organization a board of conciliation under the terms of the "Act Respecting Conciliation and Labor," which act was in effect prior to the passing of the Industrial Disputes Investigation Act, but which was not repealed by it. The employes nominated ex-Mayor Harold Fisher, of Ottawa, as their representative, and the Canadian National Rys. management has nominated Geo. D. Kelley, of Ottawa, as its representative. At the time of writing, Aug. 25, no move toward getting the arbitration under way had been made, nor has a chairman for the board been selected.

After the meeting with the railway executives in Montreal on July 28 and 29, the big four brotherhoods, joined in their action by the telegraphers, left a committee in Montreal in charge of affairs, W. G. Chester, of Winnipeg, and W. G. Atkinson, of Moncton, being chairman and secretary respectively. This committee, as representing the Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Fireman and Enginemen, Brotherhood of Railroad Trainmen, Order of Railway Conductors, and Order of Railroad Telegraphers, made application on Aug. 4 to the Minister of Labor for a board of conciliation to thoroughly investigate and report on the matter of wages on Canadian railways, under the provisions of the Industrial Disputes Investigation Act. The Minister granted the request and stated that a board would be formed; and the Railway Association of Canada, as representing the railways concerned, was requested to name a representative of the railways for the board. The Railway Association replied that it was not in a position to represent the individual railways in matters of this kind. The Labor Department then said that the act provided for a number of employers being represented by a single association of employers, and that for the purposes of the act the Railway Association was in a position to represent all the member railways. The Railway Association replied to this, that its powers and constitution would not permit it to act for the member railways, in matters affecting the relations between each railway and its employes, and that it would be impossible for it to appoint a representative on the board. The last communication from the Labor Department conceded the point to the Railway Association, but asked that the member railways get together and agree on a representative for such a board. The employes, as represented by the five organizations, have appointed David Campbell, barrister, of Regina, Sask., as their representative. It is not known, at the time of writing (Aug. 25) what action will be taken by the railways on this latest request of the Labor Department, and in the meantime the reduced wages remain in effect.

The Trades and Labor Congress of Canada on Aug. 24, in a general meeting at Winnipeg, decided by 394 to 151 to revoke the Canadian Brotherhood of Railway Employes' charter and cancel that body's affiliation with the Congress. The principle involved is that only one organization of each class of labor can retain affiliation with the Congress, and that where an international body exists, it shall have the preference. It will be remembered that the executive of the Congress expelled the C.B.R.E. some time ago, but the latter body appealed to a court and was reinstated. In the discussion prior to the vote, A. R. Mqsher, "Grand President" of the C.B.R.E., claimed that his organization existed in Canada prior to the organization of the international body covering similar classes of labor, viz., the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, that the C.B.R.E. affiliation with the Congress antedated that of the latter body, and that, as a matter of fact, the C.B.R.E. is international in character, having lodges at Chicago, Duluth and other U.S. points. The C.B.R.E. officers threaten to proceed, by litigation and otherwise, to attempt to upset the Trades and Labor Congress's decision.

Ten-wheel Locomotive, for Trinidad Government Railways, built by Montreal Locomotive Works.

Railway Rolling Stock Orders and Deliveries.

The C.P.R., between July 13 and Aug. 14, received 5 steel sleeping cars, the frames of which were built by Canadian Car & Foundry Co., and the interior finished at Angus shops, Montreal; also 290 hopper bottom box cars, 60½ tons capacity, from National Steel Car Corporation.

The Sydney & Louisburg Ry. (British Empire Steel Corporation), is having three locomotives rebuilt at Halifax Shipyards, Halifax, N.S. Two have been completed and returned to service, and the third is expected to be completed shortly. The locomotives, which were built originally by the American Locomotive Co., were entirely dismantled, and rebuilt, with new rear ends, boilers and tanks.

The Dominion Steel Corporation's directors' report, presented at the annual meeting recently, stated that, during the past year, 60 new freight cars were bought, and the locomotives and other rolling stock were largely rebuilt and repaired, this being necessitated by the extremely strenuous service of the previous five years. The company owns and operates the Sydney & Louisburg Ry., and the Cumberland Ry. & Coal Co., in Nova Scotia.

The Trinidad Government Rys. 6 ten-wheel locomotives, built by Montreal Locomotive Works, recently, one of which is illustrated herewith, have the following chief details:—

Gauge	4 ft. 8½ in.
Weight on drivers	70,000 lb.
Weight on engine truck	22,000 lb.
Weight, total	92,000 lb.
Weight on tender	71,000 lb.
Cylinders, diar. and stroke	16 x 24 in.
Wheel base, driving	10 ft.
Wheel base, total engine	20 ft.
Wheel base, engine and tender	46 ft. 5½ in.
Driving wheels, diar.	51¼ in.
Journals	7 x 8 in.
Truck wheels, diar.	28 in.
Journals	4½ x 8 in.
Boiler, type	Straight top
Boiler, inside diar.	50 in.
Boiler pressure	180 lb.
Firebox, length and width	72 x 42¼ in.
Tubes, no. and diar.	84—2 in.; 14—5¾ in.
Tubes, length	12 ft.
Heating surface, tubes	524 sq. ft.
Heating surface, flues	235 sq. ft.
Heating surface, firebox	89 sq. ft.
Heating surface, total	848 sq. ft.
Heating surface, superheater	188 sq. ft.
Grate area	21.1 sq. ft.
Tractive power	18,400 lb.
Factor of adhesion	3.8
Superheater	The Superheater Co.
Reverse gear	Hand lever
Cab	Steel plate
Capacity, water	3,000 gals.
Capacity, coal.	5 tons

American Railway Engineering Association directors' meeting in Montreal.— It was stated in Canadian Railway and Marine World for August, that after this meeting, on July 13, the directors were entertained at dinner in the evening by a number of Montreal engineers. A subscriber writes us that the hosts of the dinner were not Montreal engineers only, but that it was given by some of the American Railway Engineering Association's Canadian members. It was presided over by J. M. R. Fairbairn, President, Engineering Institute of Canada, and the welcome extended was acknowledged by L. A. Downs, President, American Railway Engineering Association, and Vice President and General Manager, Central of Georgia Ry. The visitors were also entertained at luncheon by Mr. Fairbairn, and visited Shawinigan Falls, under the guidance of Julian C. Smith, of the Shawinigan Falls Water & Power Co.

The Cost of Stopping a Train.

By Edwin Winfield, Assistant Editor, Canadian Railway and Marine World.

An elementary principle in the science of railroading is to the effect that once a train leaves its initial station, the fewer stops it has to make before reaching the other end of the division, the better it is from an operating viewpoint. Although this point is no doubt universally recognized in railway circles, and its importance in any scheme of operation which aspires to be characterized as efficient is realized, yet there exists a great deal of misapprehension as to the cost, in dollars and cents, of stopping a train of known tonnage, and accelerating it again to its original speed. Opinion varies a great deal as to what this cost is, the majority of guesses falling between 50c. on the one hand and $5 on the other.

As a matter of actual fact, a determination of the exact amount is obviously impossible, on account of inability to determine, with any degree of accuracy, the monetary loss occasioned by stopping and starting a train in so far as wear and tear of equipment is concerned. Data showing the cost, maintenance expense, and life in years, of a car are readily obtainable, but to try to figure the amount of depreciation occasioned by a train stop would be useless. Although the strains imposed upon draft gear, car bodies and trucks, and the wear of brake shoes, and wheels, or tires, for example, may involve certain costs, this item, because of inability of exact determination, will not be taken into account. But it lurks in the background, a faithful and ever present supporter of the principle that stops should be cut down to a minimum.

The other two items of cost are:—1. The amount of steam used by the air compressor in recharging the train line and auxiliaries, after the application of the brakes. 2. The amount of coal consumed in lifting the train and accelerating it back to former speed, less the amount of coal which would have been burned by the locomotive, between the point of first reduction of speed and the point where the original speed is again attained, if the stop had not been made.

We will consider a train of 1,600 tons, pulled by a locomotive for which the coal consumption curves are shown in the accompanying chart. These curves represent the consumption of various quantities of coal per hour. A point taken on any one of the curves, and the ordinates drawn in, will indicate what drawbar pull the locomotive can exert at the indicated speed, when worked at a cut-off and throttle opening which requires that rate of combustion to supply the steam. For example, take the point A on the 1,800 lb. curve; if the locomotive is so worked as to require the consumption of 1,800 lb. of coal an hour, it can exert a tractive effort of 20,000 lb. at 10 m.p.h.

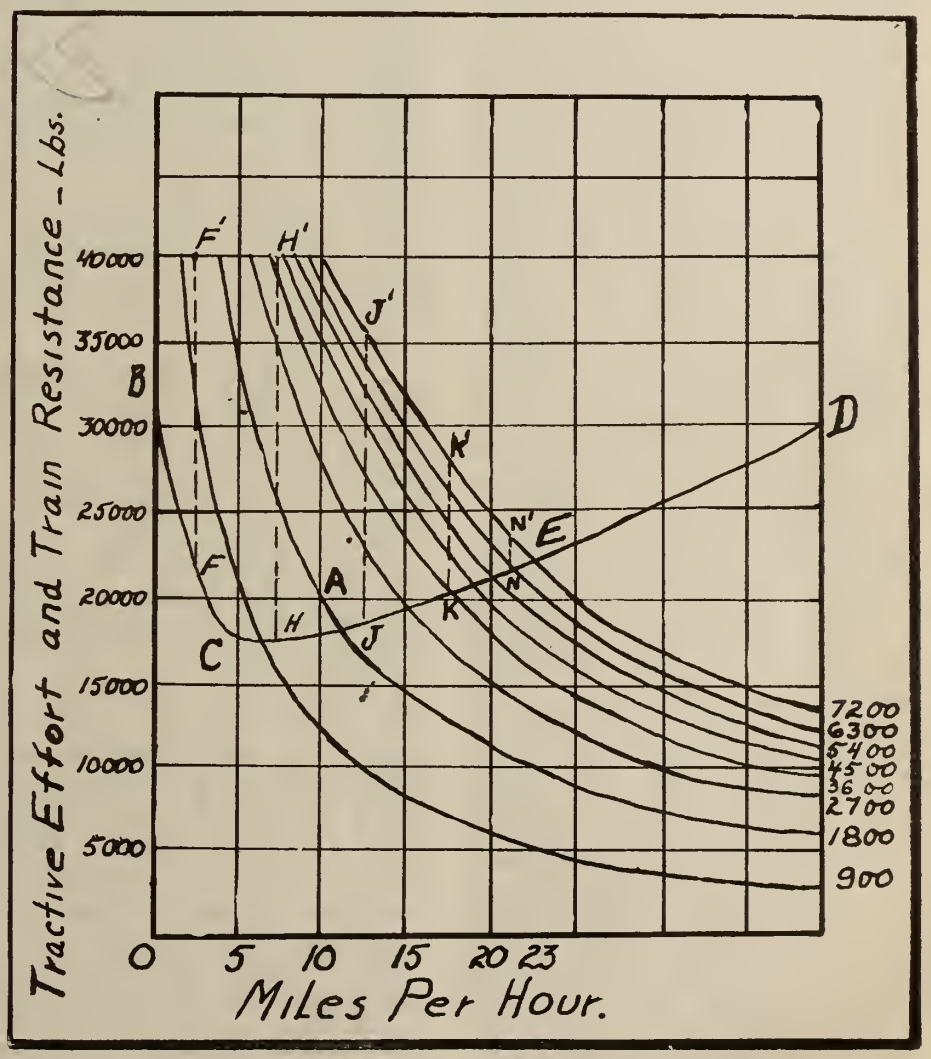
The variation of train resistance with speed is also shown on this chart by the curve B C D, which represents the train resistance of a 1,600 ton train on a 0.25% grade. Tractive effort figures, for use with the first set of curves, and train resistance figures, for use with the curve B C D, coincide.

The train of 1,600 tons is in 40 cars, and the locomotive is handling it on a 0.25% grade, exerting its maximum power. The fact of the 7,200 lb. coal consumption line cutting the train resistance curve at point E shows that 23 m. p.h. is the best speed it can make.

A stop is now to be made. Steam is shut off and the brakes applied. If the application requires 1.5 cu. ft. of free air per car, and 12 cu. ft. for the locomotive and tender, 72 cu. ft. in all, to be exhausted from the train line, the air compressor has to replace this. The compressor, compressing to main reservoir pressure 3 cu. ft. of free air per lb. of steam used, will use 24 lb. of steam. Figuring a good average of 6 lb. of steam for 1 lb. of coal burned, this is 4 lb. of coal. It therefore requires 4 lb. of coal to brake the train to a stop.

In what distance will the train come to a stop? Assuming that the weight of the freight and the weight of the cars are each 800 tons, which would be a good average for a 40 car train; calculating braking power as 70% of light weight, and brake shoe friction as 0.2, it may be shown that for the locomotive and train (locomotive 150 tons) the brake retardation is 166 lb. a ton. Add a retarding force of 8 lb. a ton due to train resistance, and a retarding force of 5 lb. a ton due to grade resistance (the resistance of a 1% grade being 20 lb. a ton, and therefore of a 0.25% grade being one fourth of this, or 5 lb. a ton), the total retarding force is 179 lb. a ton. Calculation discloses that this will stop the train in 207 ft.

The following analysis, based on the study of a chapter in Henderson's "Cost of Locomotive Operation," shows how the amount of coal necessary to accelerate the train back to 23 m.p.h. is arrived at. Referring to fig. 1, the middle ordinate for speed between 0 and 5 miles an hour, extending between the power and resistance line (F to F1) shows the excess of power over resistance on the average between 0 and 5 m.p.h. This is 18,800 lb., and because it represents the difference between the resistance to be overcome, and the power available to overcome it with, it must represent the amount of power which is available for accelerating the train. This excess power amounts to 18,800 divided by 1,750, which is equal to 10.7 lb. a ton. Calculation demonstrates that this will take 44.6 seconds to accelerate the train from 0 to 5 m.p.h., and that it is done in 163.4 ft. The figure gives the coal consumption rate as 1,250 lb. an hour, making the coal burned 16 lb. From 5 to 10 m.p.h., where the coal consumption rate, as indicated by the figure, is 4,200 lb. an hour, the time of acceleration is 36.5 sec., the distance 401.3 ft., and the coal burned 43 lb., the excess of power over resistance on the average being 23,000 lb. Proceeding similarly, the following table



may be constructed.

From	To	Time	Distance	Coal used
0	5 m.p.h.	44.6 sec.	163.4 ft.	16 lb.
5	10 m.p.h.	36.5 sec.	401.3 ft.	43 lb.
10	15 m.p.h.	46.4 sec.	850.3 ft.	93 lb.
15	20 m.p.h.	98.3 sec.	2,522 ft.	197 lb.
20	23 m.p.h.	251 sec.	7,911 ft.	502 lb.
			11,848 ft.	851 lb.

Counting the 4 lb. used in braking the train, the stop cost 855 lb. of coal. Counting the 207 ft. used in braking the train, the distance of the stop and acceleration is 12,055 ft. If the stop had not been made, thel ocomotive would have burned (12,055 divided by 5,280) times (7,200 divided by 23), or 714 lb. of coal. The extra coal consumed by the stop is 855 —714, or 141 lb.

While these figures and calculations may be correct theoretically, my experience is to the effect that they show a quantity which is too small, and the following considerations may help to account for this. First, they take no account of the drivers slipping while lifting the train, which is often the case. Second, they take no account of the great cinder losses which are occasioned by the frequent necessity of building up a fire quickly when the locomotive is exhausting heavily. Instead of taking a coal consumption rate of 1,250 lb. between 0 and 5 m.p.h., and of 4,200 lb. between 5 and 10 m.p.h., as is theoretically correct, if a coal rate of 7,200 lb. were figured on as applying during the lift, the resulting figures would as nearly as possible represent the true state of affairs. Instead of 16 and 43 lb. of coal in the first two lines of the preceding table, there would be 89 and 73 lb., and the extra coal consumed in making the stop would be 244 lb. instead of 141. Assuming coal as being worth $12 a ton at the firebox door, the cost of the stop is $1.46. This, of course, does not figure in wear and tear of equipment, as previously noted, nor train crew's wages, the latter item being of consequence only when the train is in detention, or when the stop will aid in making it go into detention.

When a locomotive crew is trying to do a clean cut job in the line of fuel economy, about the most discouraging thing in the world is to have to stop the train to register it at a station out of which it is uphill in both directions. Instead of drifting through at 25 or 30 m. p.h. and having a good swing for the other hill, which could be got over with a few light fires, it is necessary to make heavy brake applications to stop the train, to lift it on an opposing grade, and work the locomotive at near maximum power all the way up, while the coal consumed makes the above figures look too small by about 300%. It seems reasonable to suppose that if an operator is competent to handle 31 orders affecting passenger trains, he is equally competent to catch a hoop with a ticket on it from the conductor of a freight train, and register the train for him. Another rule that is in the same category regarding stops is the one that requires a train to come to a full stop when certain signals are against it, and then proceed under control. The special rule requiring all but 1st and 2nd class trains to approach and pass passing tracks with caution and prepared to stop, unless the main track is seen to be clear, is another offender in this connection. The effect on operating expense of the practice of giving the full tonnage trains switching to do, at several passing tracks on its trip over the division, is obvious.

The foregoing has been written as a matter of general interest, and to demonstrate that when a full tonnage train is stopped eight or ten times over a division for orders, for water, for registering train, and for other purposes, the expense of operation is increased considerably. The necessity of stopping a train for a 19 order, instead of the order and clearance being ready on a hoop, means that a ton of freight has to be hauled 150 miles to pay the bill. Any influence which may arise, or which represents continual practice with only precedent for an excuse, the effect of which is lost sight of in the routine of operation, and which causes frequent and unnecessary stopping of trains, also causes loss, and any improvement in operation which will cut out a stop, and often a consequent delay to the train concerned, and a wave of delays extending over the entire division and affecting every train on it, is something worth striving for in the interests of efficiency and economy.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Express Co. — See under "Consolidation of Canadian National Express, and Canadian Express Co.'s" on another page of this issue.

Canadian National Rys.—H. V. CALDWELL, heretofore Passenger and Advertising Agent, Grand Trunk Railway, London, Eng., has been appointed District Passenger Agent, Canadian National-Grand Trunk Rys. Office, Cunard Building, Liverpool, Eng.

G. E. COWIE, heretofore General Freight Agent, Canadian National Rys., London, Eng., has been appointed General Freight Agent, Canadian National-Grand Trunk Rys., in charge of United Kingdom freight traffic. Office, 17 Cockpur St., London, Eng.

P. A. CLEWS, heretofore General Agent, and Assistant to European Traffic Manager, G.T.R., London, Eng., has been appointed General Freight Agent, Canadian National-Grand Trunk Rys., in charge of European Freight Traffic, except the United Kingdom. Office, 17 Cockspur St., London, Eng.

J. DEED, heretofore District Freight Agent, Canadian National Rys., London, Eng., has been appointed City Freight and Passenger Agent, Canadian National-Grand Trunk Rys. Office, 44 Leadenhall St., London, Eng.

J. D. McCLELLAND, heretofore Assistant General Passenger Agent, Canadian National Rys., London, Eng., has been appointed District Passenger Agent, Canadian National-Grand Trunk Rys. Office, 17 Cockspur St., London, Eng.

R. J. McEWAN, heretofore District Agent, Freight and Passenger Departments, Canadian National Rys., Glasgow, Scotland, has been appointed District Agent, Canadian National-Grand Trunk Rys. at Manchester, Eng.

WM. PHILLIPS, heretofore European Manager, Canadian National Rys., with office at Orient House, 42 New Broad St., London, Eng., has been appointed European Manager, Canadian National-Grand Trunk Rys. Office, 17 Cockspur St., London, Eng. F. C. Salter, heretofore European Traffic Manager, G.T.R., London, Eng., will, it is said, be transferred to Canada, and will probably be appointed to a position in the Canadian National Express Co.'s service.

E. L. ROPER, heretofore District Agent, Freight and Passenger Department, Canadian National Rys., Liverpool, Eng., has been appointed District Freight Agent, Canadian National-Grand Trunk Rys. Office, Cunard Building, Liverpool.

R. O. STEWART, heretofore Assistant Bridge Engineer, Moncton, N.B., has been appointed Assistant Engineer of Standards in connection with Bridge Standards, reporting to Engineer of Standards, Operation and Maintenance Department. Office, Toronto. Owing to an omission and a typographical error, this appointment was wrongly announced in our last issue.

J. G. SWALWELL, heretofore Auditor Miscellaneous Accounts, C.N.R., Toronto, having been appointed Assistant General Auditor, Canadian National Express Co., Montreal, Canadian Railway and Marine World has been advised that the vacancy will not be filled, at least for the present.

J. M. WALKER, heretofore General Agent, G.T.R., Glasgow, Scotland, has been appointed District Agent, Canadian National-Grand Trunk Rys. Office, 75 Union St., Glasgow, Scotland.

Canadian Pacific Ry.—M. KENNEDY, heretofore Night Forman, Schreiber, Ont., has been appointed Locomotive Foreman, McAdam, N.B., vice J. McLean, assigned to other duties there.

W. J. McKAY, heretofore Night Foreman, Brownville Jct., Me., has been appointed Night Foreman, Schreiber, Ont., vice M. Kennedy, promoted.

Grand Trunk Ry.—J. C. GARDEN has been appointed General Superintendent, Motive Power and Car Departments, lines east of Detroit and St. Clair Rivers, and not Superintendent, as mentioned in our last issue.

Reid Newfoundland Co.—No announcement has been made as to the appointment of a General Manager, in pursuance of the agreement between the company and the Newfoundland Government, as summarized in Canadian Railway and Marine World for August, which provides that the company shall secure the services of a competent person, from Canada or the United States, as General Manager, the appointment to be subject to the Government's approval. Canadian Railway and Marine World is aware that certain officials of Canadian railways have been approached in this connection, and that a salary of $15,000 a year, for 5 years, has been offered. A Winnipeg paper states that R. C. Morgan, Superintendent, Winnipeg Terminal Division, C. P.R., has been offered the position, and, having been granted a month's leave of absence, left Winnipeg, Aug. 21, for Newfoundland to decide whether to accept or not.

Exchange and Surcharges on International Freight and Passenger Business. In accordance with the Board of Railway Commissioners' order of June 14, the surcharge on freight shipments between Canada and the United States from Aug. 1 to 31 was 7%. The rate of exchange to determine additional collection on international passenger business was from Aug. 1 to 14, 12%, and from Aug. 15 to 31, 11%.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of the issue in which it is to appear.

TORONTO, CANADA, SEPTEMBER 1921.

PRINCIPAL CONTENTS.

American Railway Association, Mechanical Division, Committee Reports,—
Brake Shoe and Brake Beam Equipment.... 463
Car Construction 457
Labor and Material Prices 464
Miscellaneous 462
Specifiations and Tests for Materials 455
Tank Cars 460
Train Brake and Signal Equipment 456
Appointments, Transportation 476
Birthdays of Transportation Men 481
Board of Railway Commissioners,—
Orders by, Summaries of 485
Traffic Orders 467
Canadian National and Canadian Express Companies' Consolidation 469
Canadian National Rys., Electric Storage Battery Car 472
Sleeping Cars 465
Canadian Pacific Ry. Earnings, Expenses, etc. 478
Cost of Stopping a Train 475
Electric Railways Department .....486 to 497
British Columbia Electric Ry. and the Rule of the Road 489
Finance, Meetings, Etc. 489
Freight and Passenger Rates 487
Hydro Electric Radial Railways for Ontario, Royal Commission Report on 490
Mainly About Electric Railway People 497
Toronto Transportation Commission Fixes Basic Fare 486
Wages, Working Conditions, Etc. 488
Express Companies, Among the 497
Marine Department .....498 to 510
Canadian Government Merchant Marine, Shipbuilding, Operation, Etc. 500
Esquimalt Drydock 499
Welland Ship Canal Contracts 509
Wreck Commissioners' Enquiries, Judgments, Etc. 507
Railway Earnings, Expenses, Etc. 484
Railway Employes' Wages Situation 477
Railway Operating Statistics 467, 479, 480, 482, 483
Railway Rates, Live Stock Freight Reduction 466
Railway Rolling Stock Orders and Deliveries 474
Railway Wages Question in Canada and U.S. 473
Railways' Financial Position in the U.S..... 468
Telegraph, Telephone and Cable Matters 485
Toronto, Hamilton & Buffalo Ry. 484

The Railway Employes' Wages Situation.

It is not Canadian Railway and Marine World's policy to undertake to criticize the actions of railways, or their employes, in connection with rates of pay and working conditions. Rather our aim has been to confine ourselves to recording the developments which have taken place in this department of railway activity from time to time. Firm in the belief that all our readers, among officers and employes of railways, are far advanced in thought beyond the stage wherein they would pay serious attention to charges of "Big interests control", "millions of watered stock," "Intentional restriction of business by capitalistic interests," and similar absurdities, on the one hand, and, "gross inefficiency of railway labor" and "Robbery of the public by organized labor" and similar foolishness on the other hand; equipped with a knowledge that railway work involves dangers, discomforts, and responsibilities much greater than the ordinary; pleased to note the degree of co-operation existing between Canadian railways and their employes for years past, and thoroughly convinced that this co-operation offers a much better solution to the problem of industrial relations than does warfare, based on a lack of human understanding and understanding of the operation of economic causes and effects alike, as between labor and capital, we have considered it the part of wisdom to refrain from taking sides, one way or the other, in this question.

It is with some hesitation, therefore, that we undertake to state, and attempt to demonstrate, a proposition, although it may be pointed out that our action involves no departure from our original policy. Our proposition is that Canadian railways' employes will be farther ahead, in the long run, by working on the reduced scale of wages decided on recently, than if they continued to work at the higher rates. Convinced that fairness and justice should form the basis for dealings between man and man everywhere, we would not state that proposition unless we believed it to be absolutely correct.

Accounts appearing in previous issues of Canadian Railway and Marine World have shown, clearly and unmistakably, the condition in which the railway industry in North America has been, and is. They have shown that, in the latter part of 1920, practically all of the United States roads operated at a loss; that, so far in 1921, they have earned only about 2% on their capitalization, which, according to the findings of the Interstate Commerce Commission's Valuation Department, is much lower than their property value, and that they would have earned nothing at all if maintenance of way and equipment had been kept up as they should have been. Our comment on the performance of Canadian railways in 1920, elsewhere in this issue, shows the situation in this country. The Canadian Pacific made barely enough to pay the investors for the loan of their capital, and the National roads incurred heavy deficits, the facts concerning which are known to all.

The railway industry, as an industry, is operating at a loss. It cannot charge any more for its product, the transportation of freight and passengers, because it is commonly felt that rates are as high as they should go now, and many people are insistent in their demands that they should be reduced. No industry can exist and yield a fair living to those engaged in it, with either their capital or labor, unless it can fit in with all other industries and render its services at reasonable rates. If rates cannot be raised, expenses must be reduced, if the industry is going to survive. So, to survive, to escape the unhappy fate of "going broke," the railways set in to reduce expenses.

As a result of this enforced reduction of expenses, there are more than 600,000 railway men out of work in the U.S., and many thousand in Canada. Since the railways cannot buy equipment, machinery, etc., thousands of men, formerly employed by manufacturers, are similarly out of work. And it is an actual fact that many U.S. railways have owed equipment manufacturers for months and months, and have been unable to pay them. The banks have had to carry the equipment manufacturers, and have, therefore had much less credit to extend to merchants, and others, who need it, with the result that prosperity has suffered a severe blow. There is the situation, because the railways cannot retain about fifteen cents out of every dollar they earn, that they should be able to retain. They might use the few cents out of every dollar that they use for dividends when they can pay them, but capital refuses to work without pay, and that invested in the railways would soon be withdrawn and invested elsewhere. The way that fifteen cents which the railways have got, but have not, has thrown industry out of gear is remarkable. But it is useless to trace the vicious circle further; reduced purchasing power, lack of new construction, and great manufacturing plants shut down are familiar to all. The U.S. Government has arranged to grant the railways of that country a measure of relief, as noted in this issue, but unless things are put on a proper **permanent** basis, it will be no more than a flash in the pan.

The greatest purchasers in this country are the farmers, but they are getting for their products little more than before the war. They are paying higher prices for everything they need, including transportation. The price of transportation for the farmers, as well as the price of many other things they have to buy, should be reduced; it will be reduced only when the railways can afford to reduce it. These rates were all right last autumn, when the prices of agricultural products were high, but the farmers have a greatly reduced purchasing power now, and when they are not buying, business and employment remain, and must remain, dead. Add to the farmers' partially reduced purchasing power the railways' totally reduced purchasing power, and we have at once one of the greatest underlying causes of unemployment and actual suffering in this country and the U.S.

It does not seem necessary to argue this thing further. We want to see every person engaged in the railway industry, whether they contribute labor, or capital, or both, get a fair return for what they give. But the industry has to be in gear with the other big industries of the country, before all the people in it can be prosperous. After all, it is not worth while to see a brother human being starve for the sake of a few extra dollars a

month, rather should the aim be a square deal to all, and a job for everyone who wants to work, at wages which will leave a little for new capital to finance undertakings to create more jobs. The whole proposition is largely automatic, as is evident. We strive toward improvement eternally, and it is well that this is so; but let us not be unwise and attempt to reap the fruits of a greater improvement in our economic status than we have yet accomplished by hand and brain.

The Canadian Pacific Railway's Earnings and Expenses.

The C.P.R.'s statements of earnings and expenses for June and for the first six months of 1921, show that the company has been successful in reducing its operating expenses to meet the reduced traffic conditions which continue to prevail. The gross earnings, operating expenses, net earnings and increases, or decreases, as compared with corresponding months of 1920 are given in the table on page 484 of this issue.

That traffic in June kept up well, speaking relatively, as seen by an increase in gross over May of $569,598, and by the fact that the gross earnings of June were exceeded this year only in January and March. As compared with June 1920, however, this gross shows a decrease of $2,018,932, and when the higher freight rates now prevailing are taken into consideration, it is readily seen that traffic has fallen off to a large extent. The same applies to the traffic handled in the first six months of this year, when compared with the corresponding months of 1920, the gross revenues, despite the increased rates, being lower in every case except that of January. Basing calculations on the statistics furnished by the Dominion Bureau of Statistics, which are available to the end of April only at the time of writing, the revenue traffic of the first four months, taken as indicating the trend for the six months, may be compared readily with that of the corresponding period of 1920. Adding the revenue freight ton miles to three times the passenger miles, and designating the result as traffic miles, the millions of traffic miles handled by the railway in Jan. 1921, was 1,129, against 1,389 in Jan. 1920; 846 in Feb. 1921, against 1,278 in Feb. 1920; 1,100 in March 1921, against 1,458 in March 1920, and 958 in April 1921, against 1,448 in April 1920, a total of 4,033 in the four months of 1921, against 5,573 in the four months of 1920, a decrease of 27.7%.

Despite the great falling off in traffic and the consequent reduction in gross earnings, the company has shown an increase in net for each of the first six months of 1921, as compared with the corresponding months of 1920, the total increase in net for the six months being $1,521,980. This net was also greater than that earned in the first six months of 1919, by $763,688, but was exceeded by the net earned in the first six months of each year from 1917 back to 1910. The favorable result for the first six months of this year, as compared with the results for the first six months of 1920 and 1919 must be put down to the enforcement of rigid economy in every possible direction, the fact of the property being in such a high state of maintenance and operating efficiency that these reductions in expenditure could be made, to suit conditions of reduced traffic, and to a slight improvement, over that existing during the major part of 1920, in the relation as between rates and expenses.

The Dominion Bureau of Statistics figures show large reductions in maintenance expenses for the first four months of 1921, compared with the first four months of 1920. For maintenance of way and structures, $9,051,550 was spent in the first four months of 1920, compared with $6,615,165 this year. The figures for maintenance of equipment are $15,487,527 and $12,339,811 respectively. The transportation expenses, however, for the four months, were $27,208,178 in 1920 and $26,992,635 in 1921. Although these transportation expenses applied to a much smaller volume of traffic than was carried in 1920, the fact of the wage increases by the U.S. Labor Board must be taken into consideration in noting the small decrease in transportation expense; further, the Bureau's statistics show that the payroll was 55.8% of total operating expenses in Jan. 1921, compared with 56.7% in Jan. 1920; 55.1% in Feb. 1921, compared with 57.7% in Feb. 1920; 55.4% in March 1921, compared with 57.9% in March 1920, and 58.8% in April 1921, compared with 56.7% in April 1920. This would indicate that other operating expenses increased during 1920 even more, proportionately, than wages, and that they had not receded from their high levels, to any extent, up to the end of April. Taking into consideration further, the fact that train mileage cannot be reduced proportionately to a falling off in traffic and that many items of transportation expense are constant, regardless of traffic, it would be difficult to imagine a better showing than that made by the C.P.R. It may reasonably be anticipated that if traffic had continued at the high level of 1920, an even better showing would have been made in the first six months of 1921. While transportation expense cannot be reduced proportionately to a falling off in traffic, the converse proposition, viz., that transportation expenses should not increase proportionately to increases in traffic up to the maximum capacity of the road and its equipment, is equally tenable.

In view of the fact that other operating expenses applying in the first four months of this year show an increase about proportionate to, or only slightly greater in proportion than, the wage increase, and as the percentage of wage increase of May 1, 1920, was somewhat lower than the percentage of rate increase which was granted the company in Sept. 1920, it is evident that the rate increases slightly improved the unfavorable conditions which the C.P.R., in common with all other railways, occupied at the time, and aided, to some extent, efficient management and strict economy in effecting an improvement in the net. Had the rate increase gone into effect when it logically should have, coincident with the wage increase, the operating ratio for 1920 would have been more favorable.

The operating ratio for the year 1920 was 84.70. That for June 1921 was 78.53, which represents a large improvement. The ratio for Jan. 1921 was 95.5; Feb., 93.6; March, 83.6; April, 81.2, and May, 76.2. A steady improvement to the end of May, with but a very slight falling off in June, is thus evident.

Despite the fact that the comparatively favorable showing for June and the first six months of the year are due in part to decreases in the amounts spent for maintenance, it may be taken for granted that the C.P.R. is not curtailing expenditure in this direction to an extent necessitating any deviation from its usual high maintenance standards, as the majority of U.S. roads have found it necessary to do. Taking everything into consideration, it may be confidently said that the C.P.R. has begun to "turn the corner" so far as its financial results are concerned. The recent reduction in wages, although counteracted to quite an extent by the restoration of passenger rates to the basis on which they were prior to the granting of the rate increases in Sept. 1920, will aid the company further in its efforts to get operations back on a normal basis. It must be pointed out, however, that although there has been an improvement, the operating ratio and net earnings must be a lot more favorable yet before they begin to correspond with those of pre-war years, and it is evident that no justification has as yet been seen in the operating results for the demands for large rate reductions which have been so insistent of late. Rather, the policy should be one of requiring individual rate reductions, as gradually decreasing operating expenses justify them, either in the national interest, as exemplified by the recent action in connection with the live stock industry, or to relieve existing inequalities, the result of previous horizontal increases. If such a policy be followed, it may reasonably be hoped that railway operation will quickly be restored to a normal financial basis, a basis upon which the railways will be enabled to maintain themselves in first class physical condition, and operating position, and be able to furnish capital for the extensions and improvements necessary for the country's growth and development.

Railway Manager Wanted by South Australia.—Adelaide press dispatch: — "The South Australian Premier has announced that his government has decided to secure the assistance of a railway expert with the widest possible experience in England, Canada, the United States or Australia, to assume supreme control of the state railway system, which is to be taken entirely out of politics. South Australia has 3,400 miles of railway, including 600 miles of the Transcontinental Ry. which has been built from Port Augusta in South Australia to Kalgoorlie in Western Australia, and which, in connection with various state lines, completes a through rail connection between Brisbane, on the east coast, and Freemantle, on the west coast."

Grand Trunk Ry. Arbitration Award. Ottawa press dispatch, Aug. 5.—"It will probably be some time before the Grand Trunk arbitrators are in a position to make an award. Sir Walter Cassels, Sir Thomas White and U.S. Chief Justice Wm. H. Taft, are, it is stated, examining the evidence taken. This will probably consume some time, but it is only preliminary to the meetings of the arbitrators at which the award will be discussed."

Steam Railway Statistics for Calendar Year 1920.

The following comparative table, for the calendar years 1920 and 1919, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Transcontinental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

	All railways		Canadian Government		Canadian Northern		Canadian Pacific		Grand Trunk		Grand Trunk Pacific	
	1920	1919	1920	1919	1920	1919	1920	1919	1920	1919	1920	1919
Miles operated	39,196	39,058	4,318	4,289	9,586	9,407	13,308	13,295	3,563	3,563	2,744	2,728
Capital												
Stock	$1,106,949,621	$1,104,409,122	.....	.....	$105,837,800	$105,915,300	$556,966,803	$556,966,803	$241,237,588	$241,237,589	$24,942,000	$25,944,000
Funded debt	981,272,646	931,756,484	.....	.....	342,391,241	312,008,787	22,200,000	11,640,000	222,862,787	210,448,407	165,558,033	190,568,540
Total	$2,088,222,267	$2,036,165,606	.....	.....	448,229,041	417,924,087	579,166,803	568,606,803	464,100,375	451,685,996	190,500,033	216,512,540
Operating revenues												
Freight, rail and water	$343,836,799	$273,333,622	$32,009,712	$25,319,278	$48,074,245	$38,276,585	$145,323,210	$111,086,548	$57,887,818	$48,162,013	10,757,773	8,071,935
Passenger	103,470,351	96,903,991	8,707,609	11,348,871	11,396,556	9,645,559	49,520,796	46,158,617	16,914,392	15,165,287	2,491,318	2,160,234
Mail	3,944,026	3,567,001	492,001	461,338	446,042	374,156	1,740,264	1,706,736	578,416	546,649	150,114	144,034
Express	15,552,172	12,331,859	1,307,361	1,011,703	1,737,991	1,172,026	8,103,256	6,552,289	2,658,387	2,128,618	365,386	277,394
All others	25,135,509	22,461,888	2,021,121	2,195,806	3,449,082	2,668,581	12,977,947	12,175,773	3,131,165	2,556,922	643,959	638,006
Total	$491,938,857	$408,598,361	44,537,804	40,336,996	65,103,916	52,136,907	217,665,473	177,679,963	81,170,178	68,559,489	14,408,550	11,291,603
Operating expenses												
Maintenance of way and structures	$100,119,274	$82,343,529	$13,129,295	$12,704,084	21,357,265	15,664,857	32,573,927	28,912,220	11,943,129	9,406,841	8,147,889	5,049,123
Maintenance of equipment	115,569,334	85,577,378	11,025,744	8,394,465	16,687,709	11,392,534	46,517,168	34,037,500	20,997,711	16,465,375	6,871,192	5,248,851
Traffic	9,646,628	7,242,438	767,407	450,037	1,360,305	1,019,950	4,999,345	3,829,687	1,301,203	998,677	316,139	293,694
Transportation, rail and water	233,343,576	184,214,447	28,144,651	24,795,110	39,577,313	28,383,049	90,125,496	70,749,896	38,077,653	30,372,783	8,550,461	6,253,250
Miscellaneous	7,814,424	7,101,199	846,513	918,719	1,453,317	935,070	4,225,237	4,217,947	501,361	392,541	244,428	218,048
General	12,229,027	10,420,460	1,074,070	719,929	1,811,465	1,489,741	3,871,793	3,441,594	2,780,151	2,245,990	412,954	501,081
All other transportation for invest.	Cr. 719,340	110,358	.....	.....	703,043	.....	.....	.....	6,392	1,084	.....	.....
Total	$478,002,823	$376,789,093	54,987,680	47,982,344	81,544,331	58,885,201	182,312,966	145,188,844	75,594,816	59,881,123	24,543,063	17,564,047
Net operating revenue	13,936,033	31,809,268	.....	.....	.....	.....	35,352,507	32,491,119	5,575,362	8,678,366	.....	.....
Operating deficit	.....	.....	10,449,876	7,645,348	16,440,415	6,748,294	.....	.....	.....	.....	10,134,513	6,272,444
Operating ratio	97.17%	92.2%	123.46%	118.95%	125.25%	112.94%	83.76%	81.75%	93.13%	87.34%	170.33%	155.55%
Tax accruals	9,553,990	5,554,333	.....	.....	1,454,960	598,823	5,098,203	2,664,188	1,218,257	1,141,901	45,409	95,063
Interest on funded and unfunded debt	59,102,979	54,697,465	.....	.....	24,319,956	19,744,710	8,253,994	7,634,590	10,825,220	10,197,638	8,296,478	9,290,691
Other deductions	18,769,404	18,744,951	788,179	956,955	986,127	1,524,005	2,852,990	3,038,862	5,733,263	2,994,511	715,715	4,486,841
Other income	30,401,952	32,288,815	1,806,001	1,469,007	2,699,753	2,428,423	14,196,764	12,567,390	7,681,569	5,660,590	1,735,756	7,714,685
Net corporate income	.....	.....	.....	.....	.....	.....	33,344,084	31,820,869	.....	4,906	.....	.....
Net corporate loss	43,088,388	14,928,666	9,432,054	7,133,296	40,501,705	26,187,509	.....	.....	4,519,809	.....	17,456,359	12,430,354
Dividends declared	29,942,557	30,157,307	.....	.....	.....	.....	29,227,277	29,227,277	.....	.....	.....	.....
Number of employes	184,934	173,728	23,538	24,106	33,443	30,155	70,053	65,428	31,515	30,507	7,685	6,549
Total compensation	$290,431,221	$233,323,074	$35,863,704	$30,448,150	$54,112,951	$39,942,399	$104,942,104	$87,416,939	$53,166,312	$42,450,753	$13,033,065	$9,347,606
Revenue train miles												
Freight	62,169,654	54,469,472	6,617,712	6,314,163	11,559,893	9,788,196	24,335,581	19,994,867	10,211,915	9,876,918	2,819,620	2,269,104
Passenger	47,383,411	44,883,258	4,787,341	4,803,462	6,992,016	5,847,229	20,538,038	20,411,110	7,579,633	7,089,576	1,539,184	1,284,628
Mixed	7,565,243	7,605,262	1,252,368	1,162,717	1,824,059	1,826,898	1,846,046	1,943,410	739,541	743,612	435,975	427,546
Special	202,897	95,743	29,698	494	82,132	51,127	48,125	19,543	11,551	6,837	53	4,081
Total	117,321,205	107,053,735	12,687,119	12,280,836	20,458,100	17,513,460	46,767,790	42,368,930	18,542,640	17,716,943	4,794,832	3,985,359
Car miles												
Freight, loaded	1,383,668,963	1,213,490,195	150,022,464	129,085,128	213,553,251	182,068,170	591,260,921	494,929,350	211,560,272	198,363,866	56,986,325	45,027,518
Freight, empty	515,103,338	465,546,117	46,790,202	43,990,588	90,563,018	76,199,233	209,037,856	170,620,577	82,163,055	87,731,301	31,618,515	26,813,989
Passenger train car	345,535,400	327,826,777	36,298,558	40,948,695	46,372,247	34,169,561	156,641,691	159,477,963	46,451,917	42,944,949	12,775,674	11,948,087
Passengers carried	51,306,074	47,940,456	7,344,074	6,886,423	5,468,352	4,925,547	16,769,555	15,671,752	12,193,131	11,609,985	824,733	817,162
Passengers carried 1 mile	3,521,479,500	3,658,492,716	361,555,820	493,889,601	387,818,185	344,773,029	1,718,084,609	1,763,604,596	528,743,048	559,257,832	92,262,859	76,510,935
Tons of freight carried	127,388,453	111,487,780	12,975,314	11,290,556	14,504,411	12,439,314	29,919,645	25,102,821	26,313,003	23,277,063	2,853,116	3,002,635
Tons of freight carried 1 mile	31,893,182,716	26,950,598,322	3,421,992,297	3,008,655,389	4,729,604,499	4,046,023,363	13,856,607,551	10,926,848,494	5,001,884,326	4,559,462,033	1,111,628,503	746,631,127
Locomotive miles												
Freight	66,981,163	59,063,240	7,294,130	7,261,681	11,688,914	9,845,767	26,303,177	21,865,678	11,045,163	10,638,984	2,921,455	2,369,860
Passenger	48,957,942	46,154,564	4,952,881	4,939,109	7,086,694	5,853,288	21,333,371	21,318,053	7,920,413	7,380,440	1,539,521	1,310,102
Mixed	7,877,184	8,146,394	1,366,038	1,311,069	1,834,798	1,836,616	1,859,542	1,963,237	746,584	760,373	436,033	457,422
Special	234,197	117,679	31,004	542	84,943	51,574	51,813	22,244	12,655	7,065	53	5,060
Switching	27,878,053	25,560,456	2,529,900	2,733,260	4,799,190	4,847,475	9,171,740	8,114,795	7,315,337	4,753,851	873,636	543,528
Total	151,928,539	139,042,333	16,173,953	16,245,661	25,494,539	22,434,720	58,719,643	53,284,007	27,040,152	23,540,713	5,770,698	4,685,972
Non revenue	5,550,968	.....	776,074	962,935	1,722,439	1,510,637	1,803,420	1,482,500	.....	1,060,824	732,849	495,293
Total	157,479,507	.....	16,950,027	17,208,596	27,216,978	23,945,357	60,523,063	54,766,507	27,040,152	24,601,537	6,503,547	5,181,265
Fuel consumed												
Freight train service, tons	5,540,566	5,052,501	673,011	650,409	955,651	720,220	2,297,549	1,939,128	935,423	922,292	.....	214,871
Passenger train service tons	2,385,734	2,347,468	276,222	296,178	354,398	303,159	1,019,630	1,018,111	418,241	375,102	.....	76,260
Mixed train service tons	707,496	488,716	82,555	85,688	128,082	120,009	112,296	114,168	47,136	42,778	.....	25,530
Special train service tons	8,722	363,110	1,322	552	935	1,699	3,017	1,198	738	405	.....	.....
Switching service tons	1,664,593	1,444,740	146,345	159,271	195,723	203,467	575,814	480,727	475,658	402,041	.....	43,206
Non revenue train service tons	360,356	.....	54,763	68,999	127,152	116,229	98,343	81,137	50,187	49,539	.....	15,536
Total tons	10,667,467	9,696,625	1,234,218	1,261,097	1,761,941	1,464,813	4,106,649	3,634,469	1,927,383	1,792,157	.....	375,403
Average cost per ton	$6.28	$5.42	$7.28	$6.75	$6.78	$5.05	$6.39	$5.33	$6.07	$5.14	.....	.....
Total cost	$66,983,301	$52,563,334	$8,990,434	$8,508,012	$11,940,803	$7,395,952	$26,261,276	$19,375,821	$11,704,460	$9,205,304	$2,602,133	$1,765,490

The Railway Operating Results for 1920.

These statistics are not only of the greatest interest to all who are connected, directly or indirectly, with the transportation industry, but are also of immediate concern to every citizen. They portray a condition in the railway industry, in which such large sums of the companies' wealth are invested, which demands most serious consideration and the bending of all effort toward the securing of an improvement. The fact of the capitalization of the railways being in excess of $2,000,000,000 emphasizes the magnitude of the investment Canada has in her railways, and the fact of the people of this country paying almost $500,000,000 in a single year for the transportation of themselves and their goods serves to indicate how great a part rail transportation plays in the country's economic life.

The Canadian Pacific in 1920, with its 13,308 miles of road, had a larger gross revenue than the Canadian Government Rys., Canadian Northern, Grand Trunk and Grand Trunk Pacific with their combined 20,211 miles. The significance of this is at once evident, and serves to show that the great need of the government owned railways is more traffic. They would be in an unfavorable position even if railway financial returns varied directly with the amount of traffic handled; they are in an even more unfavorable position, because this variation is not direct. Railway operation affords perhaps the best illustration of the effect on net earnings of so-called "overhead" costs, which cannot be eliminated when the volume of business handled is much smaller than can be taken care of by the facilities provided. With a business representing only a percentage of the maximum capacity of the road and its equipment, the freight traffic offering must be carried in smaller trainloads, while the number of tons of revenue freight per loaded car mile tends to decrease. Locomotive freight train and passenger train, and freight and passenger car miles tend to decrease less rapidly than revenue freight ton miles and passenger miles, as shown by the figures, and maintenance of way and equipment expenses cannot be reduced at all in proportion to the reduced earnings. It is evident that railway operation is perhaps the best example of what political economists are pleased to call a "business of increasing and decreasing returns," and it is also evident that a great requisite for success in the national railway venture is a large increase in gross operating revenues, derived from a large increase in traffic handled.

The foregoing principle of railway operation is at once apparent, on comparing the maintenance of way, maintenance of equipment, and transportation expenses, in turn, with the total operating revenue, for each of the railways shown. For example, out of an operating revenue of $217,000,000 the C.P.R. spent $32,000,000 on maintenance of way and structures; out of an operating revenue of $14,000,000, the G.T.P. found it necessary to expend $8,000,000 on the same account. The same discrepancy arising from the limited traffic and consequent low earnings on the government roads is evident in all the figures to a more or less degree. Concerning the transportation expenses of the different roads, and their relation to gross earnings, we can do no better than quote from Lord Shaughnesy's letter to the Dominion Prime Minister in which he said:—The train mileage on the Canadian National System is out of all proportion to the revenue, taking the C.P.R. as a standard. Were it possible to effect a reduction in train mileage on the National system, to make the ratio of train miles to earnings the same as that on the C.P.R., the saving in transportation alone would represent upward of $22,000,000 a year. This, however, is out of the question, because, while there might be a substantial shrinkage of train mileage, without serious public inconvenience, the great mileage of the National system to be served, and the limited traffic available, prevent a proper relation between traffic and train miles. The C.P.R. handled traffic representing revenue 71% in excess of the Canadian National, with an additional cost of transportation of only 13%."

An examination of the transportation expenses in the table of page 479, and consideration of them in connection with the figures for train mileage, car mileage, revenue freight ton mileage and revenue passenger miles, amply demonstrates the accuracy of Lord Shaughnessy's statement, and the operation of the underlying principle of railway operation it contains.

In comparing the figures for 1920 with those for 1919, it is seen that although operating revenues increased by $83,340,496 over 1919, the operating expenses increased by $101,213,730, which meant a decrease in net operating revenue of $17,873,265, and an increase in operating ratio of from 92.2 to 97.17. The state to which the railway industry was reduced in 1920 is evident when it is remembered that the average operating ratio for the period from 1900 to 1917 inclusive was 71, the range for those 18 years being from 64.7 to 74.4. Students of railway economics say that a railway cannot have an operating ratio of much over 70 over a period of years, and continue to raise capital at reasonable rates, with which to provide the facilities necessary for adequate public service. Operating ratios of 123.46 for the Canadian Government Rys., 125.25 for the Canadian Northern, 93.13 for the Grand Trunk and 170.33 for the Grand Trunk Pacific, demonstrate the great task which faces the managements of these railways and the people of Canada in getting these properties on a proper financial basis. It may be said, however, that the operating ratio of 1920 is a direct and fully anticipated result of the vastly increased prices which the railways found it necessary to pay for labor, and materials, of all kinds, and of the delay until Sept. 1920 in allowing them to place rates on a basis which would make them more nearly compensatory.

Considering the railways as a whole, out of 56 reporting, 31 paid operating expenses and 25 had operating deficits. Of the 31 which paid operating expenses, 19 had a total corporate income of $36,581,437, the corporate loss of the other 37 being $79,669,825. While the figures shown for net loss for the Canadian Northern in the table include interest, interest on the Canadian Government lines funded and unfunded debt is not included. Only seven roads declared divients, viz., Canada Southern, $450,000; Canadian Pacific, $29,227,276; Hereford (Maine Central), $32,000; Massawippi Valley (Boston & Maine), $24,000; Napierville Jct., $36,000; Quebec Central, $169,080; Thousand Islands, $4,200.

Extending the comparison further, as between 1919 and 1920, it is seen that the total corporate loss in 1920 was $28,159,722 greater than in 1919. Over 56% of the increase in operating expenses was in salaries and wages, which increased about 25%, or $57,108,147, thus reflecting the increases allowed the employes in consequence of the United States wage award which became effective May 1, 1920. The 6% increase in the number of employes is also to be noted. In comparing the traffic statistics, an 18% increase in the ton miles of revenue freight carried is evident, reflecting the great business activity which prevailed during the greater part of the year. Although the number of passengers carried in 1920 showed an increase over 1919, the average journey was much shorter, resulting in a lower figure for revenue passenger mileage. The operating statistics indicate that the traffic of 1920 was handled with as high a degree of efficiency as that of 1919, or even a higher degree. The figures showing the cost of fuel are merely representative of the increased prices which the railways were obliged to pay for everything. Comment on other operating statistics in the table appears unnecessary; they are but expressive of logical results of the conditions under which the railways operated, and combine to demonstrate that the railways require both large reductions in their operating expenses, and increased traffic, to put them on a proper basis.

Bad as were the operating results of Canadian railways for 1920, it is a satisfaction to be able to identify the causes which produced these results, and of knowing that they have been but the local manifestations of conditions affecting the railway industry which have been world wide in their application. The United States railways earned the largest gross revenue in their history, operating expenses and taxes were the highest ever recorded, and more freight and passengers were transported than ever before, but the operating ratio was the highest, and the net operating income was the lowest, in the industry's history. In considering the performance of Canadian railways, it is well to take into consideration all the facts, and when this is done, it will be seen that the government owned railways, faced with high wages and material costs, and operating a large mileage of low traffic density road just emerging from the colonization stage, have produced results which are as good as was humanly possible.

An outstanding feature of the 1920 results, which emphasizes a principle of rail transportation not to be lost sight of, is found in the C.P.R. results. The manner in which this company has rendered transportation service to the Canadian people while it continued on a self supporting basis at rates on which U.S. railways incurred deficits which had to be made up by the people of that country to the extent of one and a half billion dollars, is remarkable. In addition to speaking volumes for the high degree of efficiency with which the property has been operated, it shows clearly and unmistakably the wisdom of a policy of regulation wherein a railway is allowed

to earn a return on its investment sufficient to maintain it in a position of financial strength and first class physical condition. It is to be desired that the policy in this connection, so ably interpreted and put into operation by the Board of Railway Commissioners in its last year's rate judgment, will be continued, and that the people of this country will not be guilty of a policy of false economy in connection with its transportation systems, in demanding rates which are not compensatory.

The year 1920 was an extraordinary one for the railway industry, it has been called the worst the railways ever experienced, but it brought its lessons, and a change for the better is surely, if slowly, taking place. Economy is being practised in every direction, and although traffic has not yet resumed its former volume, operating expenses are being reduced appreciably. The great need of Canadian railways is greater traffic, which calls for increased population and more production and business activity. These must be obtained before the railway industry can be on a thoroughly sound basis. Comparing the traffic on the Canadian lines with that available for U.S. railways, and taking into consideration the advantage in operation which a large traffic inevitably affords, it is evident that our railways have been and are, operated with a high degree of efficiency, and with the increases in population and production which this country is justified in expecting, there is no reason why all of our railways should not be financially self supporting and able to maintain themselves in a high state of operating efficiency.

Birthdays of Transportation Men in September.

Many happy returns of the day to:—

Wm. Aird, ex Master Mechanic, Locomotive Works, G.T.R., Montreal, now of Barrie, Ont., born in London, Eng., Sept. 3, 1843.

W. B. Bamford, District Freight Agent, C.P.R., Nelson, B.C., born at Belleville, Ont., Sept. 10, 1863.

O. E. Becker, Chief Dispatcher, Canadian National Rys., Saskatoon, Sask., born at Montreal, Sept. 20, 1873.

G. T. Bell, Passenger Traffic Manager, G.T.R., Montreal, born there, Sept. 7, 1861.

W. H. Biggar, K.C., Vice President and General Counsel, G.T.R., Montreal, born at The Carrying Place, near Trenton, Ont., Sept. 19, 1852.

E. J. Blais, Foreman Tinsmith, Canadian National Rys., Transcona, Man., borne Sept. 26, 1876.

V. T. Boughton, Assistant Superintendent, Chapleau Division, Algoma District, C.P.R., Chapleau, Ont., now of New York, born at Troy, N.Y., Sept. 9, 1888.

E. R. Bremner, ex-Division Freight Agent, Ottawa Division, G.T.R., Ottawa, born at Toronto, Sept. 9, 1875.

W. B. Bulling, ex-Assistant Freight Traffic Manager, Eastern Lines, C.P.R., now of Knowlton, Que., born at Montreal, Sept. 16, 1858.

W. E. Burke, Director of Transportation, Canada Steamship Lines, Montreal, born at Belleville, Ont., Sept. 23, 1881.

A. D. Cartwright, Secretary, Board of Railway Commissioners, Ottawa, born at Kingston, Ont., Sept. 30, 1864.

J. H. Corcoran, General Travelling Agent, Canadian National Rys., Moncton, N.B., born at Charlottetown, P.E.I., Sept. 18, 1874.

A. S. Dawson, Chief Engineer, Natural Resources Department, C.P.R., Calgary, Alta., born at Pictou, N.S., Sept. 6, 1871.

W. E. Duperow, General Passenger Agent, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Stratford, Ont., Sept. 4, 1872.

R. S. Elworthy, General Agent, Passenger Department, Ocean Traffic, C.P.R., Chicago, Ill., born at London, Eng., Sept. 10, 1877.

H. G. Foreman, Assistant Treasurer, Canadian Northern Ry. System, Toronto, born there, Sept. 2, 1882.

C. B. Foster, Assistant Passenger Traffic Manager, Eastern Lines, C.P.R., Montreal, born at Kingston, N.B., Sept. 30, 1871.

G. J. Fox, Superintendent, Calgary Division, Alberta District, C.P.R., Calgary, Alta., born at Montreal, Sept. 24, 1883.

W. H. Gordon, Trainmaster, C.P.R., Field, B.C., born at Montreal, Sept. 21, 1875.

R. S. Gosset, Auditor of Disbursements, Canadian Northern Ry., Toronto, born there, Sept. 28, 1879.

E. Goulet, Agent, C.P.R., New Westminster, B.C., born at Quebec, Que., Sept., 1865.

W. B. Howard, District Passenger Agent, C.P.R., Toronto, born at Chatham, N.B., Sept. 15, 1877.

W. R. Howard, dispatcher, C.P.R., Brownville Jct., Me., born at St. Andrews, N.B., Sept. 14, 1871.

Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., Montreal, born at Brockville, Ont., Sept. 15, 1858.

G. C. Jones, Assistant to President, G.T.R., Toronto, born at Clyde, N.Y., Sept. 24, 1869.

C. B. King, Manager, London St. Ry., London, Ont., born at Galena, Ind., Sept. 12, 1871.

S. King, London, Ont., born at Thetford, Norfolk, Eng., Sept. 12, 1853.

C. C. Labrie, Purchasing Agent, Canadian National Rys., Vancouver, B.C., born at Quebec, Que., Sept. 8, 1882.

R. E. Larmour, Acting Assistant Freight Traffic Manager, C.P.R., Montreal, born at Brantford, Ont., Sept. 26, 1868.

C. D. MacKintosh, Superintendent, Lethbridge Division, Alberta District, C. P.R., Lethbridge, Alta., born at Auckland, New Zealand, Sept. 24, 1882.

W. A. Mather, General Superintendent, Saskatchewan District, C.P.R., Moose Jaw, born at Oshawa, Ont., Sept. 1885.

J. A. Morice, Foreign Freight Agent, C.P.R., Toronto, born at Stratford, Ont., Sept. 17, 1878.

M. B. Murphy, Manager, Winnipeg Joint Terminals, Winnipeg, born at Napa, Cal., Sept. 11, 1866.

J. Paul, District Freight Agent, Canadian National Rys., Winnipeg, born in Euphrasia Tp., Ont., Sept. 13, 1858.

W. J. Pickrell, Master Mechanic, New Brunswick District, C.P.R., St. John, born at London, Ont., Sept. 15, 1880.

H. T. Rawlings, ex-Lake Forwarding Agent and Fuel Inspector, Canadian National Rys., now Vice President, Baier Coal Co., Cleveland, Ohio, born at London, Eng., Sept. 27, 1883.

C. S. Richardson, District Freight Agent, C.P.R., Buffalo, N.Y., born at New York, Sept. 26, 1870.

W. D. Robb, Vice President, Transportation and Maintenance, G.T.R., Montreal, born at Longueuil, Que., Sept. 21, 1857.

A. Scott, Resident Engineer, Prince Edward Island Ry., Charlottetown, P.E. I., born at Kirkcaldy, Scotland, Sept. 6, 1884.

F. A. Shaw, General Agent, Freight Department, Canadian National - Grand Trunk Rys., Cleveland, Ohio, born at Smiths Falls, Ont., Sept. 29, 1872.

J. M. Silliman, ex-Engineer, Maintenance of Way, Susquehanna Division, Delaware & Hudson Rd., Oneonta, N.Y., now of Montreal, born at Easton, Pa., Sept. 8, 1885.

F. W. Sterling, ex-District Freight Agent, C.P.R., Edmonton, Alta., now of Quelch and Sterling, Vancouver, B.C., and Shanghai, China, born at Thornbury, Ont., Sept. 13, 1879.

Hon. L. C. Webster, President, Webster Steamship Co., President, Quebec Railway, Light & Power Co., and Second Vice President, Dominion Marine Association, born at Quebec, Que., Sept. 30, 1871.

F. G. Wood, Ontario Freight Agent. Canadian Government Merchant Marine, Toronto, born there, Sept. 15, 1890.

H. A. Young, Walford Forwarding Corporation, Toronto, born at Brooklyn, N.Y., Sept. 1, 1864.

Imperial Service Medals for Canadian Government Rys. Employes.

Imperial Service Medals have been granted to the following Canadian Government Rys.' employes:—T. Anderson, brakeman, Moncton, N.B.; I. Bouthillette, conductor, Levis, Que.; J. Candle, locomotive wiper, Truro, N.S.; A. E. Clarke, station agent, Souris, P.E.I.; J. Collison, locomotive man, Sydney, N.S.; C. Cool, locomotive man, Dalhousie, N.B.; J. E. Cote, station agent, Trois Pistoles, Que.; D. Crowley, baggage master, Halifax, N.S.; J. A. Davidson, conductor, Moncton, N.B.; J. Donald, locomotive man, Moncton, N.B.; J. Devereaux, locomotive house foreman, Campbellton, N. B.; T. Dunn, station agent, Blackville, N.B.; W. H. Fielding, carpenter, Moncton, N.B.; J. Gallivan, locomotive man, Sydney, N.S.; W. W. Gordon, conductor, New Glasgow, N.S.; W. Hanway, fireman, Truro, N.S.; J. Hay, section foreman, Antigonish, N.S.; A. L. Leaman, machinist, Moncton, N.B.; J. Lyons, section foreman, Stewiacke, N.S.; C. J. McCarthy, machinist, Moncton, N.B.; W. McClafferty, conductor, Halifax, N.S.; J. McDorman, brakeman, Truro, N.S.; D. Marmen, extra gang foreman, Riviere du Loup, Que.; N. Merrill, constable, Moncton, N.B.; C. H. Morash, car carpenter, Halifax, N.S.; F. Morency, switchman, Chaudiere Jct., Que.; T. W. Lester, train baggage master, Truro, N.S.; M. Normand, locomotive man, Chaudiere Jct., Que.; J. Paradis, conductor, Levis, Que.; H. H. Pengilly, machinist, Moncton, N.B.; J. St. Onge, brakeman, Levis, Que.; T. L. Salterio, train baggage man, Halifax, N.S.; C. E. Sawyer, locomotive man, Riviere du Loup, Que.; R. W. Scribner, station agent, Cold Brook, N.S.; J. Stewart, brakeman, Charlottetown, P.E.I.; M. Steeves, assistant scrap foreman, Moncton, N.B.; W. Wall, section foreman, Riversdale, N.S.; E. L. Watts, conductor, Moncton, N.B.

G. T. Bell, Passenger Traffic Manager, G.T.R., Montreal, writes:—"The Canadian Railway and Marine World deserves its well known reputation for accuracy, in its particular field."

Steam Railway Operating Revenues, Expenses and Other Statistics for April.

The following comparative table, for April, 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of $500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	$23,221,832	$23,980,970	$2,376,952	$2,495,731	$3,702,086	$3,693,056	$9,079,557	$10,795,547	$4,125,947	$4,149,052	$652,851	$652,491
Passenger	6,672,402	7,349,525	630,298	563,455	816,747	835,664	3,118,039	3,677,887	1,079,700	1,177,376	172,604	184,600
Mail	584,550	274,619	80,674	38,282	72,389	33,740	275,665	120,932	85,455	42,698	26,124	11,835
Express	1,185,270	1,190,377	119,226	108,668	159,940	118,483	609,389	596,912	200.046	259,051	25,648	23,045
All other	1,771,231	1,736,845	155,920	160,535	242,861	207,562	848,670	936,043	168,662	203,666	30,917	46,320
Total railway operating revenues	33,335,287	34,531,337	3,363,072	3,366,674	4,994,025	4,888,507	13,931,322	16,127,324	5,659,812	5,831,845	908,146	918,291
Operating expenses												
Maintenance of way and structures	5,588,673	6,451,368	$612,718	$736,054	$1,362,307	$1,392,031	$1,707,742	$2,417,454	$816,124	$688,476	$389,914	$442.092
Maintenance of equipment	7,586,961	9,161,514	966,040	737,574	1,526,597	1,368,898	2.563,817	4,126,760	1,271,339	1,555,898	472,167	455,843
Traffic	855,745	673,936	43,571	29,574	113,757	90,120	468,853	390,484	125,886	83,156	25,942	23,964
Transportation	16.706,383	15,830.496	2.189,956	1,841,649	3,112,571	2,822,280	6,059,010	6,364,909	2,748,946	2,632,844	769,282	537,251
Miscellaneous operation	438,733	529.826	49,967	53,990	95,442	73,457	206,140	311,825	25,863	20,431	5.905	24,172
General	975,607	855,343	53,740	83,720	173,980	110,321	308,424	309.717	253,607	199,249	32,519	31,623
All other	Cr. 93,237	Cr. 48,362	.....	.....	Cr. 56,918	Cr. 57,279	.....	.....	Cr. 661	.....	Cr. 49,817	.....
Total railway operating expenses	32,058,867	33,462,007	3,915,994	3,482,563	6,327,739	5,799,829	11,313,989	13,921,152	5,241,106	5,180.056	1.645,915	1,514,948
Net operating revenue	1,276,419	1,069,329	.....	.....	.....	.....	2,617,333	2,206,172	418,706	651,788	.....	.....
Net operating deficit	.....	.....	552,922	115,889	1,333,714	911,321	.....	.....	.....	.....	737,769	596,656
Ratio of operatig expenses to revenue	96.17%	96.90%	116.44%	103.44%	126.71%	118.64%	81.21%	86.32%	92.60%	88.82%	181.24%	164.97%
Mileage and operating statistics												
Average No. of miles of road operated	38,321.70	37.746.15	4,564.05	4,117.75	9,757.4	9,653.6	13,785.8	13,772.1	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue)	7,188	9,122	647	1,085	941	1,181	1,945	2,627	1,583	2,041	212	205
Tons moved one mile (revenue)	1,749,308	2.347,752	205,559	298,625	295,609	398.723	646,884	1,048,952	277,296	363,961	94.394	61.037
Tons moved (all freight)	8,394	10,196	781	1,199	1,173	1,405	2,373	3,118	1.899	2,253	266	279
Tons moved one mile (all freight)	1,953,640	2,587,605	234,010	315,005	346,103	465,269	723,392	1,165.449	302,664	382,867	114,200	79.681
Passengers carried	3,511	4,010	525	606	401	465	1,208	1,430	902	979	61	80
Passengers carried one mile	219,110	268.130	24,401	24,836	25,319	29,605	103,805	133,298	35,231	41,685	6,184	9,026
Freight train miles	3,596	4,531	427	540	672	892	1,239	1,829	673	738	186	195
Passenger train miles	3,457	3,544	379	353	498	543	1,476	1,606	625	578	129	101
Mixed train miles	556	601	96	97	153	161	146	169	58	63	33	39
Loaded freight car miles	82,355	104,985	9,258	11,872	13,665	18,581	30,517	47,661	13,684	15,028	4.388	4,078
Empty freight car miles	40,975	31,068	4,662	3,363	8,899	6.522	11,127	11,598	7.862	4,636	2,499	2,250
Passenger car miles	24,319	24,872	2,775	2,539	3,335	3,460	10,886	11,828	3,764	3,482	1,031	825
Total amount of pay roll	$18,999,980	$20,097,354	$2,498,477	$2,401,694	$3,783,620	$3,676,367	$6,663,309	$7,892,204	$3,700,741	$3,597,658	$754,715	$946,016
Averages per mile operated												
Operating revenue	$869.88	$914.83	$736.86	$817.59	$511.81	$506.39	$1,010.56	$1,171.01	$1,584.95	$1,633.11	$323.49	$327.11
Operating expenses	$836.57	$886.50	$858.01	$845.75	$648.50	$600.79	$820.70	$1,010.82	$1,467.69	$1,450.59	$586.29	$539.65
Net operating revenue	$33.31	$28.83	.....	.....	.....	.....	$189.86	$160.19	$117.26	$182.52	.....	.....
Net operating deficit	.....	.....	$121.15	$28.14	$136.69	$94.40	.....	.....	.....	.....	$262.80	$212.54
Tons moved one mile (revenue)	45,648	62,251	45,039	72,521	30,296	41,303	46,924	76,165	77,652	101,921	33.625	21.742
Tons moved one mile (all freight)	50,979	68,552	51,273	76,499	35,470	48,196	52,474	84,624	84,756	107,216	40,708	28,384
Averages per freight and mixed train miles												
Freight receipts	$5.59	$4.68	$4.54	$3.91	$4.48	$3.50	$6.11	$5.40	$5.64	$5.17	$2.97	$2.77
Tons of freight (revenue)	421.3	457.8	392.3	468.4	357.8	378.2	435.3	525.0	378.8	453.6	428.8	258.9
Tons of freight (all freight	470.4	504.1	446.7	494.1	418.9	441.4	486.7	583.3	413.4	477.2	519.1	338.0
Loaded freight cars	19.8	20.5	17.7	18.6	16.5	17.6	20.5	23.9	18.7	18.7	19.9	17.3
Empty freight cars	9.9	6.1	8.9	5.3	10.8	6.2	7.5	5.8	10.7	5.8	11.4	9.5
Average per passenger and mixed train mile												
Passenger receipts	$1.66	$1.77	$1.33	$1.25	$1.25	$1.19	$1.92	$2.07	$1.58	$1.83	$1.06	$1.31
Passengers carried	54.6	64.7	51.3	55.1	38.8	42.0	64.0	75.1	51.5	64.9	38.0	64.1
Passenger cars	6.1	6.0	5.8	5.6	5.1	4.9	6.7	6.7	5.5	5.4	6.3	5.5
Average per freight, passenger and mixed train miles												
Operating revenue	$4.38	$3.98	$3.72	$3.40	$3.77	$3.06	$4.87	$4.47	$4.17	$4.22	$2.60	$2.73
Operating expenses	$4.21	$3.86	$4.34	$3.51	$4.78	$3.63	$3.95	$3.86	$3.86	$3.75	$4.71	$4.50
Aver. length of haul)rev. freight) miles	243.3	257.6	317.7	275.0	314.1	249.6	332.5	399.2	175.2	178.3	445.0	296.7
Average passenger journey, miles	62.4	66.9	46.4	40.9	63.1	63.6	85.9	93.2	39.0	42.5	100.1	112.0
Average tons per loaded freight car	23.7	24.6	25.3	26.5	25.3	25.0	23.7	24.4	22.1	25.5	26.0	19.5
Ratio loaded to total freight car miles	66.8%	77.2%	66.5%	77.9%	60.6%	74.0%	73.3%	80.4%	63.5%	78.8%	63.7%	64.4%
Ratio of pay roll to revenue	57.0%	58.2%	74.3%	71.3%	75.8%	75.2%	47.8%	48.9%	65.4%	61.7%	83.1%	103.0%
Ratio of pay roll to operating expenses	59.3%	60.1%	64.8%	69.0%	50.8%	63.4%	58.8%	56.7%	70.6%	69.5%	45.9%	62.4%
Aver. freight receipts per rev. ton mile	1.327c.	1.021c.	1.156c.	.836c.	1.252c.	.926c.	1.404c.	.929c.	1.488c.	1.140c.	.692c.	1.069c.
Aver. passenger receipt per pass. per mile	3.045c.	2.741c.	2.583c.	2.269c.	3.225c.	2.823c.	2.994c.	2.759c.	3.065c.	2.824c.	2.791c.	2.045c.

Last 2 figures omitted

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc., includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

The Railways' Operating Results for April.

The gross earnings of Canadian railways for April, as given in the table on pg. 482, continue to reflect the unfavorable economic conditions which have prevailed, as is shown by a decrease in operating revenue of over $2,000,000 from that of March, and of over $1,000,000 from that of April, 1920. When it is seen that, despite the increased rates, as shown on a ton mile and passenger mile basis in the table, gross earnings have decreased, it is evident that the volume of business handled by the railways is a faithful indicator of the degree of economic prosperity enjoyed by the country as a whole. This is but natural, however, as transportation is an essential in all departments of industrial activity.

In comparing the operating revenues of the individual roads for April 1921 and 1920, it is seen that all except the Canadian Northern suffered a small decrease, this exception showing an increase of $105,518. The Canadian Government Rys. show an increase in gross earnings from passengers, but this was more than wiped out by the decreae in freight handled. The G.T.P. freight earnings remained practically constant, and although a much greater tonnage was handled, the average receipt per ton mile was much lower than for April 1920. With the exceptions noted, the decrease in gross for all the roads arose from small decreases in both passenger and freight earnings on the individual roads.

An examination of the total operating expenses shows a substantial decrease. This, of course, is not in proportion to the falling off in traffic, for the reason that the U.S. wage award became effective on May 1, 1920, and therefore applied to April 1921, and also because a smaller traffic cannot be handled at a unit cost as low as can a traffic which is nearer to the maximum capacity of a railway. Less was spent on maintenance of way and structures by all roads except the G.T.R. In maintenance of equipment, the Canadian Government Rys., Canadian Northern and Grand Trunk Pacific spent more in April 1921 than in April 1920, but the Grand Trunk expended 19% less on this account than in 1920, while the C.P.R. cut its 1920 expenditure for maintenance equipment by 38%. Transportation expenses show a substantial increase on all roads except the C.P.R., on which they decreased 5%, indicating its strong operating position and the ability to meet conditions of reduced traffic with reductions in its operating costs. The large increase in transportation expenses on the Grand Trunk Pacific is not at all out of proportion to the increase in business handled, and taking into consideration the wage increases applying in April 1921, it is evident that the additional traffic was handled economically. The low ton mile rate applying to grain and other agricultural products is the chief reason for the increase in the operating ratio. It will be seen that all railways except the C.P.R. had larger operating expenses in April 1921 than in April 1920, but that the decrease in the C.P.R. figures more than compensated for the increase in those for all the other railways.

For the railways as a whole, the operating expenses decreased a little more than the operating revenues, resulting in a slight improvement in the operating ratio. The figure for the month, 96.17%, is a little better than that for March 1921, when it was 96.64%. Although this improvement is so small as to be unimportant in itself, it nevertheless indicates a trend in the right direction. It must be acknowledged, however, that the C.P.R.'s comparatively low operating ratio influenced the figure for all the railways in a great degree, and in view of the fact that all the Government owned railways except the G.T.R. had an operating ratio much greater than 100, it is evident that the Canadian people are not yet in a position to congratulate themselves in connection with the financial returns of their railways.

In examining the traffic figures, the great falling off in freight business is at once evident. All the lines, except the Grand Trunk Pacific, show a decrease in tonnage handled, indicating perhaps better than anything else the extent to which business activity has been curtailed during the year. For the railways as a whole, the decrease in the number of tons of revenue freight handled was 22%, and the average haul also decreased. Although the average haul on the Canadian Government, Canadian Northern and Grand Trunk Pacific railways increased, the great decrease on the C.P.R., together with the small decrease on the Grand Trunk, more than counterbalanced these increases. Passenger traffic on all railways showed a large decrease also, as did the average passenger journey. The extent to which this may be accounted for by the 10% increase in fares, which remained in effect during April 1921, is problematical, but it is likely that this falling off in passenger business is due to the causes which have produced the great decrease in freight business, and is a logical result of the general economic situation.

The number of tons of freight handled one mile, for all railways, decreased 26% from that handled in April 1920. The number of freight train miles decreased but 22%, indicating that the tonnage handled had to be carried in smaller train loads, this being borne out by the figures for freight train loading, which show a reduction of 8%. It is worthy of note that the C.P.R., which suffered a decrease in revenue freight ton mileage of 38%, was able to reduce its freight train mileage 32%, as a result of its established traffic movement and strong operating position.

Passengers carried one mile decreased by 19% for all roads. Passenger train mileage decreased only 3%. Scheduled trains must be run, whether they are carrying to 100% capacity, or only 50%, while the cost of operating them does not vary materially. It is evident that this large decrease in passenger traffic means a large loss to the railways, and it is a loss which cannot be obviated to any extent by any increase in operating efficiency. The figures given in the table for passenger car miles and average number of passengers carried per passenger train mile, further illustrate this important feature of railway operation.

The figures showing averages per mile of road operated further demonstrate the falling off in traffic which the railways have experienced, and show a smaller operating revenue per mile of road operated, despite increases in freight and passenger rates. The decrease in operating expenses per mile of road operated would be more encouraging if these expenses supplied transportation for the volume of traffic which was handled in April 1920, but with increased wages, material prices which were still relatively high, and higher unit costs of operation due to reduced traffic, a better performance would be difficult to secure.

While the increased rates on freight traffic compensated for the falling off in business, it is evident, on examining the passenger train mile figures, that the decrease in passenger business was not compensated for by the increased fares. Although the Canadian Government and Canadian Northern railways showed small increases in passenger train mile earnings, these were more than wiped out by the decreases suffered by the C. P.R., G.T.R., and Grand Trunk Pacific.

The disadvantage under which a railway is placed when it experiences a falling off in traffic is also shown by the figures for freight car loading. Not only does the revenue freight handled in each train tend to decrease, but the same is true of the revenue freight in each carload. The average car loading for April 1920 was 24.6 tons, and for April 1921, it was but 23.7 tons.

The ratio of the payroll to total operating revenue, and to total operating expenses, decreased somewhat, although not materially. It is still a great deal higher than in pre-war years, but for all railways, as between April 1920 and April 1921, is is evident that the rate increases have served to compensate for wage increases, the more so since the tendency of a decrease in traffic is to increase the ratio of the payroll to revenue, despite rigid economies and reductions in the operating forces. The fact of the ratio of the payroll to revenues and expenses having shown a slight decrease, would also indicate that reductions in material costs and other items of expenses, had not begun to make themselves felt to an appreciable degree up to the end of April.

The last two figures serve to show clearly the effect of the freight and passenger rate increases which were granted by the Board of Railway Commissioners, effective Sept. 13, 1920. The increase in freight rates amounted, on the average, to 29.9%, and the increase in passenger rates and rates for associated services, to 11%, as between the two months.

The Wabash Rd. does not own any lines in Canada, but operates over 245.40 miles leased from the G.T.R. Its figures, which are not included in the table on pg. 482, owing to want of room, show some extraordinary changes. In operat-

ing revenues freight increased from $191,574.95 in April 1920 to $507,918.27 in 1921, passenger increased from $11,-010.59 to $19,521.32; express decreased from $13,765.11 to $2,602 and the total revenue increased from $219,072.84 to $539,595.66. The total operating expenses increased from $32,077.58 to $421,199.17, a net operating deficit of $101,698.74 was charged to net operating revenue of $118,396.49 and the ratio of operating expenses was reduced from 146.42% to 78.06%.

Corrections for Railway Statistics Figures.

In the table of Steam Operating Revenues, Expenses and Statistics for February, published in Canadian Railway and Marine World for August, on pg. 403, under the heading "Average per passenger and mixed train mile," the passenger receipts for the Canadian Northern Ry. System were given as $9.88 for Feb. 1921, and $9.68 for Feb. 1920, while the average passenger receipts for all railways in Canada for Feb. 1921 were only $1.49 and for Feb. 1920 $1.44. Our attention having been called to the discrepancy, we took the matter up with the Dominion Statistician, who furnished the figures, and who has advised us that an error was made in the location of the decimal point, and that the correct figures for the Canadian Northern for Feb. 1921 are $0.988 and Feb. 1920 $0.968.

The average passenger receipts per passenger and mixed train miles for the Canadian Government Rys. for March 1921 were $1.28, instead of $2.81, as stated in the Bureau of Statistics' original report.

Toronto, Hamilton & Buffalo Railway's Annual Report.

Following are extracts from the directors' report for the calendar year 1920. The report covers the operation of mileage as follows: Main line 79.88 miles: Branches 20.07 miles: lines operated under trackage rights 4.36 miles: total road operated 104.31 miles.

There was no change in the capital stock during the year, the amount authorized being $5,500,000.00 and the amount outstanding remaining at $4,-512,500.00. The funded debt Dec. 31, 1919, was $5,805,000.00. It has been decreased by payments, of 14th and 15th installments, on equipment trust notes of $150,000.00 making the total funded debt at Dec. 31, 1920, $5,655,000.00.

The total operating revenues were $3,-229,725.98, an increase over the previous year of $728,809.20. Freight revenue totaled $2,273,889.41, an increase of $534,251.78, due to some extent to the increase in freight rates on merchandise, that became effective Sept. 13, 1920, and to a material increase in the volume of certain commodities handled, particularly bituminous coal. Passenger revenue totaled $645,559.40, an increase of $64,-129.29, due in considerable part to the 20% increase in passenger rates that became effective Sept. 13, 1920. Express revenue totaled $47,423.64, an increase of $19,113.64, caused by increased rates and increased business. Switching revenue totaled $157,307.36, an increase of $63,148.12. This increase is the result of increased rates and a greater volume of business. Demurrage revenue totaled $58,370.90, an increase of $40,137.90. This increase represents an increase in the demurrage rates of from 60c to 90c a day effective March 1, 1920, and a further increase from 90c to $1 a day effective Nov. 1, 1920. Dining and buffet revenue totaled $32,190.15, an increase of $2,336.19 due to increase in passenger traffic. Operating expenses totaled $2,-375,917.52, an increase of $368,919.76 and equaled 73.56% of operating revenues. This is 6.69% less than the operating ratio of 1919.

The fluctuations in operating expenses by groups were as follows: Maintenance of way and structures, increase $83,-551.01; maintenance of equipment, increase $82,665.17; traffic expenses, increase $13,959.45; transportation expenses, increase $241,253.96; miscellaneous operations, increase $8,046.10; general expenses, decrease $60,545.93; net increase $368,919.76. The increase in operating expenses reflects largely the general increase in wages granted to all classes of labor by the Board of Railway Commissioners, effective May 1, 1920, the increased cost of fuel and the increased cost of material. The decrease of $60,545.93 in the general expenses group is accounted for by the fact that it was not necessary during 1920 to convert Canadian funds into United States funds with which to pay our obligation in the U.S., because we succeeded in collecting from U.S. railroads sufficient U.S. money to meet our obligations that were incurred in the U.S.

No dividends on outstanding capital stock were declared during the year. A surplus of $660,199.52 was carried to profit and loss. The charges to road and equipment to Dec. 31, 1919, were $12,943,745.41; the net additions during 1920 were $34,369.79, making the total carried to Dec. 31, 1920 $12,978,115.20.

The steel car ferry boat, Maitland No. 1, owned and operated by the Toronto, Hamilton & Buffalo Navigation Co. commenced operations in the third week of April, and operated continuously to the end of the year. The net income for 1920 amounted to $27,257.51, an increase of $20,839.30 over 1919, being 6.81% on the capital stock of the navigation company all of which is owned by the Toronto, Hamilton and Buffalo Ry. Co.

Railway Earnings.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local which have been acquired by the Dominion Govlines in the Maritime Provinces and in Quebec, ernment.

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
May	7,794,147	8,305,850
June	7,885,548	7,776,539
July	8,837,354	9,063,674
	$59,121,744	$54,628,498

Approximate gross earnings for two weeks ended Aug. 14, $4,116,681, against $4,488,829 for same period 1920.

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January	$5,094,100	$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
April	4,978,500	4,732,623
May	4,742,200	4,863,500
June	4,606,800	4,427,600
July	5,506,900	5,168,500
	$35,888,700	$31,779,923

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920. as far as they are available, to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$5,851,220	$ 7,538,786	$1,687,566	$1,672,283
Feb.	5,575,782	6,861,337	1,285,555	1,839,756
Mar.	5,812,790	6,746,912	934,122	1,280,887
Apr.	4,994,027	6,327,739	1,333,712	911,321
May	4,427,994	5,742,052	1,314,058	1,041,273
	$26,661,813	$33,216,826	$6,555,013	$6,745,520
Incr.	4,343,352	4,152,845	.....	.....
Decr.	.....	.....	190,507	.....

Approximate gross earnings for two weeks ended Aug. 14, $2,670,500, against $2,852,100 for same period 1920.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$3,527,304	$4,347,728	$ 820,423	$ 508,178
Feb.	3,526,658	4,367,491	840,833	1,205,925
Mar.	3,595,144	4,538,904	943,761	1,235,265
Apr.	3,363,072	3,915,995	552,923	115,191
May	2,914,973	3,728,949	813,976	618,809
	$16,927,151	$20,899,067	$3,971,916	$3,747,068
Incr.	1,323,870	1,548,718	224,848	.....

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,405,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
	$84,055,671	$71,105,505	$12,950,166	$1,521,980
Incr.	.....	.....	$1,521,980	.....
Decr.	$8,001,915	$9,523,895	.....	.....

Approximate gross earnings for July, $15,263,-000, and for two weeks ended Aug. 14, $7,418,000, against $16,845,000 and $7,999,000 for same periods 1920.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit 1921	1920
Jan.	$6.187,539	$6,886,930	$699,391*	$624,310*
Feb.	5,468,732	5,439,039	29,693	690,857*
Mar.	6,271,921	5,584,721	687,200	398,859
Apr.	5,659,813	5,241,107	418,706	651,789
May	5,957,779	5,596,194	361,585	605,310
	$29,545,784	$28,747,991	$797,793	$340,791
Incr.	2,185,392	1,728,390	457,002	.....

*Deficit.

Approximate gross earnings for two weeks ended Aug. 14, $4,438,012, against $4,809,780 for same period 1920.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$1,441,225	$1,813,982	$ 372,757	$ 737,357
Feb.	1,013,712	1,872,946	859,234	670,817
Mar.	1,007,499	1,664,227	656,728	655,560
Apr.	908,147	1,645,916	737,769	596,627
May	965,763	1,373,613	407,850	985,655
	$4,370,583	$6,997,071	$2,626,488	$2,660,361
Incr.	90,286	.....	.....	.....
Decr.	.....	$487,519	$577,805	.....

Electric Operation of Trains Wanted by Montreal.—The Montreal City Council requested the administrative commission recently to ask the Board of Railway Commissioners to prevent the railways crossing St. Gabriel and St. Henry Wards from operating their locomotives within the city limits otherwise than by electricity, so as to abate the smoke nuisance.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

31,274. July 15.—Authorizing C.P.R. to take certain lands of D. W. Buchanan and Petrie Mfg. Co., Winnipeg, for spur for Canada Life Assurance Co.

31,275. July 18.—Ordering that so long as present character of movements exists over crossing of C.P.R. at Deer (MacGregor), Man., the company is relieved from maintaining a signalman there on Sundays.

31,276. July 19.—Approving location and details plans of G.T.R. station and dwelling at Lyn, Ont.

31,277. July 20.—Extending to Dec. 31, time within which G.T.R. extension to siding for Swift Canadian Co., Ottawa, Ont., may be completed.

31,278. July 18.—Ordering that so lnog as present character of movement exists over crossing by Grand Trunk Pacific Branch Lines of C. P.R. at Alix, Alta., the companies be relieved from maintaining signalman there on Sundays.

31,279. July 19.—Declaring that for present, C.P.R. crossing at mile 1.21 Mimico cutoff, Toronto Terminals, Ont., is protected to Board's satisfaction.

31,280. July 18.—Relieving G.T.R. and C.P.R. from maintaining signalman on Sundays at crossing at Camrose, Alta., so long as present character of movements there exists.

31,281. July 19.—Relieving Canadian National Rys. and Canadian Pacific Ry. from maintaining signalman on Sundays at crossing at Holmfield, Man., so long as present character of movements exists.

31,282, 31,283. July 20.—Amending order 19,245, also order 21,873, authorizing Lake Erie & Northern Ry. to cross G.T.R. at grade, in Galt, Ont., and Simcoe, Ont.

31,284. July 20.—Approving Hull Electric Ry. plan showing fence to be erected along outgoing platform at Ottawa, Ont.

31,285, 31,286. July 18.—Approving Bell Telephone Co. agreements with Lake Charles Telephone Co., Grey County, Ont., and Brussels, Morris & Grey Municipal Telephone ystem, Huron County, Ont.

31,287. July 20.—Amending order 31,213, authorizing Ontario Highways Department to divert and widen highway across Toronto, Hamilton & Buffalo Ry. lands at Hamilton and Ancaster Road crossing.

31,288. July 20.—Relieving Canadian National Rys. and G.T.R. from maintaining signalman at crossing at Brooklin, Ont., so long as present character of movements over it exists, and approving modifications to interlocking plant there.

31,289. July 21.—Extending to Dec. 31, time within which Grand Trunk Pacific Ry. may complete station between Dominion and Quebec Sts., Prince George, B.C.

31,290. July 21.—Approving Canadian Northern Quebec Ry. plan showing bridge renewals, through truss spans, over Metabetchouan River, at mile 181.0 from Quebec.

31,291. July 21.—Extending to Aug. 31, time within which Canadian National Rys. may install wigwag at crossing between Secs. 8 and 17, Tp. 21, Range 12, west 2nd meridian, Sask.

31,292. July 21.—Authorizing Canadian Northern Ry. to open for traffic, portion of its Hanna-Medicine Hat Branch from near Bonar, Alta., mile 0 to 58.8, Sheerness Subdivision.

31,293. July 22.—Declaring that for present C.P.R. crossing near St. Therese station, Que., is protected to the Board's satisfaction.

31,294, 31,295. July 21.—Approving Belle Telephone Co. agreements with Soulanges Rural Telephone Co., Soulanges and Vaudreuil Counties, Que., and Missisauga River Improvement Co., Algoma District, Ont.

31,296. July 21.—Relieving Grand Trunk Pacific and C.P.R. from maintaining signalman at crossing at Forrest, Man., on Sundays, so long as present character of movements exists.

31,297. July 22.—Ordering Canadian National Rys. to appoint station agent at Mulvinill station, Man.

31,298. July 21.—Extending for 6 months time within which Canadian National Rys. may build spur to ballast pit in s.w. ¼ Sec. 23, Tp. 23, Range 27, west 4th meridian, Alta., required under order 30,932.

31,299. July 21.—Extending for 6 months from date, time within which G.T.R. may build spurs for Waterville Panel & Veneer Co., Waterville, Que.

31,300. July 21.—Extending to July 31, 1922, time within which interlocking plant may be built at crossing of C.P.R. and G.T.R., Kingston, Ont.

31,301. July 21.—Authorizing Quebec Provincial Roads Department to change location of highway crossing over G.T.R. near Riviere du Loup.

31,302. July 23.—Authorizing C.P.R. to cross, divert and close within right of way limits road allowance in n.w. and n.e. ¼ Scs. 19, Tp. 27, Range 18, west 3rd meridian, Bassano Easterly Branch, Alta.

31,303, 31,304. July 23.—Approving Bell Telephone Co. and United Telephone Co., Middlesex County, Ont., and Coldwater Municipal Telephone System, Simcoe County, Ont.

31,305. July 23.—Authorizing Fort William Municipal Ry. to operate one-man cars over C. P.R. spur at Syndicate Ave. and lane bewteen Mary and Christina Sts., car operator to see that way is clear before crossing.

31,306. July 25.—Declaring that first public crossing over G.T.R. south of Camperdown, Ont., is protected to Board's satisfaction.

31,307. July 23.—Authorizing C.P.R. to build spur for Canadian Oil Co.s at Lethbridge, Alta.

31,308. July 25.—Extending to Aug. 18, time within which G.T.R. may install automatic bells with wigwag signals at Hagerty St. crossing, Newbury, Ont.

31,309. July 25.—Authorizing C.P.R. to operate over International Transit Co.'s tracks at Cathcart St., Sault Ste. Marie, Ont., without first stopping.

31,310. July 27.—Authorizing increases in exchange rentals and charges for service to British Columbia Telephone Co. as set forth in Board's judgment dated July 23.

30,311. July 26.—Dismissing application of Dominion Agriculture Department on behalf of fruit shippers, for order directing suspension of regulation governing partial unloading of carload shipments of fruits and vegetables as provided in Canadian and Dominion Express Co.s' tariffs effective May 1.

31,312. July 27.—Dismissing application of Pointe aux Trembles Ry. for order directing payment of penalties by Canadian Northern Quebec Ry. for failure and neglect to comply with orders 21,592 and 29,513, re C.N.Q.R. crossing over Pointe aux Trembles Terminal Ry., and amending order 21,592 re watchmen at interlocking plant.

31,313. July 26.—Dismissing application of Quebec Harbor Commissioners and Quebec Board of Trade for order directing that export rates on grain between Georgian Bay ports and Quebec be placed on same basis as Montreal.

31,314. July 27.—Dismissing application of Winnipeg Grain Exchange for order disallowing tariffs filed with respect to bulk shipments of flax from western points to Port Arthur and Fort William, Ont., and for order requiring C.P. R., Grand Trunk Pacific and Canadian National Rys. to file tariffs restoring differential of 1c. per 100 lb. on bulk shipments of flax, Port Arthur or Fort William over the rate on wheat.

31,315. July 26.—Authorizing C.P.R. to build spur for Boyd Bros., Osgood, Ont.

31,316. July 27.—Authorizing C.P.R. to terminate agreement for building siding for J. H. Clary, at mile 117.5 Parry Sound Subdivision, Ont.

31,317. July 27.—Authorizing Nipissing Central Ry. to file tariffs providing for average increase of 20% in passenger fares, and ordering it to file monthly statements of earnings and expenses.

31,318. July 28.—Dismissing application of Canadian Manufacturers' Association on behalf of Office Specialty Co. for reduction in classification minimum weight of mixed carloads of office furniture, filing cases, and supplies.

31,319. July 26.—Ordering C.P.R. to build siding capable of holding 4 cars at Center between Stonewall and Balmoral, Alta., by Sept. 15.

31,320, 31, 322. July 26.—Approving Belle Telephone Co. agreements with Pontiac Rural Telephone Co., Pontiac County, Que.; Roxborough Municipal Telephone System, Stormont and Glengarry Counties, Ont., and Thedford, Orkona & East Lambton Telephone Co., Lambton County, Ont.

31,323. July 27.—Approving location of Canadian National Rys. Kamloops-Kelowna line from mile 66 to 69, near Armstrong, B.C.

31,324. July 27.—Rescinding order 28,953, Oct. 27, 1919, relieving Algoma Eastern Ry. and the Canadian Copper Co., from maintaining signalman at crossing at Copper Cliff Jct., Ont.

31,325. July 27.—Authorizing C.P.R. to build spur for S. Vessot, Joliette, Que.

31,326. July 28.—Dismissing application of Howard Tp., Ont., for reconsideration of order 26,179, June 5, 1917, re distribution of cost of maintenance of protection at G.T.R. Victoria St. crossing, Thamesville, Ont., and for order to substitute wigwag signal for gate system and distributing cost of maintenance.

31,327. July 28.—Amending order 23,285, Feb. 10, 1915, by providing that St. Jerusalem d'Argenteuil Municipality, Que., maintain as well as build New Monty Road across C.P.R. and Canadian Northern Quebec Ry.

31,328. July 27.—Authorizing Canadian National Rys. to build spur for J. N. Huff, in Monmount Tp., Ont.

31,329. July 28.—Authorizing C.P.R. to cancel stop-off arrangements for freight at Place Viger, Montreal, and at Simcoe St. and Esplanade, Toronto; inspection to be retained in all cases as it now exists, and stop-off for inspection, change of destination, or for orders, to be retained at Outremont and West Toronto, or Lambton, as at present.

31,330. July 27.—Authorizing Canadian National Rys. to cross highway between Secs. 10 and 11, Tp. 23, Range 17, west 3rd meridian, Sask.

31,331. July 28.—Approving plan of G.T.R. bridge over Y at Burlington Heights, Hamilton, Ont., apportionment of cost reserved.

31,332. July 30.—Authorizing C.P.R. to reduce train service between Nelson and Slocan City, B.C., from mixed train daily, except Sundey, to mixed train three times a week.

31,333. July 30.—Authorizing Canadian Northern Ry. to open for traffic portion of its Moose Jaw Branch from Maple St., to connection with Grand Trunk Pacific Branch Lines Co.'s track mile 85.6 to 87, Sask.

31,334. Aug. 2.—Authorizing City of Victoria, B.C., to build railway and traffic bascule bridge across portion of Victoria harbor from foot of Johnson St. to land formerly known as Songhees Indian Reserve.

31,335. July 22.—Dismissing C.P.R. application to remove agent at Belisle Mills station, Que.

31,336, to 31,338. July 25.—Authorizing C.P.R. to remove agents at Lac a la Tortue, St. Janvier and Piedmont, Que., caretakers to be appointed.

31,339. July 22.—Dismissing C.P.R. application to remove agent at West Brome, Que.

31,340. July 25.—Authorizing C.P.R. to remove agent at Lavaltrie, Que.

Telegraph, Telephone and Cable Matters.

The Naval Service Department is arranging for the erection of a powerful continuous wave wireless telegraph station near Vancouver, to undertake land work and communicate with distant points up the coast, and to leave the present station at Point Grey to handle shipping business only.

Canadian National Telegraphs have opened offices at Delorme, Manoir Richelieu and Pointe au Pic, Que., Minaki Inn and Wilgar, Ont., Alberta Beach, Birch River, East Selkirk and Libau, Man., and Burbank and Horburg, Alta., and have closed the offices at Agnone, Beardmore, Caramat and Fire River, Ont., and St. Martin, Man.

A new radiotelegraph station has been opened at Bull Harbor, Hope Island, Queen Charlotte Sound, B.C., and the Triangle Island radiotelegraph station has been closed. The call sign for the new station is VAG, and it has a normal range of 450 nautical miles, with transmitter of 480 sparks, and a normal wave length of 600 meters. The hours of service are continuous, and the station is operated for general public correspondence, by the Naval Service Department, with the same charges as obtained at the Triangle Island station.

The Western Union Telegraph Co. is planning the construction of an additional cable laying ship of 6,000 tons displacement, with Diesel-electricldrive for propulsion and for cable laying. Specifications are reported to be in the hands of various U.S. shipbuilders for quotations, and it is expected that the order will be placed shortly, unless the prices quoted are prohibitive, in which case it may be built abroad. The main details are as follows, length b.p. 324 ft., breadth moulded 42½ ft., depth moulded 25 ft.; gross tons, 300, 2,000 shaft h.p., speed 12 knots, register, Lloyd's 100 A1.

Electric Railway Department

Toronto Transportation Commission Fixes Its Basic Fare at Seven Cents.

The Toronto Transportation Commission, at a conference with the City Board of Control, on Aug. 24, announced the fares to be put into effect after midnight on Aug. 31, when the Commission would take over the Toronto Ry. Co.'s lines for the city and operate them, and also operate the Toronto Civic Ry. The new fares are given below, with comparisons of those charged up to Aug. 31 by the Toronto Ry.

Day cash fares, 7c., heretofore 5c.

Day tickets, 4 for 25c., equal to 6¼c. each; 16 for $1, equal to 6¼c. each; and 50 for $3, equal to 6c. each; heretofore 6 for 25c. and 25 for $1.

Night fares, 15c. cash; heretofore 10c. Books of tickets for night fares will probably be issued, and may reduce the fare to about 12c.

Children, not in arms, and not over 51 in. high, 4c. cash, or 7 tickets for 25c., equal to 3 4/7c. each; heretofore 3c. cash, or 10 tickets for 25c. Children's night fares same as for adults.

Free transfers, as given heretofore by the Toronto Ry., will be continued.

There will be no limited tickets, which have been sold heretofore by the Toronto Ry. as follows, good on week days from 5.30 to 8 a.m., and from 5 to 6.30 p.m., commonly known as "workmen's tickets," 8 for 25c.; Sunday tickets, good 5.30 a.m. to midnight, also good on week days from 5.30 to 8 a.m. and from 5 to 6.30 p.m., 7 for 25c.

The fares charged heretofore on the Toronto Civic Ry. have been as follows: Cash 2c., tickets, 6 for 10c.; children 1c. Beginning Sept. 1, one fare will cover both the Toronto Ry. Co.'s former lines, and the Toronto Civic Ry., and transfers will be given from one to the other.

In informing the City Board of Control of the new fares on Aug. 24, H. H. Couzens, General Manager, Toronto Transportation Commission, read the following memorandum:—

"These fares are only such as will provide for the necessary operation and maintenance costs, and for such capital and depreciation charges as are involved in the sums already invested and to be invested during the first year. They do not provide for complete rehabilitation of the system, which will be a gradual process. In considering the fares the Commission has been guided by the terms of the special act under which it operates. This act places on the Commission the following specific duty, among others: "To fix such tolls and fares so that the revenue of the Commission shall be sufficient to make all transportation facilities under its control and management self sustaining."

"It is clear beyond all doubt that the rate of fare must be such as to provide for all charges including operation, maintenance, renewals, depreciation and interest on the capital invested in the enterprise, as well as the redemption of the debt at the maturity of the debentures raised to finance it. Subject to these considerations, the Commission's main aim and object is to furnish at the earliest possible moment an efficient and more adequate service at the lowest possible cost. This will require time and money, as obviously a system which has been allowed to run down so badly cannot be rebuilt in a short time. Much of the work cannot be done during the winter, which will prevent continuous progress.

"It can be understood that the fares to be charged after Sept. 1 on the unified system have been given during the past few months most careful study by the members of the Commission. Valuable data has been collected from a large number of representative cities in Canada and the United States. Pending the completion of the arbitration proceedings there are many points which cannot be publicly discussed. Otherwise, the Commission, in its capacity as trustee for the public, would be glad to give out the information at its disposal, but a brief summary of some of the important problems may be of interest. The estimates before the Commission fully warrant fares in excess of those in the schedule adopted, but it has been decided to charge these now fixed with the hope that they may return sufficient revenue to meet all obligations."

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.
Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.
President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.
Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.
Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.
Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.
Auditor, H. E. Weyman, Manager, Levis County Railway.
Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.
Official Organ, Canadian Railway and Marine World, Toronto.

Rehabilitation Necessary. — "Citizens will appreciate the fact that it is their own property, and that they must now pay for the repairs which, under the old franchise, were neglected. Out of that neglect arises an enormous share of the outlay that must now be faced. The cost of rehabilitation of the assets to be taken over by the city from the company, many of which might more accurately be termed liabilities, will be a heavy burden, and will involve specially high charges, on account of the work having to be done under traffic, as against a new system being laid down where there would be no interference, and the work could proceed uninterruptedly. Prices today are still high, which also tends to increase the cost. Much of the renewal work cannot be postponed, in some cases from the standpoint of safety of the public, and in others in order to obtain more efficient and economical operation conditions which will eventually follow. A thorough rehabilitation of the privately owned company's lines is among the first of these labors, and a large portion of the track and buildings will have to be reconstructed. The full benefit of improved service and economical operation will not be obtained until complete rehabilitation and reconstruction has been effected. This work will take a considerable time, particularly as the construction season of 1921 draws to a close so soon after Sept. 1.

"**The standard of construction** and maintenance in future must be higher, and though this will eventually be in the best interests of the city, it will be a burden at first, until the operating economies attendant on improved facilities can be realized. Deferred maintenance, so long neglected, must be taken care of to avoid danger and permit of proper operation.

"The object which the Commission is striving to attain is to give a more adequate service at the lowest possible cost, and not the least possible service at a fixed price. This will obviously result in increased car mileage, which is the unit of operating cost. The significance of this is more apparent when it is understood that operating costs form about 80% of the total of all charges, or nearly 5c. out of the 6c. fare.

"**Extensions are required** to unify the system, and to give the citizens in districts not now served, the service to which they are clearly entitled. This also involves more car mileage with its attendant heavy expenses, and practically no added revenue, as the passengers are carried a greater distance for the single fare. How much greater these distances are the citizens should have plainly in mind. Many statements have been made from time to time, based on existing fares in the city, entirely overlooking the difference between the conditions which now obtain and those which confront the Commission. Some of these have already been alluded to, but perhaps the chief is the fact that the Toronto Ry. Co. has operated almost entirely within the city limits of 1891, which comprises a compact area of less than 16½ square miles. This area is densely populated and more frequently traversed than the remainder of the city, and therefore provides a large revenue at a low operating cost. The Commission will be called on to serve the whole city area, which is 32¼ square miles, as against 16½, or practically double that of the old city of 1891. The added area is less densely populated and less heavily travelled. In any event, this is a disadvantage, but with a universal fare, that is, the same charge regardless of distance, there is no compensating advantage.

"**The financial side of the problem must** be considered.—The Commission has to assume the capital indebtedness of the civic lines, about $2,400,000. At the same time, with the universal fare, practically all the revenue previously obtained on these lines is lost. This revenue for 1920 was over $543,000. Even with that revenue these lines did not meet operat-

ing expenses, let alone capital charges, with the most economical and efficient operation and under favorable conditions. The Commission will have to assume the capital indebtedness of lines owned by the city and operated by the company, such as Prince Edward viaduct, etc., and other expenditures incurred, or to be incurred, by the city in the purchase of those portions of the Toronto & York Radial Ry. within the city. These items total substantially $1,000,000. The same conditions exist in the case of the last mentioned, as previously pointed out, viz., added car mileage without compensating revenue.

"The Commission has to provide interest and sinking fund on all capital expenditure in order to cover the cost of the money raised for financing the enterprise. Depreciation must be provided for, unless the future is to be left to take care of itself. This will be a heavy item in the conditions under which the Commission will operate, although the Commission does not purpose to provide sufficient depreciation to renew all the assets at the maturity of the debentures.

"When the foregoing has been digested, the difficulties will be readily admitted, although fuller details would enable these to be more fully appreciated. There is a contention sometimes made, that the percentages and mileage charges paid by the Toronto Ry. Co. to the city, which will not be paid by the Commission, will afford a very large measure of relief. That this relief is only apparent and not real can be seen from the following:— The mileage charges paid by the company to cover the cost of work done by the city in connection with the track allowance averaged over the whole period of the franchise only about one-third of the expenditure incurred by the city for the work done. Under the agreement between the city and the Commission, the latter pays the cost of the extra foundations under the track allowance pavement. Under the agreement between the city and the Commission, the Commission bears the full cost of paving the track allowance where the street pavement is widened. The initial carrying charges on the capital expenditure which will be chargeable to the Commission alone are bound very greatly to exceed the total annual percentage charges paid by the company, and these capital charges must increase as the new work, which is absolutely necessary, is done. When these two great departments of expenditures are thus carefully considered, it will be found that the scale of fares adopted is a reasonable one, and actually based on the only true reason for charges exacted in a public utility—service at cost."

Children's Fares.—"In fixing the standard of height for children the basis taken was from statistics supplied by the city's Public Health Department and representing the average of 45,000 boys and 43,000 girls. The height adopted represents an age of 10 years or slightly over, which is more liberal to the extent of one year than the provision made in the Toronto Ry. Co.'s franchise. The reason for adopting a limit of height instead of age is to secure a standard that can be readily applied and determined, rather than one which causes friction between parents and conductors, and which tempts children to misstate their age."

Limited Tickets.—"The present limited tickets, which are unusual on this continent, are discontinued. They are contrary to the spirit of the act under which the Commission operates, as the cost of giving service at these hours is much higher than at other times. They are most prejudicial in their effect on the traffic problem at rush hours, and tend to increase congestion and the consequent discomfort to those using the cars at those hours."

Zone Fares.—"The Commission looked very carefully into the question of zone fares, which are technically and logically correct. In view of experience elsewhere on this continent it did not feel justified in introducing them at present."

The Toronto City Council considered the fares question on Aug. 25 and passed a resolution urging that a straight 5c. or 6c. fare should be tried for a few months. This was followed by a conference between the City Council and the Transportation Commission, after which the following statement was issued:—"The Transportation Commission feels under the necessity of advising the City Council that it is not in a position to comply with the request contained in the resolution. It is advised that to do so would be illegal, but it would prefer to base its non-compliance upon the fact that it cannot, as a business party, assent to a course which would inevitably result in a heavy deficit. There can be not the shadow of doubt as to this."

On Aug. 26, the Mayor of Toronto stated that, in consequence of the Transportation Commission's insistence on a 7c. basic fare, he would not sign a bylaw to transfer the railway to the Commission on Sept. 1 and that it would be operated temporarily by the city, under Works Commissioner Harris, at the existing rates of fare, until it could be seen whether they would be sufficient or not. These statements were not accepted generally, at all seriously, but were looked on as the result of one of the Mayor's periodical brainstorms. At the time of writing (Aug. 27) a special meeting of the City Board of Control has been called for Aug. 30 to consider the whole question and it is said that Sir Adam Beck has been asked to attend and give his advice.

On Aug. 27 the Transportation Commission placed on sale at a number of points tickets issued under the new rates of fare.

Electric Railway Freight and Passenger Rates.

Fort William Electric Ry.-Port Arthur Civic Ry.—Under the provisions of an act passed at the Ontario Legislature's last session, Fort William and Port Arthur ratepayers were given power to vote on bylaws authorizing the two electric railways to increase their fares over and above the 5c. authorized by the original act. The voting took place July 27, when bylaws providing for a 7c. fare, which has been collected for some time past, were carried. The votes cast were:— Fort William, 594 for, 363 against; Port Arthur, 813 for, 390 against. The Port Arthur Public Utilities Commission did considerable advertising, advocating the passing of the bylaw, in which the cost of operation was shown to have increased from 14.3c. per car mile in 1916 to 21.98c. in 1920, and the capital charges to have decreased from 10.97c. per car mile in 1916, to 8.85c. per car mile in 1920. Within the same period the car mileage increased from 622,130 miles to 704,643. During the six months ended June 30, with a 7c. fare, the number of passengers carried was 1,637,753, giving a revenue of $99,286.84, while for the corresponding six months of 1920, when the 5c. fare was in operation, 1,803,678 passengers were carried, giving a revenue of $88,356.06.

Montreal & Southern Counties Ry.—In referring to the question of fares in connection with a proposed reduction of wages, W. B. Powell, General Manager, is reported to have stated that it is not proposed to reduce fares, as the railway is in a worse condition now than it was two years ago, and it is therefore out of the question to discuss a general reduction of fares.

New Brunswick Power Co. — On account of the saving in the cost of operation of one-man cars on the company's lines in St. John, 20 tickets for $1 were put on sale Aug. 8. The single cash fare is 10c.

Nipissing Central Ry.—The Board of Railway Commissioners has authorized the following standard passenger tariff of minimum tolls, effective Aug. 8:—Between any point in Haileybury and any point in New Liskeard or Cobalt, or between Cobalt and Kerr Lake, single fare, 12c.; except that between 11.30 p.m. and 5 a.m. the fare is 24c. Between all points in New Liskeard, 6c. Between all points in Haileybury, 6c. Between any point in Haileybury and any point in New Liskeard or Cobalt, or between Cobalt and Kerr Lake, between 5.30 and 7.30 a.m. and 5 and 7 p.m., 21 ride tickets for $1.20. The tariff issued under this order contains in addition a rate of 21 tickets for $2.40 available between New Liskeard, Cobalt and intermediate points; and the following rates for school children, tickets being sold only on presentation of principal's certificate, and available only going to and from school; 10 trip tickets for 30c., available between Cobalt and Haileybury; New Liskeard and Haileybury; and Cobalt and Kerr Lake. Canadian Railway and Marine World for May, pg. 266, contained a comparison of the then existing fares with those asked for by the company.

Toronto Transportation Commission.—See separate article, on another page.

Winnipeg Electric Ry.—Winnipeg City Council on July 22 adopted the report of a special sub committee which had been negotiating a settlement of matters in dispute with the Winnipeg Electric Ry. The settlement puts an end to the controversy as to fares which has been going on for some time, and also to all litigation arising out of the Public Utilities Commissioner's decision, which both parties were appealing to the British Privy Council stabilizes the relations between the company and the city authorities, and augurs well for harmony and continued co-operation between the company and the city for the future.

As stated in Canadian Railway and Marine World previously, the Manitoba Public Utilities Commissioner granted the company on three different occasions, higher fares. Exception was taken by the city council to the final order, which was made Aug. 20, 1920, giving the company a 7c. cash fare, 4 tickets for 25c., seven children tickets for 25c., and abolishing cheap workmen's fares. Holding

that the Commissioner had no jurisdiction to alter fares which were stipulated in the original franchise, the city council went to the Manitoba Appeal Court to have the order set aside. The court's unanimous decision, given April 4, upheld the Commissioner's order, ruling that he had such jurisdiction; whereupon the city council decided to carry its case to the British Privy Council. In the meantime, however, negotiations were opened with the company, the council appointing a special sub-committee to try and effect a settlement of all transportation problems, dealing first with matters regarding which litigation was pending. A. W. McLimont, Vice President and General Manager of the company, and Edward Anderson, K.C., counsel for the company, met the sub-committee in a number of conferences, which resulted in a frank interchange of opinions and the finding of a common ground on which the company and the city could get togeher, and finally in the drawing up of an agreement as stated.

The agreement declares that the bylaw 543, and contract of June 4, 1892, between the company's predecessor in title and the city, shall continue to be in full force and virtue, except in regard to fares, which are revised as from Aug. 1, as follows:—Single fare zone cash fare, week days 7c., Sundays 5c. Tickets goood at all times, 4 for 25c. Tickets, good week days 6 to 8 a.m., and 5 to 6.30 p.m. and all day Sunday, 9 for 50c. School children tickets, for children under 16 good at all times, 8 for 25c. Either party to the agreement may, between May 1 and 15 in any year, during the term of the agreement, apply to the other party for a variation of the fare schedule, and if an agreement cannot be reached, each party is to appoint an arbitrator, as provided by sec. 22 of bylaw 543, who shall fix "a just and reasonable schedule of fares, having regard among other things to the value of the company's property devoted to transportation purposes," such new schedule of fares to come into operation on Aug 1 following. Another section provides that, in so far as the parties have power so to agree, that notwithstanding anything to the contrary, in bylaw 543, any existing agreements varying it and this agreement, shall not be subject to variations or annulment by the Public Utilities Commissioner, but nevertheless the company, if it shall think it necessary to do so, may obtain an order from the Commissioner to charge the fares set out in this agreement. The parties agree to join in obtaining legislation to confirm the agreement; both parties agree to withdraw and to discontinue all pending actions as to fares.

Regina Municipal Ry. Matters. — The Regina, Sask., Trades and Labor Council has protested against an alleged discrimination against working men in regard to the use of transfers, and the discontinuance of transfers on the Eleventh Ave. line; and has condemned the operation of one-man cars. In connection with the latter matter it was stated that a 5c. fare would be quite practicable if the two-man operation of cars was resumed. There was some discussion on the transfer matter at a meeting of the City Council recently, at which it was asserted that the transfer system was being abused and that stringent rules had to be adopted to stop it; also that some of the motormen were "bucking" the one-man cars.

Electric Railway Employes' Wages, Working Conditions, Etc.

Calgary Municipal Ry.—As a result of a conference between the employes grievance committee, Superintendent Brown, and the Calgary City Commissioners, an arrangement has been arrived at under which the car barn staff will each be given a day off each week. The conference was called as the result of a proposal of Superintendent Brown to effect a saving in operating cost by the staff working one hour less a day.

Hydro Electric Ry. — Essex Division, Ont.—The employes and the management are still at variance over wages and working conditions. The men have asked an increase of 5c. an hour from the present rates of 45c. for first year men to 55c. an hour for long service men, with an 8-hour day, time and a half for overtime and double pay for Sundays. The management will not concede these terms. The Windsor City Council having expressed itself in favor of the wages asked, the Secretary of the Hydro Electric Power Commission of Ontario has advised the council that any increase in wages will mean increased fares. Not long ago the sale of 6 tickets for 25c. was dropped, making the fare 5c., and any increase of wages would mean a 6c. fare. Alderman A. Hooper, who is looking after the men's interests on behalf of the international union, has asked for the appointment of a board of local men to adjust the matter, but states that application will be made to the Labor Department for the authorization of a board of conciliation, if the local board is not appointed immediately.

The Montreal & Southern Counties Ry., which is a G.T.R. subsidiary, is reported to have notified its employes that on Sept. 1 the wages of conductors, motormen, trackmen and shopmen will be reduced 10%. The agreement as to wages expired July 1, and it is stated that it was intended to put a cut in force on Aug. 1, but it was later decided to delay doing so until Sept. 1. It is said that during the past 18 months the men's wages have been increased 41%, the first increase being 28%, and the second 13%. The number of employes affected is 145.

The Montreal Tramways Co.'s employes, as stated in Canadian Railway and Marine World for August, unanimously rejected on Aug. 14 the company's proposal to reduce wages 20% on Aug. 1. The scale payable under the agreement which expired July 31, for motormen and conductors was:—First year, 45c. an hour; second year, 50c.; afterwards, 55c. These rates were fixed by a board of conciliation and the proposed 20% cut would bring the wages to approximately what they were prior to July 1, 1920. The matter has been the subject of negotiation between the company and the employes since July 14, and up to the time of writing a definite settlement has not been reached. As a means to a settlement the company offered to make the cut one of 12½% instead of 20%, but declined to enter into any specific contract as to time, and at a meeting of the men on Aug. 1, a proposal was considered favoring the acceptance of a 10% cut, with a contract. The Minister of Labor has been consulted by the men, and a representative of his Department has been in consultation with the parties. On Aug. 4 the men voted on three propositions, viz.:—(1) To accept a reduction in wages of 12½%, both parties to enter into a contract to remain in effect until Jan. 1, 1922; (2) to accept a reduction of 15%, with a contract to remain in effect until June 30, 1922; (3) to submit the dispute to a board of arbitration. It is stated that the poll gave the following result:—For the first question, 18 votes; second question, 11 votes; third question, 2,220 votes. Following this application was made by the men for a board of conciliation. On Aug. 9 the company issued a notice to the effect that the 12½% reduction was the least it would make, and that it would go into effect on Aug. 16. The new scale as posted fixes conductors and motormen's wages as follows:—First year, 39½c. an hour; second year, 44c.; afterwards, 48c. Employes in charge of one-man cars, 4c. an hour above the regular rates. The men authorized their committee on Aug. 12 to make a further attempt at a settlement, and the matter was under discussion at another meeting on Aug. 17, when the men said they would accept only a 5% reduction, but would take the 12½% reduction pending the decision of a board of conciliation. The employes nominated A. Brossard, K.C., to represent them on a board of conciliation, the company declined to have anything to do with a board, and the Minister of Labor appointed A. P. Frigon to represent the company, and the Labor Department has under consideration the appointment of the third arbitrator.

The New Brunswick Power Co.—The company is reported to be operating an increasing service on its main lines in St. John, with non-union men, ad it was expected that the cars would be running to West St. John by Aug. 22. The union men formerly in the company's service are interested, either singly or in a company, in the operation of jitney and motor bus services. It was reported Aug. 20 that these services was being given along all the routes operated by the electric railway. Considerable friction is reported to have occurred in connection with the operation of these services, and at a meeting of the St. John City Council in committee Aug. 19 a communication was received from the company protesting against the jitney service being allowed.

Toronto Transportation Commission.—The question of wages to be paid to the conductors and motormen of the Toronto Civic Ry. and the Toronto Ry. when they come under the Commission's control on Sept. 1 was the subject of negotiation early in August. The Toronto Civic Ry. men have been getting about 6c. an hour higher pay, but the Toronto Ry. employes are said to have rather more favorable working conditions. After several conferences, it was arranged on Aug. 7 that the rates of wages paid by the Toronto Ry., viz., 55c. an hour for the first 3 months; 57½c. for the next 9 months, and 60c. afterwards, will prevail from Sept. 1, 1921, to March 31, 1922, on all the Commission's lines. One-man car operators are to get 5c. an hour extra. Time and a quarter is to be paid on Sundays, and time and a half on holidays, and overtime, but no overtime is to be work on Sundays or holidays.

Chas. Tait, a former Canadian Ex. Co. employe at Montreal, died at Toronto, Aug. 22. He retired in 1913 after 40 years with the company.

B.C. Electric Railway and the Change in the Rule of the Road.

The British Columbia Electric Railway is rapidly changing its cars, preparatory to the change in the rule of the road at the end of this year. At the end of July about 160 cars had been remodeled, and fitted with doors on the right hand side. By means of standardized parts, work has gone ahead rapidly on each type of car. Altogether in the City of Vancouver there are 235 cars to be changed, of which 40 are double-end and the rest single-end. The plan of working is to prepare steps and doors on the right hand side, but to board them up temporarily. When the change is made these boards will be taken off, and gates and doors on the left hand side fastened, an operation requiring only 15 minutes for each car. In the course of time the doors and gates on the left hand side will be removed and that side of the car enclosed. Some 15 cars are removed from service at present and they were immediately turned over to the stripping gangs. The work is being done at the Prior St. shops, room having been made available by the laying of five additional tracks on the second story of the Mt. Pleasant barn. It is not expected that all the cars can be adapted before the change is made, but it will be possible to use double end cars on the right hand side, with only a slight inconvenience. No changes are necessary on interurban cars. New Westminster and North Vancouver are operated entirely with double end cars, some of which are standard for right hand operation. Track work will not be begun on any scale until next year, and in the meantime it is probable that electric switches will be temporarily disconnected, and spring switches will be blocked up with pieces of wood, to allow operation in a contrary direction. Some 33 cross-overs must be taken out and replaced, but this will also be done next year. Among the other details are changing the location of interurban stations, where they are located at the side of level crossings, and where they are requared to be on the near side; changing snow sweepers for the winter and changing overhead construction at curves. Considerable attention will have to be given to operating conditions when the change is made. Confusion is sure to arise, due to changing the stopping places. Traffic is expected to be slowed up, but in order to cut down inconvenience to a minimum, the change will probably be made on a Sunday, when traffic is at its lowest.

British Columbia Electric Ry.'s Vancouver Franchise.—No definite conclusion has been arrived at concerning the proposed service at cost agreement between the B.C.E. Ry. and the City of Vancouver, concerning street railway light, power and gas service when a correspondent wrote us on Aug. 9. The Board of Trade, at a public meeting, went on record as against the agreement and urged that the company be placed under the Dominion Board of Railway Commissioners. A number of large public bodies have expressed their opinion in the same way. Action by the City Council has been delayed owing to the Mayor's illness. A petition has been circulated for the extension of the Broadway West line but the company has replied that until a satisfactory franchise can be negotiated, no further capital expense can be made.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	June 1921	June 1920	12 mos. to June 30, 1921	12 mos. to June 30, 1920
Gross	$750,907	$710,210	$9,504,071	$8,737,132
Expenses	584,959	565,796	7,032,162	6,259,721
Net	165,948	144,414	2,471,909	2,477,411

Cape Breton Electric Co.:—

	June 1921	June 1920	12 mos. to June 30, 1921	12 mos. to June 30, 1920
Gross	$52,196	$49,174	$681,900	$591,448
Expenses	43,183	44,026	580,648	497,974
Net	9,013	5,148	101,252	93,474

Edmonton Radial Ry.—While the Edmonton, Alta., public utilities are reported to have had a surplus of $13,039 for July, the Edmonton Radial Ry. is stated to have had a deficit of $5,838 for July, against a deficit of $19,073 for July 1920.

Regina Municipal Ry.—The increasing deficit on this railway came before the Regina, Sask., City Council, Aug. 16, in the City Auditor's report, which is said to have shown that for the seven months ended July 31, the deficit was $25,553, compared with an estimated deficit of $10,000 for the entire year. It was stated that the increased deficit was largely due to decreased traffic.

Toronto Ry., Toronto & York Radial Ry., and allied companies:—

	June 1921	June 1920	6 mos. to June 30, 1921	6 mos. to June 30, 1920
Gross	$1,295,701	$1,127,239	$7,648,186	$7,045,748
Expenses	851,193	757,436	5,178,568	4,650,618
Net	444,508	369,803	2,469,618	2,395,130

The Toronto Ry. Co.'s annual and special meetings which have been adjourned from time to time since February, were again adjourned, on Aug. 16, until Sept. 30. The reason for the repeated adjournments is that the agreement for the transfer of the company's hydro electric concerns and the Toronto & York Radial Ry. lines to the Hydro Electric Power Commission of Ontario and the City of Toronto have not been finally approved. The draft agreement has been completed, and it is reported that some amendments have been submitted by the H.E.P.C. which are under consideration. The question between the company and the Commission regarding the supply of power for the operation of the Toronto Ry. after Sept. 1, in the event of the agreement to take over the power companies not being completed, is reported to have been settled satisfactorily.

Winnipeg Electric Ry. and allied companies:—

	June 1921	June 1920	6 mos. to June 30, 1921	6 mos. to June 30, 1920
Gross	$446,209	$407,625	$2,856,715	$2,645,742
Expenses	327,475	289,022	2,146,609	1,935,021
Net	118,734	118,603	710,106	710,721

Toronto Transportation Commission Notes.

The Toronto Transportation Commission, which is to operate the Toronto Ry. Co.'s lines, after they are taken over by the city at midnight on Aug. 31, and also the Toronto Civic Ry., has not yet announced its complete staff and may not be able to do so for a short time. In addition to the General Manager, H. H. Couzens, the following officials have been on the staff for some time:—Solicitor, I. S. Fairty; Secretary to General Manager, C. S. Parker; Engineer of Way, A. T. Spencer; Consulting Engineer of Buildings, J. B. Carswell; Concrete Construction Department, A. E. Gibson. P. H. Lazenby, who has been acting as Engineer to the Commission, will be through with his special work in a short time.

It is probable that the Toronto Civic Ry. officials will all be absorbed by the Commission, and that D. W. Harvey, the Superintendent and Engineer, will most likely have the most important position next to the General Manager. The other Civic Ry. officials who are expected to be taken over are J. G. Coulthard, Chief Clerk; J. Metcalf, Traffic Manager, and M. Switzer, Master Mechanic.

It appears to be the desire of the Transportation Commission's management to take over as many of the Toronto Ry. officials as places may be available, and who may wish to transfer, but that may be interfered with to some extent, owing to the arbitration as to the price to be paid the company for its property not having been held, and a consequent desire by the Toronto Ry. management to keep some of its officials until it is over. It is expected that W. R. McRae, the Toronto Ry.'s Master Mechanic, will be put in charge of the Commission's rolling stock, shops, etc., and among the others who it is anticipated will go over are F. L. Hubbard, Assistant to General Manager; J. H. Forrest, Claim Agent; H. H. Beasley, Purchasing Agent; M. J. Power, Master Car Builder; Jno. McCulloch, Traffic Superintendent, and — Neil, Superintendent of Substations. R. J. Fleming, General Manager, will of course remain with the company, also J. C. Grace, Secretary and Treasurer. F. G. Clarke, Chief Engineer, and O. V. Anderson, Engineer of Overhead Construction, who are also officials of the Toronto & Niagara Power Co., will most likely remain with that company, at least until after the "clean up."

The Commission has decided to give an order, subject to the city providing the necessary funds, for 50 motor cars, making the total number ordered 150 motor cars and 60 trailers. They will be built at Preston, Ont., by the Canadian Brill Co. Ltd., which is said to be taking over the Preston Car & Coach Co.'s plant there.

The Commission has the following track construction under way:—Coxwell Ave. extension, approximately 2,400 ft. of double track; second track from Gerrard St. to Danforth Ave., approximately 2,900 ft.; extension of tracks on Bloor St. west from Runnymede Road to Jane St., about 2,250 ft.; tracks on James and Albert Sts., to complete city hall loop, connecting line between the Toronto Civic Ry. and the Toronto Ry. at Danforth and Broadview Aves.

The Commission will start a motor bus service on Sept. 1 from Dundas St., along Humberside Ave., Quebec Ave. and Annette St. to Runnymede Road. The Commission's car tickets will be accepted on the busses, and transfers will be given to and from the street cars.

The Toronto Civic Ry.'s St. Clair car house is being enlarged by the addition of two sheds, each 230 x 44½ ft., to the south, and a building 326 x 44½ ft. to the north, for offices, recreation rooms, locker rooms, lavatories, boiler room and a repair shop. The Danforth car house capacity is to be increased from 12 to 54 cars, and the yard accommodation from 27 to 149 cars.

F. R. Miller, Vice President, Roger Miller & Sons Ltd., contractors, Toronto, and a member of the Toronto Transportation Commission, has also been appointed a member of the Hydro Electric Power Commission of Ontario.

Royal Commission's Report on Proposed Hydro Electric Railways for Ontario.

On July 15, 1920, the Ontario Government appointed a royal commission, with duties defined as follows:—"1. To enquire into and report upon the whole question of hydro electric railways, and all matters which in the opinion of the commissioners are relevant thereto, with particular reference to the matters that are raised by and discussed in the government's statement issued on July 9 (and published in Canadian Railway and Marine World for Aug. 1920). 2. To make such suggestions and recommendations in connection with or arising out of any of the subjects thus indicated as in the opinion of the said commission may be desirable. That for such purposes the said commissioners be authorized and instructed to take such steps for the acquirement of information as may be in their opinion necessary."

The commission as appointed originally consisted of Mr. Justice R. Y. Sutherland, of the Ontario Supreme Court's High Court Division; W. A. Amos, Vice President, United Farmers of Ontario, Palmerston; Fred. Bancroft, a member of the Pattern Makers Union, and a reporter on the Toronto Daily Star; A. F. Macallum, B.A.Sc., C.E., City Commissioner of Works, Ottawa, and T. A. Russell, President Russell Motor Car Co., Toronto. A few days later Mr. Russell declined to act, owing to his position as a motor manufacturer having been criticized, and Brig. General C. H. Mitchell, C.B., C.M.G., D.S.O., LL.D., C.E., Dean of Toronto University's Applied Science Faculty, was appointed in his place. Beginning in July 1920 and ending June 27, 1921, the royal commission held 106 sittings, and on June 30 all the members, except F. Bancroft, signed their report to the Ontario Government, Mr. Bancroft submitting a separate report on Aug. 6. Only one copy of the majority report was signed, and it has not yet been made public in full, but the Government had the findings and recommendations and summaries of some portions of the main report supplied to the press on Aug. 12.

The Recommendations by Four of the Five Commissioners.

"1. The financial condition of electric railways in Ontario and the United States in and prior to 1920 has been so precarious and unsatisfactory, and the outlook for improvement so dubious and discouraging, that the construction of the proposed system of electric railways should not, in our judgment, be entered upon unless the evidence of competent operating experts fully justifies the conclusion that they will be self-supporting.

"2. Upon full consideration of the evidence, and the proper weight to be given to the witnesses, we are of the opinion that the proposed electric railways would not be self-supporting.

"3. We are of opinion that the construction of the proposed electric railways, paralleling and competing as they would with the Canadian National Rys. System, would be unwise and economically unsound, and would strike a serious blow at the success of Government ownership.

"4. We are of opinion that, until the Chippawa power scheme, now estimated to cost $60,000,000 or upward, is completed, and has been in operation for sufficient length of time to be self-supporting, the province would not be justified in endorsing for the construction of an electric railway system at an initial estimated cost of $45,000,000.

"5. We are of opinion that the endorsement by the province of bonds of the Hydro Electric Power Commission for systems of electric railways in various parts of the province, at the instance of the municipalities concerned, is highly dangerous, and may lead the province into great financial difficulties. The endorsement for one locality would give rise to demands for the like accommodation for other localities, which it will be hard for any government to refuse, and might result in the province being drawn into serious financial liabilities, and we would therefore suggest that government endorsement of such bonds should be discontinued. To the risk involved in accommodation endoresments, it is no answer to say that they are mere matters of form involving no real liability. Individual and corporate experience is to the contrary.

"6. We are of opinion that the expenditure of $25,000,000 on improvement of public highways in the province having been begun, it would be unwise to commence the construction of the electric railways in question until the effect in the improvement of these highways has been ascertained, and the use of them by motor cars and motor trucks, whose competition with electric railways has been found so keen and difficult to meet elsewhere, is made clearly apparent.

"7. We are of opinion that the rapidly increasing debts and financial commitments of the Dominion, province and municipalities have aroused well founded apprehension in the minds of thoughtful citizens, and are a cogent reason against the embarkation at this time in the construction of the contemplated electric railways.

General Matters.—"There are, in addition, some general matters which it may be well to refer to, and deal with, before coming to the main reasons of our report.

"1. It is to be observed that we have under consideration:

"a. A plan or system of electric (or radial) railways, with original and supplemental estimates prepared by the Hydro Electric Power Commission of Ontario for the municipalities interested.

"b. A plan of Bion J. Arnold with substantial changes from the first, and estimates framed in connection therewith, as to which we intend our findings to equally apply.

"c. It has been suggested that if either of, or both, these proposed schemes were found to be financially unfeasible, some different or modified scheme of construction in the territory might be deduced from the evidence. We shall make reference to this later, under the head of 'Alternative Suggestions.'

"2. We had expected to complete our enquiry and make our report much earlier. Wethink it only fair to say that a considerable part of the delay, and much addition to the total expense, were occasioned by the course followed by the Hydro Electric Power Commission of Ontario, and the Municipal Hydro Electric Railway Association, in connection with the investigation. We have prepared a statement setting forth in some detail the progress of the proceedings, by which we think this will be made apparent.

"3. The Hydro Electric Power Commission of Ontario made a fundamental error when preparing the original estimates, and it was repeated when the supplementary estimates were prepared, in not seeking and securing the assistance of experienced operating men, at all events in so far as operating costs and possible revenues were concerned.

"4. This radial railway enquiry was not one in any sense directed to the administration of hydro power operations by the commission in charge thereof. We are of opinion that the development and sale of power is an essential public utility that rightly tends to monopoly. We share the view that there has been a good measure of success under the Hydro Electric Power Commission in this regard, and that much credit should properly be given to the commissioners and to the officials, particularly to the Chief Engineer, F. A. Gaby.

"5. Admittedly electric railways are of great utility to the people and serve them in a very close and intimate way. The business of electric railway operation is largely a local one and very competitive, different in many respects from that of power supply. While the railway system proposed would be a convenience and of considerable utility and advantage for transportation within the territory, we consider it questionable whether it can, under all existing circumstances, be properly called an essential public utility or real necessity.

"6. One of the things that attracted our attention was the apparent inequalities in the division or apportionment among the municipalities of the capital cost in connection with the proposed system of electric railways. The large amounts allotted to some of the townships which had a comparatively small population to be served and benefited seemed difficult of explanation. This could not well be fully examined into. To the extent that it could, the result is shown in an appendix prepared by Price, Waterhouse & Co. for us, and dealing with the amounts inserted in the bylaws so far as submitted.

"7a. Canada's net debt increased from $333,996,850.14 in 1914 to $2,248,868,-623.79 in 1920.

"b. Ontario's debt increased from $50,-052,876.57 (direct $40,405,535.96, indirect $9,647,340.61) in 1914 to $159,752,-053.73 (direct $128,191,754.16, indirect $31,560,229.57) in 1920. At June 15, 1921, this had increased to $167,082,-414.95.

"c. Toronto's net debt increased from $60,564,385 in 1914 to $75,452,881 in 1920.

"d. Advances by the province to the Hydro Electric Power Commission—To Oct. 31, 1920, $66,312,501.10. Advanced in fiscal year 1921 to June 15, $21,500,-000.00. Total, $87,812,501.10. In addition there was appropriated at last session, and still unexpended at June 15, $15,437,700.00. Grand total, $103,240,-281.10.

"8. Attention was drawn, in the argument before us, to the statement in a letter of Sir Adam Beck to the Prime Minister, with reference to the Port Credit & St. Catharines Ry., that the Hydro Electric Power Commission had issued bonds for $11,360,363, all of which have been guaranteed by the province. A letter was sent by the Commission to the Attorney General, asking to be furnished with a statement of the moneys the

province had advanced to date on account of the railways under investigation, and the 'extent to which, if any, the bonds mentioned as said to have been thus endorsed by the province, had been pledged, or sold, to raise money thereon.' Some correspondence followed, which is given in an appendix.

"In the correspondence is included a letter of the auditor, G. T. Clarkson, dealing with these expenditures as elsewhere referred to. In appendix 13, the amount thereof, $1,252,241.11, is given, with particulars. These expenditures have been made, notwithstanding that the question of whether the province would or would not endorse the bonds of the Hydro Electric Power Commission, for the entire scheme, had not as yet been determined. It is to be noted, however, that under the late Government an order in council, dated Aug. 8, 1919, had been approved with reference to an issue of bonds from time to time for the amount required for the Port Credit, Hamilton & St. Catharines undertaking. It appears that $1,200,000 of the issue have been pledged, in connection with such expenditures. In the correspondence a reference is also made to alleged authority for expenditures under a letter of Sir William Hearst, then Premier.

"If our view as to the inadvisability of the province endorsing the bonds for the construction of the project is given effect to, then the question of these expenditures so made will probably arise for consideration. The rights of way could, no doubt, be sold for substantial sums or otherwise dealt with, and the $335,048.23 for ties, said to have been contracted for before July 21, could no doubt be repaid by sale thereof.

"The Government would have to deal with the question of any deficiency or loss in the whole matter, and also with the disposition to be made of the balance of the bonds, $10,160,360, which are said to be in the Hydro Electric Power Commission's vaults unsigned and unsealed, and according to the present Government not at present available for expenditure unless it decides to proceed with the work. If, on the other hand, the municipalities, after full consideration of the facts as now disclosed, were to decide to go on with the project themselves, and at their own financial cost and risk, the entire amount of the expenditures could be recouped by them.

Inexperienced Officials.—"In a general way, Mr. Gaby had oversight of the preparation of the entire estimates. The Hydro Electric Power Commission had had some experience in construction costs in connection with the London & Port Stanley Ry. Clearly Mr. Gaby had little practical experience to qualify him to undertake or supervise the preparation of estimates of probable operating costs and anticipated revenues in connection with a system of electric railways. The construction estimates were turned over to T. U. Fairlie, departmental head of railway engineering on the Hydro staff. He seems to be a man of experience. His estimates were prepared with care and detail, and have not been very seriously called in question. The road is designed to be of a high class, and one criticism of it is that the cost of construction per mile is greater than needed or warranted. With reference to the estimates for construction costs, some questions arose on the one hand with reference to the possible failure to make proper allowance for sinking fund, depreciation and the like, and on the other as to whether in the light of changed conditions their total estimated cost might not be cut down by, say, 15%. A great deal of controversy, however, centered around the estimates for operating expenses and for revenues. The preparation of the estimates for these was entrusted to W. G. Hewson, a young electrical engineer on the Hydro staff, with considerable knowledge in electrical engineering matters, but without the experience which, in our opinion, was necessary to qualify him for the work thus laid on him.

"The proposed radial railways are singular in certain respects. The cost of construction per mile is admittedly high; the operating costs, upon the evidence as a whole, are low, the anticipated revenues are higher than experience has found to be attainable elsewhere except under unusual conditions. The per mile cost of operation is low. The operating ratio is high. Operating men of experience, we were told, could go over a territory, observe the number and location of the population, the character of the industries, and the like, and arrive at a fairly reasonable and reliable estimate of the business which might be expected to be done and the cost of operation of a road of a particular type. The Hydro Electric Power Commission, in fact, seem to have consulted no man of operating experience, but relied mainly on their own officials, who were inexperienced in this particular kind of work. It would appear to us that in setting out to obtain information on which to make estimates for projected electric railways, the natural and proper course would be to obtain the actual business done and revenue derived from the roads in the territory in question. It is said, and probably with some truth, that they could not obtain from the existing steam and electric railways operating in the territory anything like full details of the business they were doing, as these would not be disclosed to them if enquiries were made, and thus, so far as they were concerned, they had in this respect to depend on published annual reports, regarded as incomplete.

"The second important source of information would appear to us to be that gained through enquiries as to roads operating elsewhere, either in Canada or the U.S.A., somewhat comparable in territory, population, industries and the like. An attempt appears to have been made to get considerable information of this kind. Information of this kind would seem to us to suggest a warning against too sanguine expectations either as to low operating costs or high expected revenues.

Estimates Questioned. — "The third mode of procdeure would be to make enquiries and surveys through the territory in question and thus endeavor to ascertain what was the passenger and freight business which could be reasonably expected to be derived therefrom. This was the course pursued in very considerable detail by the Hydro Electric Power Commission when preparing its original estimates and the results were also carried into its supplementary estimates. The same course seems to have largely been followed by Messrs. Arnold and Seager and their assistants in their investigations commencing in Aug. 1920, and continuing until June 1921. It would seem that only to the extent that such enquiries and investigations would approach the number of actual passengers carried through the territory by existing transportation facilities, and the actual freight, carload and less than carload, and otherwise, handled by these would the results be likely to be reasonably accurate. If they appeared to go substantially beyond these, some doubt as to their accuracy would, as one would think, arise. Quite early in the investigation it appeared clearly necessary to us to obtain the results of the actual operations of the railways doing business in the territory. We would thus have actual and practical data which the Hydro Commission might not have been in a position to get and which was so desirable. For this reason, we called officials from all of the railways, steam and electric, in the territory, and obtained from them evidence and statistics of their operating costs and revenues. Notwithstanding that this was from then on available, no real attempt seems to have been made by the Hydro Electric Power Commission or the Municipal Hydro Electric Railway Association, or by Messrs. Arnold or Seager, to utilize or apply this evidence. Throughout their reliance seems to have been mainly placed on their enquiries and surveys. This, as it seems to us, was an error. While these surveys were made with care, and submitted in evidence with some detail, the figures resulting appeared to be too high and out of line with experience, and the mode of distribution of the freight between the various points in the system was left a good deal to the haphazard discretion of the people making the surveys.

"Upon the whole evidence, it seems clear that if these railways were constructed, they could not be operated at the cost estimated, and equally clear that the revenues expected could not be secured. One curious feature in this connection is the anticipation that in the first year of operation revenues would be obtained which elsewhere had not been realized, even after long years of operation and building up. We should not overlook to mention that an engineer of prominence, W. S. Murray, was in the spring of 1920 called in by the Hydro Commission to supervise the estimates which they had prepared. He made a written report. One cannot read it without coming to the conclusion that, on its very face, it shows him to have been too eager to endorse and to have made too little investigation to warrant him in doing so. As a curious example of his loose way of putting things, the following illustration from his report may be given: After quoting from a letter of Dr. Reid, Minister of Railways, to Sir Adam Beck, in part as follows: 'As you are of opinion you will want the road (the Toronto & Eastern), I think it is better that we do no more construction in the meantime, but of course it is urgent that a decision be arrived at at the earliest possible moment in order that the road be constructed as a feeder for the Canadian National Rys. as originally intended,' he (Murray) proceeds to draw this remarkable conclusion: 'The above is an excellent presentation of the Minister of Railways' point of view regarding the feeder relation of the steam road to the Toronto & Eastern Radial.' He was called as a witness, and it was then found that he had had little or no operating experience, and it was made plain that his examination of the whole project and of the estimates was a cursory and incomplete one, amounting to little more than what he himself termed it, 'a report on a report.' His endorsation of the esti-

mates lent little or no weight thereto.

Advantages Questioned.—"The gradual evolution of the project from the early years until even the concluding weeks of the enquiry has introduced and developed various outstanding features. Some of these, brought to attention in the early periods of voting by the municipalities during the war, gave promise at that time of some advantage, especially to those municipalities which considered themselves disadvantageously situated or unfavorably dealt with by the then existing transportation systems. In the latter respects, it is to be noted that the situaion has now very considerably changed by the acquisition of the Grand Trunk Ry. and the formation of the Canadian National Rys. by the Dominion Government. In certain other respects, some of the outstanding advantageous features claimed for the proposed system do not now appear to present the insistent appeal of necessity or loom as large as they did several years ago.

"As already indicated, the area proposed to be served by the projected system is not only the most populous or densest in Ontario, but to some extent surrounds and is tributary to the capital city, with its population of over 500,000. It is thus natural that the influence of the city with respect to the project of this new transportation should be very great. Its influence on the existing transportation systems has developed various features which have been, and will continue to be, prominent factors in transportation, especially with the publicly owned and operated steam railways recently acquired by the Dominion Government. It is a curious fact in this connection, however, that there has, as yet, been no development of suburban service by the steam roads in Toronto, and this has doubtless had a strong influence toward encouraging the project of hydro radials.

"Out in the province, however, and especially in the area concerned, there is a very extensive network of steam and electric railways, and it is doubtful if an area of equal extent, density of population or business and industrial activity in Canada or the U.S. (except perhaps around the exceedingly large centers) is better served in this respect. The total mileage of the existing steam railway routes within the area, shown on the accompanying map, is 800 miles, of which the double trackage is about 200 miles. That of the existing electric railways in the same manner is about 250 miles. The total investment of the steam roads in this region might reach some such amount as $50,000,000 to $60,000,000, of which the government owned has perhaps about $30,000,000 to $35,000,000. That of the existing electric roads is about $22,000,000. In view of this large extent of railway service throughout the region, it is for very serious consideration whether and how great a demand there is for additional transportation, even with the advantageous features claimed for this project; and further, if built, to what extent a newly constructed electric system would attract lucrative business and maintain itself in competition with these railways, especially as against the existing Government publicly owned system.

"**The type of electric railway proposed** under the scheme is a counterpart of a high class steam road operating between large cities. It is proposed to combine both the main interurban passenger business with the shorter suburban and, in some instances, local city services, all for passenger transportation, together with freight business doing heavy carload service, along with the lighter less than carload business, and express service. These additional classes are proposed to be superimposed upon an interurban railway, thus loading it to a capacity limited only by the practical operating conditions of its various lines. The system is thus intended for the development of a rapid frequent service, for both passengers and freight, of a general and universal kind heretofore unattempted by any electric railway on this continent, or, to use the expressions employed by Mr. Arnold in his testimony, 'This road is entirely different from any other kind of road I know of anywhere in the U.S. . . . such a combination as I have never yet seen anywhere else.' The proposed system as thus outlined is obviously an experiment, there is nothing like it anywhere in existence by which wholly to judge of its financial possibilities, or its practical operation. It will be new in type, and new in the field, in close competition with long established railways which have developed slowly through years of constructive operation. It will be dependent solely upon its new features with which to wrest business from these other lines or create new business of its own."

Competition.—"It is to have another distinct feature, new in electric interurban railways in that it is to be constructed and operated under co-operative public ownership. In this respect the proposed railway system is designed to be on similar lines to the publicly owned electric power system which has been operated with success since its early days when it, too, was an experiment. It is here suggested for fuller consideration whether there may not be a distinct line of cleavage on public utilities between the development and sale of electric power from a great natural source of supply and the building and operation of electric railways which are entering a purely competitive field. It is questionable whether the experiment of electric interurban or radial railways will be the same kind of experiment and have the same kind of success as has that of electric power and transmission. In the latter case the field was almost entirely new, and the Hydro Commission, by its ownership of generating stations and transmission lines, and by making exclusive contracts with the municipalities for distribution, occupied a position which was largely non-competitive, and, as time has gone on, is almost entirely so. On the other hand, as has already been pointed out, the new electric railway lines will parallel existing lines, and, although proposing to offer frequent and fast service, will nevertheless be in a large field of other transportation systems, and practically every passenger and every pound of freight would be competitive business. The competitive nature of this business was recognized by Mr. Arnold in his evidence when speaking of the feature of the road. He said: 'This would be a public road, the public would be interested in it and would probably be more friendly to it,' and again: 'They would ride on it, I believe, more frequently and ship their freight over it more frequently at the same rate than they would over a private road.'

"It may be unnecessary to point out that, however public spirited citizens may be, competition depends more upon circumstances of time and place and pocket, and it is stated by experienced railway operating men that it is difficult to conceive anything more competitive than the railway business, providing there is more than one serving road. Every passenger will choose according to fares, service and accommodation on which line he will travel, and every shipper, if the decision lies with him, will route his freight according to his preferences at the time, and, as is well known, these preferences are highly varied and changeable by small circumstances. The only business upon which a railway can absolutely depend is traffic to points not served by competitors. On general considerations, we believe that, apart from the more frequent passenger service and in some cases faster light freight service expected to be performed by these electric railways, the special virtue of their being publicly owned and operated, in so far as revenue getting is concerned, should not be unduly emphasized."

Construction Standard and Cost. — "Perhaps one of the most outstanding features of the proposed system of electric railways lies in the high standard of construction and cost which it is intended to adopt in their construction. It is proposed to construct the new lines on the standard of heavy permanent steam road construction with 80 lb. to the yard, with very heavy bridges, low grades, easy curves and all the attendant expense that these involve to attain highest speeds, at 60 miles an hour, for passenger trains and to haul long, heavy freight trains with the most powerful electric locomotive equipment obtainable for the purpose. There being expected an ample supply of power from Niagara Falls, all electric transmission and station equipment is provided for on the most generous plan. The type of cars and their accommodation provided for in the estimates are expected to be the last word in design and quality. The terminal construction in the large towns and cities, as for instance, in Toronto, is to be of the highest standard of excellence, comparable with or even surpassing that of long established steam roads operating in the same localities, providing for grade separation with bridges and deep cuttings of highly expensive character. It is to be pointed out that, commendable though the best may be, there lies somewhere a line beyond which it may not be economical to go, having in mind the circumstances surrounding the project as to its prospects, the financial conditions of the time and the possibilities of subsequent development along progressive lines. An example of this is familiar to us in the case of the construction of the Grand Trunk Pacific, which, it is now universally acknowledged, was 'over constructed' for the times and the prospective business."

Service and Speed. — "The proposed frequency of passenger service which it is intended to inaugurate is a feature of undoubted advantage in a system of this nature, especially in competition with steam roads in suburban and interurban business, if it is possible to secure it in practice. It is on this basis that the project expects to attract passenger business. On some of the proposed divisions this frequency is expected to result in immediate business, owing to the infrequent, and, in some respects, alleged inadequate steam service now in operation. On through runs such as Toronto to Hamilton, or Hamilton to St. Catharines, the competition will be keener at

certain times of the day, according to the schedules now in force on the steam roads. For intermediate stops and suburban services the advantages will lie with the frequent electric service, especially if the steam roads still refrain from putting on suburban trains, as, for instance, out from Toronto. Whether the electric passenger service is given in single cars or multiple unit trains, frequency will still be the controlling factor, the additional accommodation being provided only to adjust the service to the riding demand. Operating experts point out that this form of frequency and elasticity of service is one of the characteristics of electric railway operation.

"Much is claimed in the project for the feature of high speed which it is expected will prove an attraction in securing business. In very large metropolitan cities, like New York and Chicago, speed in radial and interurban electric lines undoubtedly is an attractive feature in time saving and in competition with steam suburban lines. The tendency of today, especially in large cities, is fast and faster transportation, but it appears to be most popular, and probably necessary, where in regions surrounding such very large cities the 'commuter radius' of the daily riding habit into the city is from 40 to 50 miles, and it appears that a ride of about an hour and a quarter, or a half, is the economical limit for such daily riding to business. On the very fast interurban line, the Chicago & North Shore, to Milwaukee, the first hour's run of the limited train with 9 stops carries one out only 21 miles from the terminus in Chicago over the elevated and private right of way route. The practical limit of the large commutation suburban business on this line is at 35 miles, which distance the fast limited trains make in an hour and 25 minutes, which is at the rate of 24 miles an hour. No such problem exists around Toronto, where the size of the city and its probable growth and business of the near future will not, for a considerable time, demand a suburban riding radius of more than, say, 20 miles, or an hour at the outside (at moderate speed).

"In freight service it is claimed that the proposed system will not only handle carload freight more expeditiously, but will so far beat the present steam road services in less than carload lots that it will approximate to an express service, in other words give an express service at freight rates. It was brought out in evidence that many vexatious delays occurred on the steam railways in handling local freight of this nature, and, while in most cases brought to our attention, the extreme delays were unexplainable, it would seem that such delays were most likely occasioned in passing through the yards at large terminals. These difficulties are proposed to be removed, and they doubtless can be to some extent, by an electric road having more elasticity than a steam road in its operation. In ordinary dispatch or express freight there is no doubt that the electric interurban freight operation will be advantageous compared with steam. With the utmost attention to details and to arrangement of freight operation on the shorter runs, it is to be expected, too, that the electric interurban and radial railway will provide a somewhat faster less than carload freight service than the steam railway does now, but only on the condition that terminal deliveries are very much improved. It is likely, however, that with a large volume of such business, when details of handling become more complex, especially when mixing freight operation with passenger business on the longer hauls, the tendency to delay will greatly increase, not only on the lines themselves, but in the yards and terminals."

Cheap Power.—"Obviously the advantage of cheap electric power within the area of the hydro radial project is a consideration. Compared with certain electric railways in the U.S., which require to be operated with steam generated electricity, the advantage lies with Ontario, with its cheap power. It is to be noted, however, that there is a considerable divergence in the prices paid by various roads in the U.S., depending on their location and the price of coal, etc. The evidence has disclosed that, taking in general the largest and most favorably situated roads and ones that in point of business have been at times used to compare with this project, the power costs are such that they would be generally cut from a third to a half if the hydro prices obtainable in Ontario were applied. As various witnesses have shown that the power costs from steam lie between 5 and 9c. a car mile in the car operating costs, this means that the saving by using hydro power in this area will be not more than about 2 to 3c. a car mile, or, say 7% of the car operating costs, thus indicating that the factor of their cheaper power, while important, is not so vital as might at first appear.

"It has been brought out in evidence that it has been represented at various times, especially in the earlier days of the voting, by the municipalities, that new hydro power supply, or cheaper rates for its supply, would follow the construction and operation of the hydro radials in certain localities. This appears to have been urged by hydro representatives as the outcome, or as being possible, by the construction of the proposed railways. In several instances this may be possible at the fringe of the area supplied by Niagara power or at a point lying between two power systems, as, for instance, at Pickering, but it must be borne in mind, on the other hand, that practically the whole area concerned is now fully supplied with hydro power from either Niagara or other sources, and this advantage is thus only very local."

Revenue.—"Mr. Arnold's estimate for the main route extending from Bowmanville to Niagara Falls for passenger business in 1925 amounts to nearly $2,250,000 after deducting all suburban business. The actual passenger revenue derived by the existing steam roads and the Niagara, St. Catharines & Toronto electric road shows an aggregate local passenger business, exclusive of all through traffic, of nearly $2,500,000 revenue in 1920. The freight revenue for the steam roads, omitting all through freight business and considering only local business with carload and less than carload lots, in 1920 was slightly over $1,000,000, whereas that expected by the hydro radials in 1925, according to Mr. Arnold's report, will amount to about $830,000."

Operating Costs.—"In the light of the foregoing it does not seem reasonable in our opinion to expect that the hydro radials can operate at the exceedingly low costs they anticipate. Not only do these comparisons indicate this, but various witnesses, especially Dr. Herdt and Mr. Bailey, have given strong opinions which confirm them. While it is difficult to arrive at any figure which should be taken or an amount which should properly be added, so, to Mr. Arnold's estimate of 28.7c., we are of the opinion that this figure should be increased by several cents to bring it into reasonable line with roads actually operating, even considering all the various advantages claimed for the hydro project. As for the original figure in the hydro estimates of 32c. average over the system, if that is to be considered at all, it was based on conditions much more unfavorable than Mr. Arnold's, especially in certain divisions, and, taking these into consideration, we are of the opinion that this figure, too, ought similarly to be increased to a figure at least as high as 35 cents.

"Considering all the features of the expected passenger revenue in combination, we are of opinion that these revenues are too optimistic and not likely to be realized. They are based on populations which do not yet exist and hence are at least uncertain; they are higher than most roads of general similar passenger type now in operation, and are second only to those operating out of very large cities where the riding habit is higher; they expect passenger revenues per capita, especially on the interurban portions, which are in excess of those of some of the best passenger earning roads operating out of cities like Detroit and Cleveland; and they expect to obtain these high earnings within the first year of operation, compared with electric roads which have developed their business over a period of from 10 to 20 years."

"The expected freight revenues are too speculative and, under the conditions in which the hydro radial system will have to operate, cannot be expected to be realized. The method of computing freight tonnage on population does not appear practical, according to the evidence, and it is unwise to depend solely on this method. While the freight survey in the cases where thoroughly made is most useful, it is insufficient in itself, and should be supplemented or supported by actual tonnages moving on other railways in the region. The arbitrary manner in which various guesses were made as to the propertion of freight likely to be secured in each town, seems an unsafe procedure, especially where the margins concerned are so slender as the expectations of this system are shown to be. The expectation that the hydro radial system will suddenly enter each of these cities and towns as a newcomer, and, as it has been expressed, 'elbow its way' into the local freight business to the extent expected against established roads, appears highly improbable of attainment for some years to come."

Operating Ratio. — The report then gives the actual operating ratio of several railways in Canada and in the U.S. and says: "From the foregoing table of roads already described and discussed herein, it is obvious that the hydro radial expectations of operating ratio are entirely out of line with existing roads in practical experience.

"It is evident that, considering the foregoing roads, the operating ratio need have no relation to the net earnings, as the operating ratio may vary from 60 to 80%, and yet the earnings may be the same. The point is, that to get an extreme operating ratio, very low (or

very high), there must be corresponding extremes in either total revenues high (or low) or operating costs low (or high). In the case of the hydro radial project these extremes in their expectations have already been pointed out, and by comparing the two estimates submitted it is evident that Mr. Arnold realized these inconsistencies when he uniformly raised his operating ratios above the hydro estimates to the extent he did. In our opinion the expectation of realizing such low operating ratios, in either estimate, in the light of experience, raises grave doubts as to the correctness both of the operation expenses, which should doubtless be higher, and secondly anticipated revenues, which doubtless should be lower. If both of these were adjusted to conform more to real experience, the operating ratios would undoubtedly be very much higher and more in line with practice.

"The net income or surplus arising from the operation of the proposed system is, under any circumstances, comparatively small. The hydro estimate submitted in Oct. and Sept. 1920, and against which much criticism was offered for its high revenue, low operating costs and high fixed charges, brought out a net income or surplus of about 10% of the total revenue or 'business done.' Mr. Arnold, in his estimate, submitted in May, 1921, with lower revenue, higher operating costs and slightly lower fixed charges, brought out a net income of only about 3.3% of the total revenue, and when still further reducing this, by reason of the mistake made in the revenue (as explained by Mr. Sager on his recall in evidence before commission at the termination of the enquiry) this is only 2.9%, an exceedingly small margin. It is fully evident that these expected amounts of net income do not present a rosy prospect for financial success even as they stand; a margin of 2.9% of surplus is a very slender inducement on which to embark on a project of such magnitude, and the fact that it is to be owned and operated at the public expense is all the more reason that a conservative margin of surplus should be assured. But it is much more evident from the foregoing discussion of the various factors which produce this small surplus, that even this is impossible of realization, especially when all these factors are taken in conjunction, or are acting simultaneously, as they undoubtedly would. These various factors, comprising cost of construction and fixed charges thereupon, passenger revenue, freight revenue and operating costs, must all work harmoniously or consistently, and it is only by such moderate and rational amounts or rates, in comparison with experience and performance of successful electric railway systems or the experience of men actually operating them, that the probable financial success of this proposed enterprise can be measured.

"With such dangerously small margins of surplus or net income anything may happen. It is true that it is proposed to operate this system at cost, that there are no carrying charges except interest on bonds or other borrowed money, and there are no dividends to be paid. But such a slender margin is too slight for reasonable safety, and if the usual rules of business were applied in this to determine whether it is a sound financial project, it is quite obvious that it could not be looked on favorably or endorsed. There are too many chances for something to happen on the wrong side of the ledger. A 3% decline in the revenue would alone bring a deficit. A 5% increase in operating expenses would alone bring about a deficit. A moderate combination of both of these would easily produce a deficit. Even the increase in operation costs per car mile alone of 1.5c. would produce a deficit.

"To enable the proposed electric railway system to be self-supporting it would have to pay annual carrying charges on construction costs much higher than usual, and would have to operate at annual operating charges much lower than normal, or than other experienced operating managers have been able to, are able to, or expect to be able to, operate at. It would require to secure revenues, passenger and freight, but particularly freight (after allowing all reasonable advantages attributable to the territory, the population, the rapid transit, entrance to Toronto, the element of cheaper power, cheaper operation costs per car mile, smaller operating ratio and the like), which experience has shown have not been secured and will not be realized in any territory which can be regarded as at all comparable. It appears to us, in the light of all the evidence, that such expectations could not be realized, and the system, if constructed, could not be operated so as to be self-supporting.

"To sum up, it will be quite clear that the competition with the electric railways of traffic on highways and good roads, particularly that of motors and motor trucks, has grown to be so extensive as to be a factor of great financial importance in considering the projection of any system of railways such as has been proposed for this part of the province.

"The London & Port Stanley Ry. is owned by the City of London and operated by a commission thereof. A rental of $20,000 a year is charged. It seems clear that if any reasonable estimate were made of the cost of replacing the roadbed, and if interest were charged upon the same, the excess of the said rental would have resulted in the road running at a deficit up to the present."

Alternative Suggestions by the Commissioners.

"The natural question which first arises out of consideration of the projects put forward by both the hydro engineers and B. J. Arnold is whether, if the scheme in its entirety cannot be self supporting, can any portion of it be so? A glance at the general project and the various estimates of its five divisions immediately discloses the fact that the system cannot be dismembered. Each division is dependent upon others for both passenger and freight revenue, to make it carry itself within the combination, in fact that is the basic principle of the scheme, and one of the main arguments put forward to the municipalities which entered into the project throughout the territory. If it were thought desirable to build the Toronto-St. Catharines division alone, as being a trunk or through line, the fact that according to Mr. Arnold's estimate it was expected to have a surplus in 1925 of $145,000, might at first make it appear a financial feasibility. It is to be observed, however, that within the revenue included on this line are large amounts expected to be derived from business coming to it off the Hamilton-Galt-Guelph-Elmira division, the cutting off of which would deprive the Toronto-St. Catharines division of an amount of revenue over twice as much as the surplus shown, while the reduced cost of operation would be only slight by comparison; the high fixed charges would remain almost the same. It is thus evident that taking the most promising divisions of the system they cannot be found to be as likely to be self supporting as even the whole system.

"In examining the project from all sides, however, and in viewing the evidence of the various witnesses, the estimates and reports, we are driven to the conclusion that the most obvious alternative scheme of a constructive nature lies in and about the City of Toronto. The whole hydro radial project centers about this city, which is the largest partner in the proposed co-operative scheme of the municipalities. It became apparent too that, inasmuch as the Toronto situation naturally separated itself from the rest of the project out in the province, it should be treated as a purely local problem, and worked out with the view that the City of Toronto should undertake the construction and operation, as a municipal enterprise co-ordinated with the other undertakings of similar nature now in hand. This alternative suggestion crystallizes into a purely radial scheme based on Toronto. The term 'radial,' which has become so definitely attached to the hydro radial railway project, is peculiarly applicable to Toronto and in fact the project as put before us, obviously had its inception as conceived in and about Toronto, because the larger scheme appears to have grown outward from this center.

"This Toronto radial scheme has already had a constructive impetus in the recent negotiation, now believed to be almost consummated, for the acquisition by the city of the three privately owned suburban lines, which are included in the so-called 'clean up' of the power situation in Toronto. These three lines being thrown into the scale are, in our opinion, very instrumental in not only emphasising the desirability of a purely Toronto radial project, but in making possible the adoption of those portions of the larger hydro radial project which lie in and around Toronto. All of these in combination, three portions of the hydro radial lines within or close to the city, and the three other lines about to be acquired, together can probably be merged into a practical and economical radial project to be operated in conjunction with the City of Toronto street railway system, now also about to be acquired. We consequently suggest this as an alternative scheme. This suggested scheme embraces first the use of that portion of the Toronto Eastern Ry. within the city which, in Mr. Arnold's report, is called the rapid transit suburban section, about 6 miles long, out as far as the Don Valley crossing. This section, according to Mr. Arnold, if operated independently of the city (i.e., as a hydro road), would produce a very good revenue from suburban and local sources; owned and operated by the city as a part of its city system, it should be even more remunerative. The Toronto Suburban Ry. to Guelph, while still remaining under public ownership of the Dominion, would have, as brought out in evidence, a great advantage, if given access for its interurban cars from Guelph, and also from Weston and Woodbridge, direct or by transfer, down the center of the city. Such a connection is

proposed under the plans of the radial project and if this short section were built by the city from Keele St., down the Humber valley to Sunnyside, it would provide the means desired, and at the same time enable the city street railway system to have a rapid transit line around the western part of the city similar to that already suggested for the eastern side. That portion of the Toronto-St. Catharines line as proposed within the city limits could be made immediately useful as forming the desired entrance to the city from the west. This would permit access to Bay St., for cars coming in both from the west and the northwest, as already provided for in the hydro plan for this part of the scheme, and would embrace the advantages already pointed out in this respect. It is obvious that the very costly construction proposed in the hydro scheme cannot economically be followed. for such a line as this, within the city, desirable though it may appear, would have the handicap of high fixed charges and would be too heavy to carry. Construction might be arranged so that, as business developed and warranted, improvements could be undertaken. With the acquisition by the city of the Toronto & York Radial Ry.'s Mimico Division, now operating from Sunnyside to Port Credit, a means is already at hand for serving that suburban portion of the city to the west of the Humber River. This line has at present various structural disadvantages, such as curves and wide gauge, and while its location on the highway may require slower speed, as claimed, it has the advantage of offering more convenient access to the residents. Certain changes might be made in location, and other betterments would be required, to place the road on a good working basis comparable with other parts of the Toronto system. It is to be borne in mind that this division, even as it now exists, is the best paying suburban railway in the vicinity of Toronto.

"It is here suggested that a logical course to be pursued is the construction of the missing link between Port Credit and Oakville: why this has never yet been done was not clearly brought out. Such an extension would serve not only the suburban locality and the town of Oakville, which very much needs such service, but would permit a through electric car run from Toronto to Hamilton even as the lines now exist; this is without considering the possibility of a shorter line being built from Burlington to Hamilton, when demanded. It is suggested that in order to bring about the Credit and Oakville, which ought to be built of high standard, there might be some co-operation between the City of Toronto, with its Mimico line, when acquired, and the municipalities of Oakville and Port Credit, and possibly the townships concerned. This is deemed by us to be purely a local matter and one in which the province should not be called upon to enter.

"As to the situation in the northern area of the city, which really does not enter into the plans of radial projects as presented to us, it is to be recognized that the T. & Y.R.R. Metropolitan Division, when acquired, must ultimately have provision for getting its interurban cars down to the lower part of the city, in some such manner as already described for the eastern and western entrances. It is suggested that a connecting line might turn off York Mills, and, running in the vicinity of the Don River, connect at the upper end of the eastern suburban (or Mr. Arnold's 'Rapid Transit') line previously described as the city part of the Toronto Eastern route. Such a plan, which we understand has already been under consideration by those concerned with city transportation matters, and which was referred to in evidence, appears to offer a solution for entrance of interurban cars from the north. This, too, is wholly a City of Toronto matter, in conjunction with the adjoining county and townships, and, being local, is also one in which we consider the province should not be called to enter.

"The portions of these three proposed new roads within the city, as described, would, according to Mr. Arnold's report, be by far the best paying portions of the hydro radial system, as they are all favorably situated for local and suburban business. These portions, including some extra lengths outside and adjoining the city, are together expected to earn a suburban passenger revenue of about $1,074,500 (see Mr. Arnold's report), or about 21% of the entire passenger revenue expected for the hydro radial system in 1925. To this expected suburban revenue on new lines, there could be added additional passenger revenue and some light freight and express, for instance: on the Eastern Rapid Transit, the interurban passenger and freight business coming down the Metropolitan Division, and the revenue to be derived from any branches which may be built eastward, in conjunction with the city service; to the Toronto Suburban connection by Humber valley and Sunnyside; the similar interurban and freight business arising from the main line, and certain business from the local city lines in West Toronto, and possibly Weston, etc., to the Humber-Sunnyside line main line to Bay St., through the exhibition grounds and Harbor Commission lands, the right of way for which is almost all already available to the city; the interurban business of passengers and freight coming in from Port Credit, Oakville, Burlington, and to some extent, from Hamilton. The aggregate revenue that might be thus derived from this combination appears somewhat attractive, especially when it might be operated under one management such as by the Toronto Transportation Commission. The fixed charges for these lines should be much lower in proportion than those rendered necessary by the hydro plans, mainly because of the low purchase price of the lower standard lines to be newly acquired, compared with the proposed cost of the very high standard new lines considered to be necessary by the hydro engineers. The operating costs, as put in by Mr. Arnold, taken in conjunction with those given in evidence for the Toronto & York Radials, would seem to offer a favorable opportunity for economic operation, but more likely if placed under the one unified management of the Toronto Transportation Commission, because revised plans and operative arrangements may be worked out by it whereby both construction and operation costs may be considerably reduced.

"The general question of the terminal station in Toronto is difficult to consider under any circumstances. It was early obvious that the proposal by the hydro engineers to discharge passengers at the waterfront was open to many objections, not the least of which was the lessened revenue to be derived by an inconvenient terminal. It was for this reason that Mr. Arnold proposed the subway terminal, even at its great cost. Until the viaduct, and other large transportation questions, which are purely the affairs of the City of Toronto, are determined, the question of terminal will probably have to be left unsettled.

"In general, such a Toronto radial scheme as it might be worked out, appears to us to offer various advantages. It would supply an opportunity for a truly 'radial' system of railways, operating into the city from a suburban belt up to say 10 or 15 miles radius. This outer district might, as has been suggested, be formed into a greater Toronto district, so as to secure unified transportation control by the municipalities themselves, apart from and free from any outside influence or interference. This system would offer to suburban residents, workmen and others, who desire the advantages of cheaper homes and living expenses, a cheap and convenient transportation to the outer zone, by means of a system wholly co-ordinated with the civic system. In this we consider that such commuters would have a better service than if under two separate transportation bodies operating under public ownership principles. It may be pointed out in this connection that remedy may now be more readily found for the so-called deficiencies of the steam railways in suburban business, because under their public ownership and operation, requests and insistence for, say, an extra train morning and evening, where shown to be necessary in the interests of the public, will, doubtless, be given heed to more readily than by a private corporation. The remedy lies with the Board of Railway Commissioners to assist in case of difficulty or reluctance on the part of the railway. Such a unified transportation system would enable the Toronto Transportation Commission to work out its own plans in conjunction with the problem of the street railway proper when taken over, and would not put it in the position of being a competitor with another transportation system operating within its area, such as the hydro radials might be. The civic system appears to have difficulties ahead in the ordinary course as to revenue, and Mr. Arnold, from an intimate knowledge of the street railway problems in Toronto, from previous study, gave it as his opinion in his evidence before us, that Toronto residents are probably going to be confronted with a 7c. street railway fare. It does not seem reasonable to set up, especially at this juncture, another transportation system, which would in reality be in competition to some extent at least. The necessary co-operation with the Toronto Harbor Commissioners would doubtless be more advantageously secured by another civic commission, than if a third were included."

The Minority Report of One.

As stated in the introduction, the foregoing reports were signed by all the royal commissioners except F. Bancroft, a member of the Pattern Maker's Union and a reporter on the Toronto Daily Star, who submitted a minority report in which he said:—"It is quite plain from the evidence that the bonds to raise money to build electric radial railways in Ontario must be guaranteed by the province, if the money is to be raised advantageously, or a radial scheme successfully launched. Radial railways in Ontario designed to engage in interurban, suburban and freight traffic, operating through various municipalities, as is proposed, cannot be successfully financed

without the Government pledging the credit of the people to back such a publicly owned enterprise. I cannot agree with any suggestions made during this investigation that municipalities should finance radials operating through various municapilities without a government guarantee. After listening to a long enquiry, to say the municipalities must finance their own radials without a government guarantee is equivalent to saying radials must not be built. I agree with Mr. Clarkson that the bonds to be issued in respect to any radial line cannot be sold to advantage without the guarantee of the province."

He then made the following recommendations:—"1. That the Government adopt the principle of publicly owned and operated electric radial railways for the province.

"2. That the Government instruct the Hydro Electric Power Commission to proceed at once with negotiations to complete contracts or agreement for the following: the purchase of certain electric railways now owned by the Dominion Government and the traffic arrangements which may enter into the agreements; the purchase of a section of the Grand Trunk Ry. owned by the Dominion Government; to acquire running rights over certain sections of the G.T.R.; entrance into and through Hamilton on the G.T.R. right of way, and other arrangements and agreements which I propose to outline in this report.

"3. Upon the completion of such agreements or contracts, or the choice of alternate plans where a satisfactory agreement or contract is not arrived at, the Hydro Electric Power Commission shall at once place before the Government the result as completed, showing clearly where their expectations were realized and where alternate plans had to be chosen.

"4. Following the action indicated above, the Government shall request the Hydro Electric Power Commission to recommend to the Government the most advantageous and economical time to commence construction of radial railways, and on which division or divisions construction shall begin first. The amount of money already expended on the Toronto & St. Catharines division, with the desire of the municipalities so clearly expressed, would suggest that this division ought to be commenced first and hurried to completion, so that the revenues may be earned as speedily as possible. This division is admittedly the best and most favorable in the whole project.

"5. I strongly recommend to the Government and the Hydro Electric Power Commission that when they are deciding the date for commencement of construction of radial railways very great weight should be given to the present state of unemployment. The Government could help a great deal by commencing work on such a public utility as radial railways, whereby many men could earn wages and the Government obtain return in labor for the money expended.

"6. The Hydro Electric Power Commission should have as a member one of the best and most experienced railway men in operating and traffic who can be found. Such a railway expert would be of great assistance to Chief Engineer Gaby, whose duties in connection with the power projects are onerous now, and upon whom much of the work connected with radials is likely to fall. Legislation may have to be passed to increase the number of members on the commission, but such an experienced railway authority should be obtained without delay and placed in a position where he could be of greatest assistance to the Hydro Electric Power Commission. This is no reflection upon any of the engineers of the Hydro Commission, but a recommendation to assist the Government and the Commission in a great public project of magnitude.

"7. The utmost co-operation and frankness should govern the relations of the Hydro Electric Power Commission with the Government, and the Government with the Hydro Electric Power Commission, in this great public enterprise of publicly owned and operated radial railways. There can be only one purpose, and that is the progress and welfare of this great province. The scheme of radial railways outlined before the royal commission by the Hydro Electric Power Commission, amplified and improved by experts in evidence before the royal commission, will be of immense benefit to the territory involved and the province as a whole, and there is every reason to believe confidently that the radials will be self supporting, providing service at cost to the citizens, and ensuring a healthy development and progress for Ontario, which lack of such transportation facilities will seriously obstruct."

Mr. Bancroft says that "one of the great difficulties during the investigation was in finding any radial railways on this continent with the same fundamental characteristics, such as the combination of services to be given with the physical advantages as proposed in the Hydro project." In his opinion, many of the experienced operating experts from the U.S. who gave evidence overlooked or failed to appreciate thoroughly these very evident differences in the electric railways which they used for comparison.

The minority report also states that "there is no necessity for conflict between the Toronto St. Ry. system and the proposed radial railway"; also that "the radial services should be regarded as supplementary to the steam railways, and that it is not likely the steam railways will be harmed by these additional facilities."

Regarding motor truck competition with the proposed radials, Mr. Bancroft says: "The electric interurban railways, thoroughly equipped, will not suffer very much from competition by motor traffic in passengers or freight. If the freight traffic on highways has to pay its fair share for the upkeep of the highways, the electric railway will not be affected by competition of motor trucking."

Mr. Bancroft does not think the financial standing of the province would be prejudiced by guaranteeing the bonds for the construction of the radials, because he considers they will be revenue producers which will carry themselves and in due course pay for themselves in a period of years by a sinking fund process whereby they will be ultimately owned completely by the people.

He also says: "The enquiry has been an extended one. In one of the appendices attached to the majority report the procedure of the royal commission is outlined. In fairness to the hydro engineers your commissioners ought to share to some extent the responsibility for the length of the enquiry."

He also states that "the costs of construction have not been questioned by any expert called to give evidence. It is generally agreed that ample money has been provided to build the railways proposed by the Hydro Commission." Also, that "there cannot be any reasonable criticism of the hydro engineers for changing at various times their estimates of capital cost."

Mr. Bancroft accepts the evidence of Chief Engineer Gaby and other officials of the Hydro Electric Power Commission, supported by B. J. Arnold, consulting engineer, of Chicago, that the system as a whole will be more than self supporting in the first year, earning a net surplus the first year of operation in 1925.

Premier Drury States the Ontario Government's Position on Hydro Electric Railways.

Mr. Drury, speaking at Glencoe, Ont., on Aug. 14, declared emphatically that the Ontario Government would not guarantee municipal bonds to carry out the Hydro Electric Power Commission of Ontario's projects for a system of hydro electric railways. He said, in part:—

"When we came into power, we found varied and extensive hydro electric enterprises under way. We found, too, a radial policy had been outlined, covering in its proposals a large part of the province, voted on in some instances by the people, and found in connection with this and other hydro electric enterprises a great degree of indefiniteness and misinformation. The Government was not in a position to know definitely what had been going on. The old Government, apparently afraid of the pro-hydro forces, and at the same time reluctantly supporting the movement, had on the one hand endeavored to impede Sir Adam Beck, and in the other had yielded weakly to demands they should not have considered, and so the matter was more or less in a state of chaos. The enterprises had been entered upon; they were under way. It was necessary, if we were to carry them through to a successful conclusion, that we should know how much money we should raise and the state of affairs. Would a man hesitate to call in a physician to diagnose an illness?" he asked, in his justification of the appointment of the Sutherland Commission. "Frankly, the Government did not feel itself capable of a skilled investigation. We do not hold our abilities to be nothing, but in a matter of this sort, highly technical, we needed the advice of experts, and we appointed the commission.

"While the Sutherland Commission cost the province $469,754, $332,249 of that amount should be charged directly against the Hydro Electric Power Commission. When the scheme came before the Sutherland Commission for investigation new information was required to bolster it up. One would think that all this would have been gathered before the Commission's experts pronounced upon it. If we had stopped the presentation of evidence from expert after expert it would have been charged that full evidence had not been brought in.

"I see no objection whatever," he said, "if the municipalities involved want the railway and will vote on it again — I would insist upon that because I think there was a great lack of information, and a perilously small vote taken—if the municipalities want to vote on it again, and will vote on it and will go on with the project without asking the endorsement of the province, I see no reason why

they should not be allowed to go on with it. We are not here to interfere with municipalities, but we are here to guard the rights of the whole province. And so the Government, while deciding not to guarantee the bonds of these enterprises, will not hamper the municipalities if they choose to go on at their own risk, and put up the bonds. We will enact legislation to allow them to do so."

He said that on taking office his Government found itself committed to the Hydro Electric Railway, Essex Division, formerly the Sandwich, Windsor & Amherstburg Ry., and it would carry on the venture as it was in honor bound to do. He continued: "The Government stands committed in the case of the Toronto, Port Credit & St. Catharines line to the extent of $1,250,000. With the one we cannot go back. With the other, the Toronto, Port Credit, St. Catharines line, there is a possibility that the Government, without dishonor, may be able to draw back. That is a matter that the Government decide. For the present I am not prepared to announce our policy."

Electric Railway Notes.

Guelph, Ont., Radial Ry. has started a Sunday car service, which is being well patronized.

A section of the Winnipeg Electric Ry. employes are reported to have formed a new union to be known as the Canadian Independent Federation of Street Car Men.

Five Toronto Ry. motormen were arrested Aug. 6, three charged with conspiracy to rob the company's substation on Queen St. east, and the other two as material witnesses.

The Fort William, Ont., Utilities Committee is reported to have notified the Post Office Department that the charge for carrying postmen on the municipal railway will be increased from $30 to $60 a year.

An English motor bus of the type recommended for adoption by the Transportation Commission, is being shown at the Canadian National Exhibition at Toronto. It is a double decker, to seat 48 passengers.

Edmonton, Alta., City Council is reported to be about to make another attempt to stop the jitney opposition to the Edmonton Radial Ry. by prohibiting jitneys from operating except on certain specified routes.

The Hydro Electric Power Commission of Ontario is considering the ordering of 30 electric motor cars, 20 for the Hydro Electric Railways, Essex Division, and 10 for the Guelph Radial Ry., for which special designs have been prepared.

Port Arthur, Ont., Civic Ry. started a new car schedule on Aug. 15, which will, it is said, effect a saving of $8,000 a year in wages, etc. This is being done by curtailing the service on certain lines, lengthening the runs on other lines and dropping four employes.

The London, Ont., Railway Commsision's Vice Chairman, P. Pocock, is reported to have announced that the London & Port Stanley Ry. will buy a new electric locomotive in time for next spring's traffic and a steam shovel from the Hydro Electric Power Commission of Ontario, as soon as the Chippawa plant is completed.

Walter Inman, employed by the Winnipeg Electric Ry. Co. in connection with the handling of fare boxes, was found guilty recently of being concerned in the theft of tickets therefrom, and was sentenced to 23 months imprisonment. Charles Outerson, charged in a similar connection, was arrested at Montreal, while on his way to Europe. The amount involved is stated to be from $15,000 to $20,000.

The question as to whether Halifax, N.S., City Council will build its own distributing plant for the power to be ought from the Nova Scotia Government's plant, or hand it over to the Nova Scotia Tramways & Power Co., come before the city's hydro electric committee on Aug. 18. A majority report favors selling the power direct to the company, and a minority report favors distribution by the city, the cost of the necessary plant being estimated at $88,133.98.

Ernest and Alphonse Fournier created a disturbance on a Montreal Tramways Co. car and assaulted the conductor on Aug. 17. Ernest was charged in the Recorder's court with disturbing the peace, and with breaking two windows in the car, and was fined $6 and costs for the damage and $10 and costs for disturbing the peoce. Alphonse was fined $20 and costs for the assault, and $10 and costs for disturbing the peace. Later in the day both were charged before Judge Casson with endangering the lives of the public, and the hearing was fixed for Aug. 25.

Mainly About Electric Railway People.

E. P. Coleman, General Manager, Dominion Power & Transmission Co., addressed the Hamilton, Ont., Trades and Labor Council on service at cost, on Aug. 5.

C. C. Curtiss, Manager, Cape Breton Electric Co., and W. L. Weston, Manager, Nova Scotia Tramways & Power Co., spoke at the Electrical Association's annual dinner in Halifax, N.S., Aug. 17.

W. J. Radford, Assistant Manager, Toronto Suburban Ry., spent a fortnight's holidays in August, going as far east as Halifax.

Among the Express Companies.

On the Dominion Department of Agriculture's complaint, the Board of Railway Commissioners passed order 31,400, Aug. 17, ordering the American Railway Express Co. to publish and file a tariff, showing a proportional rate of 24c. per 100 lb. on fruits and vegetables, from shipping points on the Toronto, Hamilton & Buffalo Ry., to Hamilton, Ont., applicable to shipments destined beyond Hamilton, to become effective Aug. 27.

William Campbell Muir, who has been appointed Vice President and General Manager, Canadian National Express Co., was born at Clinton, Ont., Apr. 3, 1866, and entered express service in Nov. 1884, since when he has been, to 1886, clerk, American Ex. Co., Toronto; Apr. 1887 to Feb. 1897, clerk, Dominion Ex. Co., Winnipeg; Feb. 1891 to Oct. 1901, agent, same company, Winnipeg; Apr. 1902 to Jan. 1903, Superintendent, Canadian Northern Ex. Co., Winnipeg; Jan. 1903 to Aug. 1907, Auditor, same company, Winnipeg; Aug. 1907 to July 1910, Superintendent, same company, Winnipeg; July 1910 to Oct. 1919, General Superintendent, same company, Winnipeg; Oct. 1919 to Dec. 1, 1920, General Superintendent, Canadian National Ex. Co., Winnipeg; Dec. 1, 1920 to Sept. 1, 1921, General Manager, Canadian National Ex. Co., Winnipeg.

John Pullen, who has been appointed President, Canadian National Express Co., at Montreal, was born at Shepton Mallet, Eng., Jan. 23, 1863, and entered G.T.R. service in 1877, since when he has been, to 1878, in various capacities in the Assistant General Freight Agent's office, Sherbrooke, Que.; 1878 to 1880, in General Freight Department, Montreal; 1880 to 1890, secretary to Traffic Manager, Chicago, Ill.; 1890 to 1896, Agent, West Shore Fast Freight Line and subsequently Agent, Reading Despatch, Chicago, Ill.; 1896 to 1897, Division Freight Agent, Stratford, Ont.; 1897 to May 1, 1899, Division Freight Agent, Hamilton, Ont.; May 1, 1899 to May 1, 1900, General Freight Agent, Central Vermont Ry., St. Albans, Vt.; May 1, 1900 to Aug. 14, 1905, General Freight Agent, G.T.R., Montreal; Aug. 14, 1905 to Oct. 2, 1911, Assistant Freight Traffic Manager, G.T.R., Montreal; Oct. 2, 1911 to Sept. 1, 1921, President, Canadian Ex. Co., Montreal.

Street car fares in Vienna, Austria, are reported to have been advanced to 80 times over pre-war rates.

Trackless Trolley Cars, to be operated by one man, are, it is said, to be experimented with in the suburbs of Berlin, Germany, to try and find a solution of the railway problem there.

Chippawa Power Canal.—It is expected that water will be let into the Hydro Electric Power Commission of Ontario's Chippawa power canal early in December, when two of the nine generating units should be ready to be operated.

The British Trade Ship Ltd. has been registered in England, to acquire, or if necessary, build a steamship to be used as a floating exhibition of British products, to visit various ports throughout the world. Amongst those associated with the project are the Duke of Northumberland, Earl Grey, son of a former Governor General of Canada, and Sir George B. Hunter, of Swan, Hunter & Wigham Richardson Ltd., shipbuilders.

Fatality During a Rescue on Lake Ontario.—At the request of a resident of Toronto, Capt. L. A. Demers, Dominion Wreck Commissioner, held an enquiry, Aug. 23, into the death by drowning of a Miss Rita Glass, while an attempt was being made by the master of the Niagara, St. Catharines & Toronto Navigation Co.'s s.s. Dalhousie City, to rescue her and her companion from a canoe which had been carried into the open lake, in July. A complaint had been made that there was undue delay in launching a boat to effect the rescue, and negligence, which caused the overturning of the canoe. After hearing evidence, Wreck Commissioner found that the ship was fully equipped and manned, the lifeboats were in a condition and position to be utilized promptly, there was no proof of incompetency of the master, Capt. G. W. Blanchard, but he erred unintentionally, and his judgment was faulty in not having his lifeboat in the water before placing the canoe on his lee; and that the mate, G. Wilson, was dilatory in executing the master's order to prepare the lifeboat, which was swung and lowered in fairly good time. The direct cause of the fatality was the throwing of a rope by the wheelman, without orders, but with the best intentions.

Marine Department

General Shipbuilding Matters Throughout Canada.

Canadian Vickers Ltd., Montreal. — The steel cargo steamship Topdalsfjord, an illustration of which is given herewith and which was built and engined complete by this company, for the Norwegian-American Line, was delivered on July 22.

Collingwood Shipbuilding Co., Kingston, Ont.—This company, which recently reverted from an 8 hour to a 9 hour day, put into effect, Aug. 3, a working week of 55 hours, 10 hours a day for 5 days and 5 hours on Saturday, accompanied by a decrease in the hourly rate of wages.

Montreal Boatbuilders Ltd., Lachine, Que., has been incorporated under the Dominion Companies Act, with $100,000 authorized capital, to build, deal in and operate ships of every description, wharves, piers, docks, warehouses, etc. The incorporators are W. S. Johnson, A. R. Hall, E. M. Pierce, J. Edwards and R. R. Larabee, Montreal.

Steel Cargo Steamship Topdalsfjord, 6,400 d.w. tons, built by Canadian Vickers Ltd., for Norwegian interests.

Port Arthur Shipbuilding Co., Port Arthur, Ont., is reported to have a contract for overhauling and repairing the s.s. Francis Widlar, refloated recently by the Reid Wrecking Co., Sarnia, from the Pancake shoals, Lake Superior, where she stranded in the autumn of 1920. It is stated that the work will take about three months, and will be supervised by John Smith, marine architect, Cleveland, Ohio, on behalf of Mathews Steamship Co., Toronto. The Francis Widlar was built at Cleveland, Ohio, in 1904, with steel hull, on the channel system, steel tank top where no wooden ceilings are fitted, 3 watertight and 2 non watertight bulkheads, electric lighting, steam pump wells, and hatches spaced 24 ft. centers. Her dimensions are,—length b. p. 416 ft., breadth 50 ft., depth 28 ft.; tonnage, 4,682 gross, 3,368 net. The propelling machinery consists of triple expansion engines, with cylinders, 22, 35 and 58 in. diar. by 40 in. stroke, 1,460 i.h.p. at 85 r.p.m., and supplied with steam by 2 Scotch boilers each 13 ft. 2 in. diar. by 11½ ft. long, under induced draft at 175 lb.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—At a recent meeting of shareholders, the newly elected President outlined the company's position and prospects. The company was formed to build four auxiliary powered schooners, under special aid from the Dominion Government, and the Cholberg shipyard was engaged for the purpose. The yard was closed down in Dec. 1920, on account of the excessive cost of building the first of these ships, named Simon F. Tolmie. Subsequent negotiations with the Dominion Government led to the taking over of the ships under a clause in the agreement, which gave it power to seize them, and to complete or sell as it thought fit. The company declined, on its solicitor's advice, to place the Government in the same position as the company, as regards the Cholberg Shipyard Co., until some policy as to dealing with the shareholders was enunciated. A resolution claiming that the shareholders are entitled to receive from the Government, equal treatment to that accorded to creditors of the Prince Rupert Drydock & Engineering Co., in bankruptcy, and requesting the Government to define its intentions, to "end the suspense and the unnecessary current expense involved in the continuance of our practically hopelessly bankrupt company, and ending at once any embarrassment the Government might be subject to by the continued existence of the company," was discussed, but not adopted. All matters were left in the directors' hands. The board consists of Capt. M. D. Harbord, President; Brig.-Gen. R. P. Clark, A. G. Lidgerwood, D. Leeming, P. Borradaile, R. Angus, P. J. Riddell, L. A. Grogan and A. Monteith. As mentioned in our last issue, the Dominion Government has decided to take over and complete the ships, and is reported to have given a contract to the Victoria Machinery Depot Co. for the completion and fitting of the Simon F. Tolmie.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—We were officially advised recently that good progress was being made on the steamship under construction for the C.P.R. British Columbia Coast Service, ordered in Sept. 1920, and it was expected that she would be launched about the last week in August, the christening to be performed by Mrs. J. W. Troup, wife of the Manager, British Columbia Coast Service, C.P.R. The structural steel was about completed, the line shafting in place, the rudder hung, masts stepped, deck houses and wheel house erected, and a large force was completing the joiner work and finishing up the interior generally. The machinery was being manufactured in the builders' shops, and as the engine is over 4,000 h.p., with 4 cranks, it has been a somewhat difficult job, and might possibly delay the launching for a week or so, as it was the intention to have the machinery on board at launching. The four 16 ft. Scotch marine boilers were completed and ready for installation. The name selected for the ship is Princess Louise. Her dimensions are,—length b. p. 317 ft., beam 48 ft., depth of hold 18½ ft. She has a cellular double bottom, and the hull is divided by 8 transverse bulkheads. She has a single screw, driven by reciprocating engines, balanced on the Yarrow, Schlick & Tweedie system, for a speed of 16 knots. She is designed for all round service on the coast, and accommodation is arranged for about 200 first class passengers, with carrying capacity for about 600 tons of cargo. The furnaces are being equipped to burn oil fuel, and to be easily convertible for coal burning. She is being built under British Corporation classification, and fully equipped in accordance with Canadian inspection requirements, amply lighted and provided with hot and cold running water in every stateroom, with every modern convenience.

Yarrows Ltd., Victoria, B.C., did the following repair work during July:—British Columbia Cement Co.'s s.s. Teco, 194 tons, docked for cleaning, painting and repairs, and fitting new propeller; Canadian Government Merchant Marine s.s. Canadian Exporter, 5,498 tons, docked for cleaning, painting and repairs, and s.s. Canadian Importer docked for cleaning, painting and repairs; Consolidated Whaling Corporation's steamships Black, Blue, Brown and Green, 102 tons each, docked for cleaning, painting and repairs; H. Neave's yacht Ivanhoe, docked for cleaning and painting; Victoria Tug Co.'s steam tug Swell, docked for cleaning, painting, and repairs to propeller.

A London, Eng., press cablegram says: Labor troubles have led Yarrow & Co., Ltd., the Glasgow shipbuilders, to decide to close temporarily from the end of November their works on the Clyde. It is announced that repeated industrial disputes throughout the country have made the cost of shipbuilding excessive and

impossible to promise dates of delivery. The works will be reopened when conditions enable business to be carried on with any chance of success.

The Dominion Steel Corporation's Shipping Matters

R. M. Wolvin, President, Dominion Steel Corporation, made the following references to shipping matters at the corporation's recent annual meeting:— "The company had various claims against the owners of ships which were under time charter. Several of these claims have been adjusted, and in arriving at these settlements your company has been able to acquire on very satisfactory terms the ownership of the British registered steamships Wabana and Kamouraska, each of 7,500 tons carrying capacity, and the Rose Castle, of 12,000 tons capacity, also under British register, together with a controlling interest in the Norwegian registered steamship Daghild, of 12,000 tons capacity. These ships were all built especially for your company's ore and coal trade and we are now in possession of a very excellent fleet of ships peculiarly adapted for the carriage of our raw materials. The company now owns 68,000 d.w. tons of ships for its various trades and this adds to the company's profits the earnings that would otherwise go to owners from whom we charter ships, and in addition makes our position secure for ships suitable for our use.

"The claims against the owners of time chartered ships have all been settled, with the exception of a dispute with the owner of one large steamship which has changed hands, and this matter is now in court. Your company has a large claim against Germany for reparations, and should be reimbursed out of the proceeds from the German property held by the Custodian of Alien Property at Ottawa. This claim is mostly in respect of owned and time chartered ships sunk by submarines. In addition we have a large claim against the Imperial Government for losses suffered by your company, due to the requisitioning by the Imperial Government of steamships under time charter to us. It appears to be most difficult to obtain adjustment of these claims and they have not in any way been taken into the company's accounts."

The North Shipping Co. Ltd. and The South Shipping Co. Ltd. have been incorporated under the Dominion Companies Act, with $500,000 authorized capital each, and offices at Quebec, Que., to transport passengers, mail and merchandise, and do towing and wrecking, etc., in any navigable waters in and bordering on the Dominion, and to and from any foreign port. The incorporators are A. C., and H. P., Hill, C. H. Maclaren, S. A. V. Martin and L. Mattman, Ottawa. It is stated that the companies are subsidiaries of the Clark Steamship Co., which operates steamships on the north and south shores of the St. Lawrence.

Kingston Harbor Works, Jamaica.—It was reported recently that the Jamaica Government planned the improvement of Kingston harbor, at a cost of about £1,000,000. Canadian Railway and Marine World communicated with the Government in connection with the matter, and was informed by the Colonial Secretary, recently, that no definite decision had been arrived at, as to the extent of the work to be undertaken.

Drydock Building at Esquimalt.

As stated in Canadian Railway and Marine World for August, Yarrows Ltd., Victoria, B.C., has a sub contract from the general contractor, the P. Lyall & Sons Construction Co., Montreal, for the cofferdams for the landing wharf and bulkhead at the outside of the entrance to the dock. The main contract calls for 4 timber work cribs, 99 ft. long, and one 100 ft. long, and all 40 ft. wide x 35 ft. high. These cribs are formed of 12 x 12 timbers, with 18 x 18 bottom logs, laid side by side, and all well fastened together with drift bolts, and braced internally with 3 longitudinal keelsons, and 11 cross keelsons, laid timber and spaced so as to cross one another without requiring to be checked. The cross keelsons only have the filling pieces fitted between the intersections to convert them into solid bulkheads. The whole interior of each crib is, in this way, subdivided into cellular spaces, each 8 ft. square. The cribs are all sheathed on the outside with reinforced concrete 24 in. thick on the front and end faces, and 12 in. thick on sides and back. The end timbers of all keelsons are laid to project through the outer walls, part way into the concrete, and in this way help, with the iron bars and anchor bolts, to secure the reinforced concrete to the crib. The specifications called for the lower section of these cribs to be built out of the water, to such a height that they will safely float by themselves, when sheathed with concrete and ballasted, so as to float on an even keel. The succeeding sections of timber, concrete, and ballast, up to the full height of 35 ft., are then added in successive stages while the cribs are afloat.

The building up ashore, and launching of the lower sections of these cribs, appealed to Yarrows Ltd. as being something within the range of its ordinary ship work, and with its yard and all its facilities in the way of plant and skilled labor, in such close proximity to the new drydock, and with water frontage and cranes alongside its building berths, it was able to enter into terms which were of mutual advantage to the general contractors and to itself. In preparing for this work, Yarrows Ltd. had to extend one of its launching ways for some distance, to give the required floating depth, and the top surface of this portion was sheathed with galvanized iron, to better retain the grease between the intervals of launching, and for the period they would be in service.

The building of these cribs was divided into two operations, and two dismountable cradles were built to the grade of the launching ways, and with the top deck set horizontally to receive the bottom platform of the cribs. These cradles were built in convenient sections, to be picked up by an overhead crane from the lower end, and re-assembled again at the upper end, ready to start with the next succeeding crib. The first operation consists of assembling and fastening all the timbers together, and caulking the bottom and lower five seams of the side timbers to ensure water tightness. In this position the crib is controlled over its entire surface by an extra large electric driven crane, with horizontal boom, having a working radius of 80 ft. and capable of lifting up to 6 tons. On the completion of this portion of the work, the cradle is lowered down to its second position, where all the reinforcing irons are set up and the form or shutter boards are fitted up to receive the concrete, which is supplied from a floating concrete mixer, used by the general contractor on other portions of the work. After being concreted, the crib is required, by the terms of the contract, to stand for seven days before being launched. During this interval the necessary ballast is loaded into place and the next crib is being got ready, in the first position, for taking its place as soon as launched.

In addition to the above work, it was arranged for Yarrows Ltd. to manufacture all the bolts and fastenings, and to notch and frame all the timbers required for completing the balance of the cribs, so that the general contractor has only to assemble and fasten them in place when afloat. The work has been mapped out on a regular schedule of 10 days to each operation, so that Yarrows Ltd. portion of the work would occupy 60 days from the start, and in the meanwhile, the general contractor carries on with its portion of the work as each crib is delivered to it. The amount of lumber involved in this contract will be a little over 2,000,000 ft.

A sub contract for the supply of approximately 2,000,000 ft. b.m. of lumber in connection with the construction of the drydock at Skinner Cove, Esquimalt, B.C., is reported to have been given to Canadian Puget Sound Lumber Co., Victoria, B.C.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines, Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

St. Lawrence Radiotelegraph Stations. A recent notice to mariners issued by the Marine Department, advised the closing of radiotelegraph stations at Point Amour, Rich Point, Cape Ray, Heath Point, Pictou and Three Rivers. The matter was taken up by the Shipping Federation of Canada, which pointed out the value of these stations as aids to navigation, and the Department, after consideration, has given notice that the stations at Point Amour, Rich Point and Three Rivers will be continued in operation until further notice.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Launching of Steamship.—J. Coughlan & Sons Ltd., Vancouver, B.C., telegraphed Canadian Railway and Marine World Aug. 20 that one of the steel cargo steamships which it is building for Canadian Government Merchant Marine, viz., Canadian Transporter, Marine Department contract 62, builder's yard no. 20, approximately 8,390 d.w. tons, would be launched Aug. 31.

Delivery of Steamship.—We were advised Aug. 15 that the steel cargo steamship Canadian Engineer, Marine Department contract 49, builder's yard no. 11, approximately 3,500 d.w. tons, the contract for which was given the Dominion Shipbuilding & Repair Co., Toronto, and which, consequent on that company's bankruptcy, is being completed by the Collingwood Shipbuilding Co., at Toronto, would probably be delivered to the Marine Department on Aug. 29.

Officers of Steamships.—The following have been appointed, or transferred, in addition to those mentioned in previous issues:—Canadian Challenger, E. Sutherland, chief engineer; Canadian Fisher, R. McKenzie, chief engineer; Canadian Pathfinder, F. Stanley, cihef engineer; Canadian Sapper, C. Robertson, chief engineer; Canadian Scottish, J. McIntosh, chief engineer; Canadian Warrior, Capt. F. A. Pines, vice Capt. W. McConechy.

Montreal Sailings. — The following dates have been announced:—

Liverpool Service.—Canadian Ranger, Sept. 10; Canadian Commander, Sept. 30.

London Service.—Canadian Rancher, Sept. 10; Canadian Aviator, Sept. 24.

Glasgow Service.—Canadian Navigator, Sept. 2; Canadian Runner, Sept. 16; Canadian Carrier, Sept. 30.

Cardiff and Swansea Service.—Canadian Squatter, Sept. 2.

Australia and New Zealand Service.—Canadian Planter, Sept. 23.

Rio, Santos, Montevideo and Buenos Aires Service.—Canadian Challenger, Sept. 20.

Barbados, Trinidad and Demerara Service.—Canadian Harvester, Sept. 7.

Nassau, Kingston and Belize Service.—Canadian Fisher, Sept. 6; Canadian Forester, Sept. 27.

St. John's, Nfld., via Charlottetown, P.E.I.—Canadian Sapper, Sept. 9 and 30.

Vancouver Sailings. — The following dates have been announced:—

Australia and New Zealand Service.—Canadian Scottish, Sept. 8, for Auckland, Sydney, Melbourne, Adelaide. Canadian Traveller, Sept. 20, for Sydney, Melbourne, Auckland, Canadian Highlander, Oct. 25, for Auckland, Sydney, Melbourne.

Oriental Service.—Canadian Winner, Sept. 15, for Yokohama, Shanghai.

India Service.—Canadian Transporter, Oct. 15, for Calcutta.

S. s. Canadian Exporter Lost.—The s. s. Canadian Exporter, bound from Vancouver, B.C., to Portland, Oregon, to complete a cargo for the far east, ran aground on Willapa bar, about 30 miles north of Astoria, Ore., on July 29. The Pacific Salvage Co. dispatched its s.s. Algerine from Victoria, B.C., within an hour of being advised of the disaster, Capt. W. B. Finglass, Assistant Marine Superintendent, Canadian Government Merchant Marine, who went from Vancouver to Victoria, in one of the Canadian Air Board's seaplanes, and Capt. W. H. Logan, of the London Salvage Association, being aboard. The Algerine succeeded in getting the crew off through the heavy surf. The U.S. salvage tug Wallulu, from Astoria, also arrived on the scene of the disaster to co-operate. The grounding was stated to have been due to the ship getting off her course during a dense fog. She was at first reported to be fast aground, but with a calm sea, it was not anticipated that there would be any difficulty in refloating her. A heavy sea rose later, and on Aug. 2, she broke her back and further salvage became impossible. She was built by J. Coughlan & Sons, Vancouver, B.C., under Marine Department contract 35, builder's yard no. 12, the contract being signed Nov. 22, 1918. The keel was laid Aug. 8, 1919, she was launched Dec. 27, 1919, and was delivered to C.G.M.M. for operation March 6, 1920, since when she has been engaged in general cargo trade between British Columbia, New Zealand and Australia. She cost $1,659,240 and was of the 2-deck, poop, bridge and forecastle type, Lloyd's classification. Her dimensions were,—length overall 400.1 ft., breadth 52.4 ft., depth 28.8 ft.; tonnage, 5,498 gross, 3,385 net, 8,380 d.w. She was screw driven, and equipped with triple expansion engines with cylinders 27, 44 and 73 in. diar. by 48 in. stroke, 266½ h.p., 3,000 i.h.p., for a speed of 11 knots under full load at sea, and was supplied with steam by 3 single ended boilers, each 15½ ft. diar. by 11½ ft. long, at 180 lb.

An investigation was held by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, but though the full report of the finding is not to hand at the time of writing, we are advised that the court found that the accident was caused by the ship not being properly navigated, that soundings had not been taken as they should have been, and that the master and mate were solely to blame for the stranding which led to the breaking up of the ship. The certificate of the master, Capt. W. Bradley, was suspended for six months, and that of the chief officer, N. Campbell, for four months. The court also found that no blame could be imputed to the owner, agent, or equipment of the ship; that she had three compasses, all of which were in good order, last being adjusted at Sydney, N.S., in 1920, and that she was fully supplied with charts and sailing directions.

S.s. Canadian Gunner Damaged.—During a trip to the West Indies towards the end of July, the s.s. Canadian Gunner experienced very heavy weather, and arrived at Barbados with her high pressure cylinder and piston, intermediate pressure cylinder and valve spindle saddle block damaged, also with hold damage consisting of 8 'tween deck plates buckled and about 150 ft. of ceiling burnt. The cargo from no. 2 hold was discharged, and after survey, was recommended to be sold. The damage sustained did not affect her seaworthiness.

Canadian Government Merchant Marine s.s. Canadian Exporter, wrecked near Astoria, Oregon, July 29.

The s.s. Canadian Importer, which left Vancouver, B.C., Aug. 13, for Adelaide, Australia, is reported to have become disabled about Aug. 19. The first word of this is stated to have been received by the s.s. Cordova, by wireless, on Aug. 24, when she immediately proceeded to the point indicated. The report stated that the ship had been abandoned, the crew having taken to the boats, with the engine room flooded, the radiotelegraph apparatus disabled and the ship drifting helplessly. The s.s. Cordova is reported to have taken the crew on board, with the exception of one boatload, two officers and nine men, who are stated to be missing. Another report states that Capt.

Westerlund of the s.s. Cordova wirelessed the radiotelegraph station at North Head, Wash., Aug. 25, to the effect that the ship was afloat, about 600 miles off San Francisco, with 17 ft. of water in no. 2 hold and engine room, and with a heavy list to starboard. The wireless apparatus is disabled. The message stated that Capt. C. R. Bissette of the s.s. Canadian Importer reported that the ship was in no danger of sinking, the water was not gaining, and he refused to take a tow, preferring to wait the arrival of a tug from Vancouver. A boat with two officers and nine of the crew, is reported to have left the ship, and to be missing, but otherwise, it would appear that the crew remained on board. The s.s. Canadian Importer was built by J. Coughlan & Sons, Vancouver, under Marine Department contract 34, signed Nov. 22, 1918, and cost $1,659,438. The keel was laid July 25, 1919, the launching took place Dec. 6, 1919, and she was delivered to C.G.M.M. for operation Feb. 5, 1920, and she was immediately placed on the Australasian route, her first sailing taking place Feb. 23. She is a sister ship of the Canadian Exporter, the loss of which is dealt with on the previous page.

The s.s. Canadian Recruit was sunk in collision with the Dominion Coal Co.'s s.s. Maskinonge, Aug. 18, off Stone Pillars, near Quebec. The Canadian Recruit sailed from Levis at 5 p.m., and the Maskinonge left Quebec an hour later, both bound for Sydney, N.S., and the accident occurred about 45 miles below Quebec, during a dense fog. It is stated that an attempt to beach the Canadian Recruit, after the collision, was only partly successful, she having sunk, but is not entirely submerged. She is 3,964 d.w. tons capacity, and cost $812,620. She was built by Collingwood Shipbuilding Co., Collingwood, Ont., under Marine Department contract 10, of July 5, 1918. The keel was laid Jan. 3, 1919, she was launched May 3, and was delivered June 7, 1919. She sailed for the Atlantic coast early in Dec. 1919, and had considerable trouble with ice, eventually going ashore on Dec. 20 on Vache Reef, near the mouth of the Saguenay River. She remained upright for some months, but on the break up of the ice, the next spring, she shifted, with a considerable list to port, making the salvaging of her somewhat intricate. She was refloated, July 17, 1920, by the Canadian Salvage Association, and towed to Tadousac Bay, and thence to Lauzon, Que., and subsequently to Montreal, where she was overhauled and reconditioned by Fraser Brace Shipyards, at an approximate cost of $300,000.

The s.s. Maskinonge was seized at Quebec Aug. 19 on a claim of $660,000 on behalf of the Dominion Government and action has been entered in the local Admiralty court.

The s.s. Canadian Warrior grounded at the Traverse, near Quebec, Aug. 19, during low tide and heavy fog. She floated off at high tide and proceeded to Quebec without any apparent damage.

Collingwood Shipbuilding Co., Collingwood, Ont.—See paragraph "Delivery of Steamship" above.

J. Coughlan & Sons Ltd., Vancouver, B.C., is building two steel cargo steamships, Canadian Transporter and Canadian Freighter, for Canadian Government Merchant Marine, Marine Department contracts 62 and 63, builder's yard nos. 20 and 21, each approximately 8,390 d. w. tons, the keels of which were laid June 6. The company telegraphed Canadian Railway and Marine World Aug. 20 that the Canadian Transporter would be launched Aug. 31.

Davie Shipbuilding & Repairing Co., Lauzon, Que., is building a steel cargo steamship, Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, which was launched July 7. The hull left Lauzon Aug. 7 for Three Rivers, Que., where the boilers and machinery are being installed by Tidewater Shipbuilders Ltd. It was expected that this would take about seven weeks, after which the ship will return to Lauzon, and should be completed there in about 10 days.

Halifax Shipyards Ltd., Halifax, N.S. The steel cargo steamship Canadian Cruiser, Marine Department contract 38, builder's yard no. 3, approximately 10,500 d.w. tons, for Canadian Government Merchant Marine, the keel of which was laid Oct. 2, 1919, and which was launched July 9, will probably be delivered by the end of September, the completion having been delayed owing to the boilers and engines, which were built by Tidewater Shipbuilders Ltd., at Three Rivers, Que., not having reached Halifax until Aug. 4.

The steel cargo steamship Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, which is also being built by this company for Canadian Government Merchant Marine, is expected to be ready for launching early in September, but the launching may be delayed till a few days before the Canadian Cruiser is delivered.

Midland Shipbuilding Co., Midland, Ont. advised us Aug. 11, that the steel cargo steamship Canadian Logger, Marine Department contract 54, builder's yard no. 10, approximately 3,890 d.w. tons, which it is building for Canadian Government Merchant Marine, the keel of which was laid June 9, 1920, and which was launched June 8, 1921, would probably be completed by the end of August, but that this was not at all certain, owing to delay in the delivery of the engines.

The French state-owned fleet of cargo steamships must be sold by Aug. 21, 1923, according to a Paris press dispatch, which says that a law to that effect has been passed.

New Channel Along Port Huron Water Front.

The United States Engineer Office, Detroit, Mich. has issued the following notice to ship masters:—A new channel along the Port Huron water front, St. Clair River, has been completed, thus providing two channels, from about 1,700 ft. above the mouth of Black River to a point just above the international tunnel. This new channel is 7,000 ft. long, 400 ft. wide and 21 ft. deep. Its east bank will be marked by two horizontally striped gas buoys, placed at the ends of the cut, with a red spar midway between; and the west bank will be marked by three black spar buoys directly opposite those marking the east bank.

Pending promulgation of regulations by the U.S. and Dominion Governments, the new, or west, channel, will be known as the American channel, and the old, or east, channel, the Canadian channel, and the following traffic rules will govern. All downbound ships will navigate the American channel. All upbound ships will navigate the Canadian channel. Ships under 100 gross tons, and ships making local stops along these routes, are exempt from this rule. The speed of ships navigating these channels shall not exceed 9 miles an hour. In the American channel will be found at times a current of 4 miles or more per hour. By reason of the proximity of this channel to Port Huron wharves and shipping, ship masters should check speed to the lowest safe limit, and be careful to avoid damage or hazard to such shipping.

Canadian Government Merchant Marine s.s. Canadian Recruit, sunk by collision near Quebec, Aug. 18.

Great Lakes Levels.—The U.S. Lake Survey reports the stages of the Great Lakes in feet above mean sea level for July as follows:—Superior, 602.59; Michigan and Huron 580.44; St. Clair, 575.62; Erie, 572.90; Ontario, 246.37. Compared with the average July stages for the last ten years, Superior was 0.05 ft. above; Michigan and Huron, 0.53 ft. below; Erie, 1.05 ft. above; Ontario, 0.42 ft. below.

The National Sailors' and Firemen's Union of Great Britain has given notice of its intention to withdraw from the National Transport Workers Union, owing to the adoption by the latter of a resolution whereunder it has power to call out on strike any constituent union without a ballot.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck: 3.d., three deck; lake, lake type; p. poop; b., bridge: f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July, 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	Apr. 9, 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,488	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	" "	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	Aug. 8, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Aug. 19, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d. p., and f'c's'le	"	12	Oct. 2, 1919	July 9, 1921	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d. p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	May 12, 1921	.....
43	Feb. 21, 1919	Canadian English	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20. 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 13, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Sbipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	May 12, 1921	July 18, 1921
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	June 30, 1921	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8.390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10. 1919	June 22. 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8.390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27. 1920	Sept. 30. 1920
52	Sept. 18. 1919	Canadian Commander	" " "	79	8.390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2. 1920	Oct. 30. 1920	Apr. 26, 1921
53	Sept. 18. 1919	Canadian Leader	" " "	80	8.390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27. 1920	May 6. 1921
54	Feb. 26. 1920	Canadian Logger	Midland Shipbuilding Co.	10	3.890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	June 8. 1921	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8.390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30. 1920	Oct. 14. 1920	Dec. 15. 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405.325	2.d. p., b. and f'c's'le	"	11	Oct. 14. 1920	Mar. 17, 1921	May 16. 1921
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3.890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct, 19. 1920	Nov. 17. 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3.890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	Mar. 24. 1921	May 5. 1921
59	Oct. 26. 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2.800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18. 1920
60	Feb. 2. 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405.325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	July 7. 1921	.....
61	Feb. 26. 1920	Canadian Harvester	Port Arthur Sbipbuilding Co.	45	3,890	182.50	709.925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30. 1920	Nov. 20. 1920	May 17. 1921
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8.390	167.50	1,405.325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	Aug. 31. 1921	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
							$79,296.80						$72,818,073.19

Canada Steamship Lines' Finances.

A special general meeting of shareholders was called to be held at Montreal, Aug. 29, to consider, and, if found advisable, to repeal bylaw D adopted at a meeting of directors May 5, and ratified at a special general meeting of shareholders May 14, and adjourned to May 23, under which the terms o80 May 23, under the terms of which the directors were authorized to issue an aggregate amount not exceeding $5,000,000 par value, or its equivalent in sterling at $4.86 2/3 to the £ of 8% collateral trust debenture stock, and replacing same by bylaw E to authorize the directors to create at such time as they see fit 7% first mortgage collateral bonds or debenture stock or bonds or debenture stock of such other designation and description as they may consider advisable for an aggregate amount not exceeding $6,000,000 par value, or its equivalent in sterling, and to secure same by mortgage, pledge, hypothecation or transfer of an amount not to exceed $8,400,000 par value of first mortgage 5% debenture stock or bonds, and to sell same either in whole or in part at such times and upon such terms and conditions as they may consider proper, and to pledge or hypothecate same, or any part thereof, likewise at such times and upon such terms and conditions as they may consider proper, and upon the release of such bonds or debenture stock to repledge same or dispose of same and otherwise deal with same as fully as if same had not been already issued, and in connection therewith to enter into a trust deed or deeds with such trustees as may be chosen for such purpose, said trust deed or deeds to contain such provisions with reference to redemption and sinking fund and such other terms and conditions as the directors may likewise consider proper, as also to execute such pledges, hypothecations or transfers of such first mortgage 5% debenture stock or bonds, or any part thereof, and such other documents and instruments as may be considered proper in connection with the creation and issue of said first mortgage collateral bonds or debenture stock, and the securing of same in accordance with the terms of this bylaw and of the trust deed or deeds to be entered into.

Grounding of Ferry Boat St. Louis.

A fair sample of daily newspaper reporting appeared in the Montreal Star recently, in connection with the grounding of the Lachine Ferry Co.'s ferry St. Louis, near Caughnawaga, on July 27. The report read, in part, as follows:—"Confusion reigned on board, when the 150 passengers, among whom were a number of women and small children, realized that the boat was being rapidly swept down stream by the force of the 25 mile gale, and felt it ground on the rocks. Lifeboats were speedily lowered, when the captain saw it was impossible to back the ferry off, and the men on board rushed to fill them, leaving the women and children to fend for themselves as best they might. A number of the more chivalrous took the situation in hand, as the captain is alleged to have said that he was helpless, and when the lifeboats returned, the women and children were looked after before any more men were permitted to disembark."

Capt. L. A. Demers, Dominion Wreck Commissioner, having made a preliminary investigation into the casualty, decided that it was not necessary to make a formal report, stating that the boat grounded within 75 ft. of the mainland, with the water so shallow that the passengers could wade ashore, and that there was no danger at any time, and no water taken by the boat.

Lumber Shipments by Water from Vancouver to Montreal.

A cargo of lumber reached Montreal from Vancouver recently and the dealer is getting a second cargo. The enterprise will be watched with much interest, because of the high freight rates on the transcontinental rail haul and the price slaughtering of the heavy stocks of lumber held in New Brunswick by foreign governments.

The Vancouver to Montreal shipments will be laid down several dollars a thousand cheaper than rail hauled lumber. The disadvantage of water shipments is that they are necessarily made in large quantities and that may have to be carried for some time. There is also the disadvantage that lumber can be secured from the Pacific coast on shorter notice by rail. There seems little doubt, however, that, as the market becomes more stabilized and demand is steadier, a growing proportion of British Columbia lumber for consumption in Quebec and the Maritime Provinces will be carried by water, particularly if the initial shipments are attended by success on a rather dull market in the Montreal district.

The U.S. Shipping Board's Chairman has announced that all the Board's wooden steamships that are not sold before Oct. 1 will be destroyed.

Ships Registered in Canada During May, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Enginse, Etc. N.h.p.	Owner or Managing Owner
150351	Canadian Coaster*	Montreal	Kingston, Ont. 1921	251.0	43.6	23.6	2422	1464	124 Sc.	Minister of Marine, Ottawa, Ont.
150348	Canadian Harvester*	"	Port Arthur, Ont. 1921	251.0	43.6	23.7	2394	1428	124 Sc.	" " " "
150421	Canadian Skirmisher*	"	North Vancouver, B.C. 1921	400.0	52.4	28.7	5373	3278	266½ Sc.	" " " "
120414	Esther Dollar(1)	Vancouver, B.C.	Glasgow, Scotland 1899	483.6	56.0	32.7	7548	4848	690 Sc.	Dollar Steamship Lines, Ltd., Vancouver, B.C.
150234	Glenafton	Midland, Ont.	Port Arthur, Ont. 1921	252.0	42.5	18.6	1866	1016	146 Sc.	Glen Transportation Co. Ltd., Midland, Ont.
142702	Grace Dollar(2)	Vancouver, B.C.	Belfast, Ireland 1918	412.4	55.8	34.4	6534	4061	518 Sc.	Dollar Steamship Lines Ltd., Vancouver, B.C.
150247	Harry Mathers	Halifax, N.S.	Sorel, Que. 1917	84.0	19.3	9.5	151	58	24 Sc.	Pulpwood Supply Co., Halifax, N.S.
124212	Ignifer	Montreal	Greenock, Scotland 1907	240.0	41.0	14.2	1351	830	152 Sc.	George Hall Coal Co. of Canada, Montreal.
140336	M. S. Dollar(3)	Vancouver, B.C.	Kobe, Japan 1917	475.5	61.2	30.1	9394	6919	659 Sc.	Dollar Steamship Lines, Ltd., Vancouver, B.C.
150501	P.W.D. No. 303	New Westminster	Germany 1907	187.0	34.6	15.2	910	420	27 Sc.	Minister of Public Works, Ottawa.
145168	Robert Dollar(4)	Vancouver, B.C.	Geestemunde, Germany 1917	523.5	65.7	27.5	10893	6791	544 Sc.	Dollar Steamship Lines, Ltd., Vancouver, B.C.
150356	Royan(5)	Montreal	Toledo, Ohio 1900	250.2	40.2	14.8	1471	876	149 Sc.	George Hall Coal Co. of Canada, Montreal.
150425	Staffa Jnr	Vancouver, B.C.	Vancouver, B.C. 1921	58.0	14.6	5.4	37	18	13 Sc.	P. E. Ritchie, Vancouver, B.C.
137990	Susie Chipman	Kingston, Ont.	Milwaukee, Wis. 1885 1913	128.8	26.2	9.3	317	179	11 Sc.	Jas. Richardson & Sons, Kingston, Ont.
138345	Thomas B(6)	Halifax, N.S.	Brooklyn, N.Y. 1885	148.2	22.6	12.6	214	150	65 Sc.	H. I. Mathers, Halifax, N.S.

(1) Formerly Parisian and Boshania. (2) Formerly War Melody. (3) Formerly War King. (4) Formerly Kurland. (5) Formerly Waccamaw. (6) Formerly Cora. *Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
130702	J.C. No. 9	Vancouver, B.C.	Scow	New Westminster, B.C. 1911	76.5	26.2	6.4	141	141	P. Walls & E. E. Hall, Vancouver, B.C.
96805	Maggie May(1)	Charlottetown, P.E.I.	Schr.	Chezzetcook, N.S. 1891 Charlottetown, P.E.I. 1921	62.6	21.0	9.0	62	62	W. L. Dean & N. Stewart, Charlottetown, P.E.I.
150389	St. Leon	Quebec, Que.		Isle aux Grues, Que. 1918	72.4	21.5	6.5	62	60	C. Mercier, Montmagny, Que.

(1) A recovered wreck.

Atlantic and Pacific Ocean.

The Dollar Steamship Lines Ltd. has transferred its steamships Esther Dollar, Grace Dollar, M. S. Dollar, and Robert Dollar from the British to the Canadian register.

The Canada Line opened its service from Montreal to Rotterdam, Hamburg, Danzig and Libau, Aug. 10, with the sailing of the s.s. Poland, formerly of the Red Star Line, from Montreal. Third class passengers only are being carried.

The Donaldson Line s.s. Cordillera, 8,166 d.w. tons, arrived at Montreal, Aug. 2, on her maiden trip. Her dimensions are,—length 419 ft., breadth 54.6 ft., depth 30.3 ft. She has 18 separate refrigeration compartments, in each of which different temperatures can be maintained for carrying meats, fruits, etc.

The mail contracts with the Union Steamship Co. of New Zealand, for the carriage of mails from Vancouver, B.C., San Francisco, Cal., to Auckland, New Zealand, have been renewed for another year. They provide for the dispatch of mails from Auckland every 14 days, except every fourth dispatch, which will be 21 days after the previous one.

The C.P.R. s.s. Empress of Canada, under construction by the Fairfield Shipbuilding & Engineering Co., Glasgow, Scotland, for the trans-Pacific service, and which underwent her trials in the Clyde recently, as mentioned in our last issue, will probably have the joinery work completed on the European continent, owing to the continuation of the ship joiners' strike. Similar work on two other steamships for other companies has been done in France.

The C.P.R. is reported to have bought the former German steamship Tirpitz, at one time owned by the Hamburg-American Line. It is stated that she is to be converted into an oil burner, reconditioned and brought up to C.P.R. standard, renamed Empress of China and placed on the trans-Pacific route. The Tirpitz has the following dimensions,—length 588 ft., breadth 75 ft., depth 41½ ft., tonnage 19,300 gross. As announced in a previous issue the name Empress of China had been selected for the German s.s. Kronprinz Friedrich Wilhelm, bought by the C.P.R. for its trans-Pacific service, but this ship is now reported to have been chartered to the Cunard Line to take the place of the s.s. Mauretania, damaged by fire at Southampton, Eng., recently, but it is not announced under what name she will run.

Maritime Provinces and Newfoundland.

The Imperial Oil s.s. Mina Brea, bound from Halifax, N.S., to Montreal, with gasoline, developed a leak en route and was beached near Sorel, Que., Aug. 1.

The international fishing schooner races have been fixed to take place off Halifax harbor, commencing Oct. 22. The Canadian elimination trials will commence Oct. 15.

The proposal to transfer the St. John, N.B., harbor properties to the Dominion Government, for management by a commission, was defeated, Aug. 1, by the ratepayers by 2,177 votes to 1,382, a very light vote being polled.

The s.s. Bethlehem, with 2,700 tons of coal, from North Sydney, for Montreal, grounded in the Little Bras d'Or channel, Aug. 12, while being towed out to sea. Part of the cargo had to be lightered before she could be refloated.

The Hudson's Bay Co. has bought the ship B. Burry, owned heretofore by Baxter Burry, Gloverton, Bonavista Bay, Nfld., and has changed her name to Fort Chesterfield, with port of registry at St. John's, Nfld. Her gross tonnage is 72.34, register tonnage 56.82.

The s.s. Ruby L II went into service on the Margaretsville Steamship Co.'s bay route at the end of July, replacing the s.s. Ruby L, which was chartered to the C.P.R. to replace the s.s. Prince Albert on the Kingsport-Parrsboro route, while she is under repair, having broken her crank shaft.

Imperial Oil Ltd. received tenders recently for the purchase of its wrecked steamship, Impoco, as she lay at Impercyal, N.S. Tenders were invited for the ship, without boilers, pumps and copper pipe, the removal of that portion of the machinery and storing on shore forming a basis of another tender.

Canada Steamship Lines will, it is reported, increase the first class passenger accommodation on its s.s. Manoa, before next season. The operation of this ship between Montreal and Newfoundland, in the combined tourist and freight trade, which was tried for the first time this year, is said to have met with great success.

Tenders were invited recently by Lloyd's agent at Yarmouth, N.S., for the purchase of the wrecked s.s. City of Colombo, 6,000 gross tons, with boiler and engine, in their damaged condition, lying ashore near Centerville, Digby Neck, N.S. Separate tenders were also invited for the cargo presumed to be on board.

The U.S. s.s. Binghampton was wrecked towards the end of July on Gannet Rock near Yarmouth, N.S., and was abandoned later to the underwriters. Soon after the wreck the ship took fire and all the woodwork was destroyed. She was bound from Boston, Mass., for a Russian port, with general cargo for relief work.

The lightship on Lurcher shoal, off Yarmouth, N.S., in the Bay of Fundy, will be removed from her station about Sept. 15, to undergo repairs. Pending her return, the station will be marked by a gas buoy, painted red, and showing an occulting white light. It is expected that she will be replaced on her station about the middle of October.

The s.s. Frances Boutilier, owned by A. Boutilier, Centerville, N.S., was sold by the sheriff recently, on behalf of the Bank of Nova Scotia, to B. M. Melanson, Port Gilbert, N.S., for $6,000. It is stated that she cost between $30,000 and $40,000, and that the bank had a mortgage on her for $20,000. She was built at Centerville, N.S., in 1918, and is screw driven by engine of 17 h.p. Her dimensions are,—length 86.5 ft., breadth 18 ft., depth 8.3 ft.; tonnage, 99 gross, 41 net.

The Atlantic Salvage Co.'s steam tug Musquash sank off the Cape Breton coast, Aug. 4, while towing a derrick scow from Louisburg to Halifax. The crew were landed safely at St. Esprit. She was built at Garston, Eng., in 1910, and was screw driven, by engine of 89 h.p. Her dimensions were,—length 100.2 ft., breadth 23.1 ft., depth 12 ft.; tonnage, 198 gross, 4 net. She was equipped with wireless telegraph and was owned formerly by Quebec Wrecking & Salvage Co., Montreal.

The s.s. Lady of Gaspe, owned by Nova Scotia Steamships Ltd., Halifax, bound from Boston, Mass., for St. John's, Nfld., via Halifax, struck on Thrum Cap shoal, near Halifax harbor, Aug. 8, and became a total loss. She was built at Glasgow, Scotland, in 1877, and, at different times, was named Restigouche and Rathlin. She was screw driven, by engine of 180 h.p., and had the following dimensions,—length 229.7 ft., breadth 31 ft., depth 16.1 ft.; tonnage, 1,237 gross, 774 net.

The s.s. Volunda, with a cargo of coal, ran ashore at Neil's Harbor, N.S., July 29, and was abandoned to the underwriters, by whom she was sold for $300, as she lay, and the cargo of 2,500 tons of coal, for $35. After she stranded, a diver was sent down, who reported that the bottom was seriously damaged, from the bow to about amidships, and that the position in which she lay made salvage practically impossible. She is a steel cargo steamship of 2,800 d.w. tons, built by Nova Scotia Steel & Coal Co. in 1920, and was owned by Wasis Steamship Co., a subsidiary of the N.S.S. & C. Co. Her dimensions are,—length 270 ft., breadth 38.2 ft. depth 17.9 ft.; tonnage, 1,789 gross, 1,056 net. She was screw driven by engine of 166 h.p.

Province of Quebec.

It is reported that up to the end of June, approximately 31,000,000 bush. of grain were received at Montreal from the head of the lakes, for shipment, and

Ships Added to and Deducted From the Canadian Register During May, 1921.

	Steam.			Sailing.		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	16	12,476	7,460	1	63	60
Purchased from foreigners	5	2,942	1,644	....	.....	.....
Transferred from U.K. ports	5	35,720	23,449	....	.....	.....
Registered anew	8	282	225	1	141	141
Other ships	....	.....	.....	1	62	62
Totals	34	51,420	32,778	3	266	263
Deducted.						
Wrecked or otherwise lost	6	256	157	12	1,541	1,430
Broken up or unfit for use	22	367	202	20	810	810
Transferred to British Possessions	....	.....	.....	1	85	85
Registered anew	4	266	181	5	255	216
Other ships	1	64	44	....	.....	.....
Totals	33	953	584	38	2,691	2,541

that in July the amount was approximately 10,000,000 bush.

The s.s. Nicaragua, owned formerly by Montreal Transportation Co., which was sunk in the La Salle Causeway, St. Lawrence River, some time ago, is being raised, after which she will be taken to Quebec for examination.

Capt. Luke Whalen of the s.s. Weldon, operating on the Ottawa River, between Aylmer and Chats Falls, was arrested at Kingston, Ont., Aug. 7, at the instance of the Mayor of Aylmer, on a charge of converting to his own use, money received for the operation of the steamboat in the excursion trade, the property of them both, jointly.

The Quebec Board of Trade has taken up the matter of improvement of ferry service between Quebec and Levis. It is stated that the boats used are too small for the amount of traffic that has developed, and it is asked that another boat be added, or the passenger and vehicular traffic divided.

A temporary lightship has been placed northeastward of Prince Shoal, off the mouth of the Saguenay River, replacing the lightship Prince Shoal No. 7, until she is again available for service. Another lightship, Lower Traverse No. 20, has been placed on the south side of South Traverse, in the River St. Lawrence, below Quebec.

Canada Steamship Lines is reported to have bought the s.s. Narrangansett from the United States Shipping Board. She was operated between New York and Providence, R.I., prior to the war, and was subsequently bought by the U.S. Government for use during the war as a hospital ship. She is now lying at Quebec, and it is said that she is to be overhauled and fitted for passenger service on the company's Saguenay Division.

Ontario and the Great Lakes.

Canada Steamship Lines' s.s. Beaverton grounded on the Sister Light shoal, near Brockville, Aug. 13.

The Dominion Public Works Department received tenders to Aug. 26, for the construction of a rubble mound extension to the Mission River breakwater at Fort William.

The contract for the construction of the Hamlet bridge, over the Trent Canal, has been given by the Railways and Canals Department, to Randolph Macdonald Co., Toronto.

Canada Steamship Lines' s.s. City of Hamilton, which went aground at Point Iroquois, in the St. Lawrence River, July 13, was refloated towards the end of the month, the company's steam tug Mary P. Hall being sunk in 13 ft. of water during the salvage operations.

The Knapp roller boat, a freak invention, built about 25 years ago by Polson Iron Works Ltd., and which has been cumbering the Toronto water front for many years, is to be scrapped. The machinery was removed some time ago. It is stated that her construction cost about $30,000.

Canada Steamship Lines' s.s. Rapids Queen, which has replaced the s.s. Rapids King on the St. Lawrence rapids route, was overhauled and reconditioned at Sorel recently. The damage sustained by the Rapids King in grounding on Barnharts Island recently was comparatively trifling.

The Alfred C. Jackson Steamship Service, which was planning to operate a steamship service between Detroit, Windsor and Montreal, is reported to be negotiating for the acquisition of a Canadian registered ship, to run between Windsor and Montreal, as, on account of the coasting regulations, the operation of a U.S. ship between Canadian ports is prohibited. It is intended to run U.S. ships direct from Detroit to Montreal.

The Fort Erie Ferry Co. applied to the Fort Erie council recently for increases in rates for ferry service varying from 100 to 300%, and was refused. A further application has been made for authority to increase fares and rates by about 10%, including automobile traffic, but it is reported that the council has decided not to permit any increase. The matter has been placed before the Public Works Department, and auditors have been sent from Ottawa to examine the company's books, to see whether an increase would be justified or not.

The steam tug Strathbogie arrived at Montreal recently from Great Britain, for the Dominion Towing & Wrecking Co., Fort William. She was built in England about three years ago, for ice-breaking service in the Baltic Sea, and will, it is stated, be used on ice work in Thunder Bay during the forthcoming winter. Her dimensions are given as follows,—length over all 130 ft., beam 26 ft. She is equipped with compound engine, with cylinders 16 and 43 in. diar. by 30 in. stroke, 1,200 h.p. While en route from Montreal, she was utilized in releasing the Geo. Hall Coal Co.'s s.s. Lehigh, which grounded on Wolfe Island, Aug. 17.

The Queen Victoria Niagara Falls Park Commission was reported, in Canadian Railway and Marine World for August, to be considering the operation of passenger steamships between Toronto, Niagara-on-the-Lake, and Queenston, in the summer excursion trade. We are officially advised that the Commission is studying carefully every feature that will add to the people's enjoyment, and that will further develop the district under its charge, and that will facilitate the public taking advantage of the same at the lowest possible cost, but that whether it will enlarge its activities to the extent of establishing a steamship service remains to be determined in the future, no decision having been arrived at.

The s.s. H. N. Jex, owned by J. F. Sowards, Kingston, bound from Oswego, N.Y., to Kingston, with coal, sank near Long Point, Lake Ontario, Aug. 16, the crew being rescued by the Geo. Hall Coal Co.'s s.s. Lehigh, which subsequently ran ashore at Wolfe Island. The H. N. Jex, formerly Frontenac, was built at Cleveland, Ohio, in 1868, and rebuilt there in 1909. She was of the well deck type, with wooden hull with steel arches, windlass between decks, with no efficient bulkhead abaft same, bow sheathed for operation in ice, and equipped with electric light. Her dimensions were,—length b. p. 169.4 ft., breadth 26.6 ft., depth 17.5 ft., tonnage, 420 gross, 301 net. She was equipped with Steeple compound engine with cylinders 18 and 38 in. diar. by 36 in. stroke, 475 i.h.p., supplied with steam by a Scotch boiler 11 x 12 ft. at 150 lb.

The George Hall Coal Co. of Canada Ltd. has bought the s.s. Ignifer in England and has transferred her to the Canadian register. She was owned formerly by Gas Light & Coke Co., Westminster, London, Eng., and was built at Greenock, Scotland, in 1907, is screw driven by engine of 152 h.p. and has the following dimensions,—length 240 ft., breadth 41 ft., depth 14.2 ft., tonnage 1,351 gross, 830 net. She was originally named Carleton. The company has also bought the s.s. Waccamaw in the U.S. and transferred her to the Canadian register under the name of Royan. She was built at Toledo, Ohio, in 1900, and has a steel hull, of the well deck type, with 3 water tight and 2 non-watertight bulkheads, steel boiler house, electric light, and hatches spaced 24 ft. centers. Her dimensions are,—length b.p. 243 ft., breadth moulded 14¼ ft., tonnage 1,359 gross, 920 net. She is equipped with triple expansion engine, with cylinders 22, 32½ and 55 in. diar. by 40 in. stroke, 900 i.h.p., at 85 r.p.m., and supplied with steam by two Scotch boilers, each 12½ ft. diar. by 11½ ft. long, at 170 lbs.

Manitoba Saskatchewan, Alberta and Northwest Territories.

The s.s. Mont Cashel was offered for sale by auction at Winnipeg at the end of July, but no bid was received. She was built at Winnipeg in 1912 for excursion traffic on the Assiniboine and Red

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during July, 1921:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B. M.	660	35,754	36,414
Flour	"	Barrels	488,640	630,500	1,119,140
Wheat	"	Bushels	1,500,769	6,377,308	7,878,077
Grain, other than wheat	"	Bushels	4,108,100	6,730,926	10,839,026
Copper	"	Short tons	.....	1,753	1,753
Iron Ore	"	Short tons	.....	4,356,760	4,356,760
Pig Iron	"	Short tons	.....	.....	.....
Stone	"	Short tons	2,160	800	2,960
General Merchandise	"	Short tons	4,062	8,408	12.470
Passengers	"	Number	6,804	3,796	10.600
Coal, soft	Westbound	Short tons	17,560	2,469,430	2,486,990
Coal, hard	"	Short tons	.....	445,754	445,754
Iron Ore	"	Short tons	.....	.....	.....
Manufactured Iron and Steel	"	Short tons	639	4,011	4,650
Salt	"	Short tons	508	5,165	5,673
Oil	"	Short tons	.....	52,012	52,012
Stone	"	Short tons	.....	50,013	50.013
General Merchandise	"	Short tons	36,080	45,511	81.591
Passengers	"	Number	7,691	3,849	11,540
Summary					
Vessel Passages		Number	613	1,449	2,062
Registered Tonnage		Net	460,730	4,503,414	4,964,144
Freight—Eastbound		Short tons	179,103	4,832,797	5,011,900
Westbound		Short tons	54,787	3,071,896	3,126,683
Total Freight		Short tons	233,890	7,904.693	8,138,583

Rivers, and was operated by E. D. Moore, Winnipeg. She was considerably damaged by fire in 1914 and has since been laid up. Her dimensions are,—length 147.8 ft., breadth 28.5 ft., depth 11 ft., tonnage 508 gross, 346 net. She is screw driven by engine of 60 h.p.

Douglas S. Robertson, of the Toronto Evening Telegram, writing from Fort Smith, N.W.T., says: "Fort Smith, which is in latitude 60, is 400 miles north of Edmonton, and about 1,000 miles north of Toronto, and is the farthest inland seaport in Canada. Not a single rapid intervenes between it and the Arctic Ocean. Down at the landing the other day I went aboard the little screw steamship Northland Trader, which, pushing scowloads of canoes, toboggans and supplies, was headed for the northern posts. She sails, on occasion, to Herschell Island and out into the Arctic Ocean 200 miles. From Smith to Norman is 900 miles, and to the Arctic 1,500. Three separatel ines of steamboats ply north from Smith, the Alberta & Arctic Transport Co., the Hudson's Bay Co., and the Northern Trading Co. All handle freight and passengers, and run on a schedule liable to severe interruption, as might be supposed, seeing that a storm on Great Slave Lake just held the H.B.C. steamboat Mackenzie River up six days. The later two lines are in the transport business only as a sideline, their main business being to carry their own goods and employes to and from the various trading posts and to bring in the furs."

British Columbia and Pacific Coast.

The C.P.R. s.s. Princess Ena ran ashore on Goddyn Head, Aug. 14, and was refloated at the following high tide.

The Dominion Public Works Department received tenders to Aug. 17, for the construction of a wooden hull for a ferry boat for service on the Fraser River at Agassiz.

The s.s. B.C. Maid, formerly named Rustler, built in Seattle, Wash., and owned by F. M. Clark and G. P. Cathrea, Vancouver, has had her name changed to Kitsilano.

G. S. Hopkins, of Hopkins Landing, in the Howe Sound district, a retired master mariner, is reported to have bought a steamship in Great Britain for operation on Howe Sound next year.

The Marine Department invited tenders recently for the construction of a fog alarm building at Entrance Island, Quatsino Sound, the building to be of frame construction, on a concrete foundation.

Furness Withy & Co. are reported as likely to inaugurate a steamship service to the British Columbia coast, in the near future. Enquiries are stated to have been made by the company, as to the facilities at Vancouver and other ports along the Pacific coast.

The Royal Mail Steam Packet Co.'s motor ship Somersetshire, which sailed from Vancouver, B.C., recently, had, as part of her cargo, 65,000 cases of salmon, approximating 3,000 tons, stated to be one of the largest single cargoes of salmon ever sent from that port.

The C.P.R. s.s. Princess Louise, under construction by Wallace Shipbuilding & Drydock Co., North Vancouver, was expected to be ready for launching about the end of August. Details of her are given under General Shipbuilding Matters Throughout Canada, on another page of this issue.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

38. July 4.—100. New Brunswick, north coast, Cocagne harbor, Cote d'Or wharf, lightship. 101. Quebec, Gulf of St. Lawrence, St. Mary Island, fog alarm to be established. 102. Newfoundland, east coast, Conception Bay, Western Bay Point, fog signal temporarily discontinued.

39. July 14.—103. British Columbia, entrance to North Arm of Fraser River, outer beacon light, structure to be rebuilt. 104. British Columbia, Queen Charlotte Sound, Tribune channel, Humphrey rock, depth. 105. British Columbia, Seaforth channel, Gunboat passage, uncharted rock.

41. July 16.—108. United States, Lake St. Clair, St. Clair flats canal, east pier headlight to be established, gas buoy to be discontinued. 109. United States, Lake St. Clair, St. Clair Flats canal, depths. 110. United States, St. Clair River, new south bound channel at mouth of Black River, abreast of Port Huron, regulations, buoys to be established. 111. United States, Lake Huron, south end, light vessel replaced, characteristics of lights and fog signals to be changed.

42. July 18.—112. Nova Scotia, south coast, La Have River, intended change in character of buoy.

43. July 19.—113. Newfoundland and Quebec, radiotelegraph coast stations to be continued. 114. Quebec, River St. Lawrence, off mouth of Saguenay River, Prince Shoal, temporary lightship placed in position.

44. July 22.—115. Ontario, Lake Erie, Port Dover, color of front range light to be changed. 116. United States, Detroit River, above Fighting Island, changes in buoyage.

45. July 23.—117. New Brunswick, Bay of Fundy, Passamaquoddy Bay, Chamcook Harbor, change in characteristic of light. 118. Quebec, Gulf of St. Lawrence, Magdalen Island, House Harbor, buoy established. 119. New Brunswick, Northumberland Strait, off Shediac Harbor, Zephyr rock, gas buoy to be discontinued, spar buoy to be placed. 120. New Brunswick—Prince Edward Island, Northumberland Strait, Cape Tormentine to Port Borden, chart issued.

46. July 25.—121. Nova Scotia, south coast, entrance to Jeddore harbor, Thorn Shoal, change in position of bell buoy. 122. Nova Scotia, south coast, Sheet Harbor passage, change in position of bell buoy. 123. Nova Scotia, Cape Breton Island, Sydney Harbor, South Sea Bar, change in characteristic and color of light, fog bell to be re-established. 124. Quebec, River St. Lawrence, Montreal to Longue Pointe, new addition to chart.

47. July 25.—125. British Columbia, Vancouver Island, Quatsino Sound, Koprino Harbor, uncharted rock. 126. British Columbia, Vancouver Island, Nanaimo Harbor entrance, Entrance Island, characteristic of light to be changed. 127. British Columbia, Strait of Georgia, Fraser River, buoy placed temporarily.

48. July 27.—128. Quebec, River St. Lawrence below Quebec, Lower Traverse new lightship to be placed. 129. Newfoundland, east coast, Bonavista Bay, Cabot Island, fog alarm established.

49. July 27.—130. Quebec, River St. Lawrence, Lake St. Louis, west entrance to Lachine Canal, shoal removed. 131. Ontario, Lake Ontario, Oakville, light to be discontinued. 132. Ontario, Lake Huron, Georgian Bay to Clapperton Island, new edition of chart.

50. Aug. 5.—133. Ontario, Lake Ontario, Port Weller, light and fog bell to be established. 134. Ontario, Georgian Bay, Nottawasaga River mouth, change in position of range lights, buoys established. 135. Ontario, Lake Huron, north channel, Eddy wharf, change in character of lights.

Mainly About Marine People.

Capt. Alex. Cameron, who died at Charlottetown, July 29, aged 73, after being on sailing ships for several years, entered the Charlottetown Steam Navigation Co.'s service, and remained in it for over 30 years, being master successively of the steamships Summerside, St. Lawrence, Northumberland, and Empress. After the company went out of business, selling the Northumberland to the Canadian Government Rys., and the Empress to the C.P.R., Capt. Cameron commanded the Northumberland for some two years, retiring after bringing her to Toronto to be placed in service between Toronto and Port Dalhousie in connection with the Niagara, St. Catharines & Toronto Ry.

John Ennis, who died at Ballymitty, County Wexford, Ireland, early in July, was for 40 years, prior to his retirement in 1907, manager of the Allan Line passenger service, at Liverpool, Eng. On his retirement he was presented with his portrait by a number of friends, with a silver salver by the Liverpool Board of Trade's Emigration Department, and an address and cheque by friends on both sides of the Atlantic.

P. W. Fox has been appointed harbor master, Chemainus, B.C., vice F. V. Miller.

C. T. Knowlton, Superintendent of Car Ferries, Canadian Government Rys., Moncton, N.B., is on indefinite leave of absence.

Scott Moffatt has been appointed an officer to superintend the survey and measurement of ships, and a surveyor of accommodation for seamen, for the port of Campbellton, N.B.

Capt. John Park, who has recently become a British Columbia pilot, was, for many years, associated with the coastwise trade. He went to the Pacific coast about 14 years ago on the Blue Funnel Line's s.s. Titan, and entered the Union Steamship Co. of British Columbia's service. After serving some time as master of that company's various steamships, he was appointed master of the s.s. Turret Crown, owned in Seattle, Wash., and sailed her on the Atlantic during the war. He subsequently took the Imperial Munitions Board's s.s. War Cavalry to Europe, and on his return was appointed master of Canadian Western Steamships' s.s. City of Victoria.

Major-General Sir David Watson, President, Quebec Harbor Commissioners, has received the decoration of Commander of the Order of Danilo I, from the Queen Regent of Montenegro, in recognition of services rendered to that country during the war and since the signing of the armistice.

The B.C. Electric Ry. head office employes held their annual picnic to Seaside Park, Aug. 6, some 500 persons taking part, including Geo. Kidd, General Manager, and W. G. Murrin, Assistant General Manager. Prizes were donated by the company's officials to winners of the sporting events.

Wreck Commissioners' Enquiries and Judgments.

Appeal re Prince Rupert Stranding.

Mr. Justice Morrison of the British Columbia Supreme Court has quashed the judgment of the Wreck Commissioner of British Columbia, Capt. J. D. Macpherson, so far as it affected the mate, Roderick Mackenzie, of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, in connection with the stranding of the ship, near Swanson Bay, B.C., Sept. 29, 1920. The Wreck Commissioner's judgment read in part as follows:—"The court therefore finds both the master, and the mate, in default. Neither of them appeared to take the slightest intelligent interest to satisfy himself that the ship was accurately steadied on the various courses steered, when altered, nor did they realize that the ship had been swinging under port helm for some time, until they suddenly saw the land, close to the right, ahead, at which moment, the ship, going at a speed which, in the conditions of the thick weather then prevailing, rendered it impossible to stop within the limits of observation, with the result that she struck and was extensively damaged. The court therefore suspends certificates no. 3667 of the master, Capt. Duncan MacKenzie, for four months from Sept. 29, 1920, and certificate no. 7,055 of the mate, Roderick MacKenzie, for two months from the date of this investigation, such suspensions to expire on Jan. 29 and Jan. 18, 1921, respectively."

On the appeal, it was claimed that the mate was asked to appear before the Commissioner and testify against the master; he did so and then went to sea on another ship. On his return he found that he had been blamed for the casualty, as well as the master, and his certificate suspended for two months, in face of the fact that the master was on the bridge with him when the ship struck. It was also claimed that he made two attempts to appeal the case to the Minister of Marine, but had been refused. He then laid the case before the Canadian Navigators Federation, and subsequently applied for a writ of certiorari. In quashing judgment against the mate, the judge said that he was satisfied that the man did not have a chance to defend himself, and he ordered his certificate to be restored.

Rygja-Mapledawn Collision.

Held at Quebec, Que., July 20, before Capt. L. A. Demers, Dominion Wreck Commissioner, Assisted by Capts. C. Lapierre and A. Lefebvre, as nautical assessors, in the collision between the Norwegian s.s. Rygja and Canada Steamship Lines' s.s. Mapledawn, while the latter was at anchor in the River St. Lawrence, near Jacques Cartier River, July 13. The Mapledawn had anchored in a proper place, no objection or criticism on this point having been made by the Rygja. The anchoring of a ship at any time is a privilege of the master and pilot, providing that it is in such a place as to leave sufficient passage for ships in movement. The light which was exhibited was 12 in. diar., and made according to the requirements of the Canada Shipping Act and Rules of the Road. That it was burning brightly was admitted by the Rygja witnesses, and there was a sea watch kept, as it was the intention to raise anchor about two hours later. There was nothing on which the court could look with suspicion. In such juncture, when collision was imminent, it may be asked if it would not have been proper to slacken some chain. This was thought of by the master and pilot, but no instructions were given, owing to fear of jeopardizing the life of one of the crew. On the other hand, the first officer, realizing that such action may have been helpful, went forward with the intention of opening the brake to allow the chain to run out, but the ships collided before he could carry out his well meant intention. There was nothing in the conduct of those in charge of the Mapledawn on which the court could comment.

With respect to the Rygja, assuming that the weather was such as to obscure visibility of all objects, did the pilot, master and mate meet the requirements of the Rules of the Road, art. 29? There was a reduction of speed, brought about by the fact that the intention was to anchor, but if the weather was so thick as to prevent the pilot seeing the light of the Mapledawn until only seconds before the collision, why was there not a lookout at his post, and why was not a whistle sounded as required by art. 15? There was failure to keep a proper lookout on the part of the master, mate and pilot. The use of the glass was neglected, and the pilot's excuse that he could see as well with the naked eye, could not be accepted. There was a doubt in the master's and pilot's minds as to whether the ship showing a light was under weigh or at anchor, and the action of crossing the bow when so near was indefensible, whether the ship was anchored or under weigh, especially with a four mile current running with the Rygja, combined with a strong wind. Art. 22 says: "Every vessel which is directed by these rules to keep out of the way of another vessel, shall, if the circumstances of the case admit, avoid crossing ahead of the other." The Rygja had considerable speed on at the time of the collision, accelerated by a full speed ahead order, and before either the master or pilot could recover from the excitement of the moment and adopt such measures as would keep the ship in deep water, she grounded, suffering further damage. The pilot avers that he gave an order full speed ahead after the collision, and steadied the helm, but the time of that order does not appear in the log. By this it is apparent that the engineer was remiss in his duty by imperfectly noting occurrences. The pilot's statement in regard to the weather and the range of visibility, was, in the court's opinion, greatly exaggerted, the fact that the Mapledawn's witnesses were not questioned with regard to the non-ringing of the ship's bell, though the court raised the point, indicated in a forcible manner, that objects could be seen at a greater distance than admitted by the pilot. He admitted that he was thinking of anchoring only, and the court concluded that all else was forgotten, no thought being given to keeping a sharp lookout, all the more necessary as the weather was boisterous, and objects rendered more or less indistinct by rain, though by other evidence lights were visible at a distance which permitted timely action to be taken. The Rygja's master stated that he would not carry out the same evolutions again, which implied default.

The court therefore could not arrive at any other conclusion than that the master, first mate and engineer were remiss in their duties; that the pilot, whose statements varied somewhat, did not keep a proper lookout, and did not exercise that judgment required from him, and violated articles 15, 22 and 29 of the Rules of the Road. It therefore found that the master, Johannes Haugee, holding a Norwegian certificate, not produced in court, was in default, for not assuming the responsibility which rested on him, and acquiescing with the pilot in performing such evolutions as he did, in violation of articles 15, 22 and 29 of the Rules of the Road. The court also found the first mate, Lara Skeashuin, in default, for not seeing that a lookout was stationed; and the chief engineer, Bernard Mehie, for failure to register in his log, the time of orders received by the telegraph. As the master, first officer and engineer hold Norwegian certificates, the court has no jurisdiction over them, and submitted the evidence and finding to the Norwegian Consul, to deal with as he may deem fit. The pilot, Armand Marchand, was also found in default, and directly responsible for the two mishaps, the collision, and the eventual stranding of the Rygja, and his license was suspended for three months from July 22. The Mapledawn's officers and pilot were exonerated from all blame.

Grounding of s.s. Rapids King.

Held at Montreal, July 29, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. C. Lapierre and A. Lefebvre, into the grounding of Canada Steamship Lines' s.s. Rapids King in Long Sault Rapids, River St. Lawrence, July 16. The evidence was of a straightforward character, and resolved itself into the fact that the steering gear had been overhauled and examined by both the deck officers, and the engine room staff, prior to the ship's departure. This is done on every trip, and is rendered necessary owing to the intricate navigation performed. The master and officers were at their posts. At a certain juncture it became necessary to port the helm, in order to prepare to turn a bend in the river, but something failed to operate in the steering machinery. The ship was running with the current, the velocity of which was estimated at about 16 or 17 miles an hour, in a narrow and intricate channel, with the engines on slow speed, when she swerved and grounded at the point of Barnhart's Island, about 70 ft. from the land. After taking soundings, the master made arrangements to communicate with the owners, and went personally in a boat, but not before he had given instructions to his officer and purser, and allayed the passengers' apprehension. There was no panic or confusion. The examination of the steering gear did not reveal the cause of the temporary non-effectiveness. It was one of those occurrences which happen rarely, and for which no reason can be given beyond a surmise, and the court's opinion was that the strength of the current at that particular spot was such that it offered, for a short period, a resistance against the rudder, the attachment of which, for the time being, failed to respond. The fact that when the helm was immediately starboarded, the rudder responded, will prove the court's conjectures as being logical. That there was sufficient pressure of steam is indicated by this fact. The disembarka-

tion of passengers was necessarily slow, owing to the peculiarities and nature of the landing place. Nothing transpired to show that at the time of the grounding, and during the disembarkation of the passengers, there was any feeling of panic, or lack of discipline, control, or management on the part of the officers and crew, but, on the contrary, sang froid was displayed, which enabled the transfer of the passengers to a safe landing. In view of the intricate channel, and barren, rocky surroundings, it speaks well for the judgment, seamanship and discipline shown by the master, officers and crew. The court therefore found that the master and officers acted with the usual prudence in navigating the ship, that the temporary non-effectiveness of the steering gear was unforeseen and unavoidable, that proper judgment and discipline were exercised in the landing of the passengers, without confusion or panic, and it exonerated the master, Capt. George Batten, and the mate, Wm. Blake, from any blame for the casualty. The judgment concluded with the statement that "While the court's function is frequently to criticize adversely the conduct of shipmasters and officers, it is also its duty to eulogize, when special acts, which are out of the ordinary, are performed. It recognizes in this instance the opportunity to felicitate the master, officer and crew on their successful achievement."

Loss of s.s. Volunda.

Held at Halifax, N.S., Aug. 9, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. Neil Hall and C. O. Allen, as nautical assessors, into the loss of the Wasis Steamship Co.'s s.s. Volunda, off Neils Harbor, July 29. The evidence showed that a satisfactory course was steered, that the ship was supplied with all the necessary instruments, and up to date charts. The compass had been steady on the deviation obtained by adjustment obtained last October, and verified subsequently. There was clear weather, no sea and a very light breeze from the northwest. The master, Capt. J. Meikle, assumed the responsibility of the watch, and, after passing Ingonish, went to his room adjacent to the wheel house, within easy access to the bridge, leaving the so-called second mate in charge, with instructions to call him when lights were seen. He had been writing his official log, and the wheelman stated that he had been lying down dressed. The lookout man stated that smoke obscured the range of visibility for some time prior to the stranding, until he could not see farther than 100 yards, the ship being kept at full speed and no whistle sounded. No reason could be shown as to why the ship was off her course, and the compass had not shown any erratic tendency, the ship grounding before those on watch were aware of it. The engines were stopped, and a hard aport helm order was given, with inappreciable effect. The court was unable to obtain the heading of the ship when she struck, no one apparently having thought of it. While on the course a 4 point bearing was taken at Ingonish, placing the ship some 5 miles off the light, but the fact that it was taken by one inexperienced and irresponsible led the court to think that it could not have been done accurately. The court commented on the omission of the master to save the log books, which are so essential to corroborate the points brought out in the investigation. There was ample time to do so, and no reason was given for the omission, which is somewhat mitigated by the fact that the master lost all his effects. Bearing in mind that the law does not require ships engaged in the coasting trade to carry certificated second officers, and that fact being known to the master, he assumed responsibility of keeping watch jointly with the first officer, the so-called second officer being irresponsible and inexperienced. The master therefore was remiss in not being on the bridge personally, a duty which imposed itself on him under the circumstances, and more so when the range of visibility was obscured by smoke. The court had not the least doubt that had the master been on the bridge, the casualty would not have occurred. The court condemned the action of the second officer, Wm. Cross, for not calling the master when the smoke got so dense, and for not diminishing the speed until the master came on deck. The court found the master, Capt. Jas. Meikle, certificate 1959, in default for being absent from his post, but owing to his long and successful career, dealt leniently with him, and suspended his certificate for six months from Aug. 9, 1921, to Feb. 8, 1922.

Loss of s.s. Lady of Gaspe.

Held at Halifax, N.S., Aug. 18, into the stranding and subsequent loss of the s.s. Lady of Gaspe on Thrum Cap shoal, near the entrance to Halifax harbor, Aug. 8, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. Neil Hall and C. O. Wilson, as nautical assessors. The court's report stated that Capt. N. Nicolson, of the Lady of Gaspe, assumed full responsibility for the navigation and loss of the steamship, which was sufficient in itself to permit the court to arrive at a logical conclusion. The evidence showed that from Boston, Mass., to Cape Sable, N.S., the ship had been navigated with the usual prudence, and everything seemed to be all right on board. However, carelessness, the reason for which did not develop, was shown from the time the Sambro buoy was abeam, when a mere cast of the lead was made, and apparently deemed unimportant, since neither the master nor mate thought fit to investivate the chart, and, without such necessary examination, the master casually and approximately established his position from the buoy to be ¾ mile. Immediately after striking, water entered the engine room, and apparently nothing could be done to extricate the ship from her position. The mate did not appear to be interested in the navigation of the ship and was no help to the master. The court therefore found that the master, Capt. Neil Nicolson, certificate 009,181, was in default, and suspended his certificate for 12 months from Aug. 11, and D. W. Munro, chief officer, was severely reprimanded, cautioned to be more careful and interested in future in the nagivation of the ship in which he is called upon to take an active part.

Mission River Breakwater, Fort William.—The Dominion Public Works Department received tenders to Aug. 17, for the construction of a rubble mound extension to the Mission River breakwater, Fort William, Ont. The extention is to commence 375 ft. southerly from the existing concrete breakwater at the mouth of the river, and to be 1,000 ft. long on the water line, and 26 ft. wide, with a top width of 10 ft. and a height of 8 ft. above the datum line.

Canal Statistics for June, 1921.

The Dominion Bureau of Statistics' Transportation Branch reports as follows:—The traffic on the Welland and St. Lawrence Canals increased 37 and 35% respectively in June, but the traffic on the other canals showed considerable decreases compared with June 1920. Traffic on the Chambly decreased 58%, on the Trent 54%, on the Murray 43%, on the Rideau 31%, on the Sault Ste. Marie 30%, on the Ottawa 17%, and on the St. Peters 15%. The cumulative figures since the opening of navigation show much the same conditions, the traffic on the Welland and St. Lawrence show increases of about 50%, while the other canals show decreases from 5 to 45%.

The falling off in the iron ore shipments accounted for practically all the decrease in traffic through the Sault Ste. Marie Canals. The increases in traffic through the Welland and St. Lawrence Canals were in petroleum and oils, anthracite coal, and grains. There were several factors contributing to the increases in the grain shipments; the large crop last year left a quantity of grain in elevators with the close of navigation, considerable United States corn was moved through to Montreal during June, and the Canadian grain that was being exported to the U.S. via Buffalo and other Lake Erie ports was more or less diverted by the duty of 35c. a bush. imposed by the U.S. Emergency Tariff effective the latter part of May. Canadian grain to Buffalo and other Lake Erie ports during April amounted to 3,701,350 bush. during May to 3,055,934 bush. and during June to only 1,007,218 bush.

The width of the West Neebish channel in St. Mary River, provided by the original improvement (300 ft.), has been diminished at some points. On course 5, about opposite the mouth of the Charlotte River, some filling has occurred at the sides of the channel, mainly along the west side, for about a mile, and for a maximum width of about 30 ft., leaving a channel of full 21 ft. depth for a minimum width of 270 ft. Through Rock cut, a section of the dry masonry wall on the east side, for about 40 ft., has fallen into the channel, just in front of the break in the wall, restricting the width to about 270 ft. On course 8, in Mud Lake, between Moon Island and crib lights 3 and 4, the center has been deepened and the sides have washed in, so that the width having full project depth of 21 ft. is reduced to 150 ft., but the minimum width, having low water depth of 20 ft., is about 165 ft. At present water levels, that width of the channel having 20 ft. draft is about 200 ft. The bottom is very soft. It is expected that full channel width and depth will be restored by dredging during this season, and in the meantime, deep draft ships should keep in the center of the channel on this course.

The American Steamship Agency Ltd. has been incorporated under the Quebec Companies Act, with $49,000 authorized capital and office at Montreal, to build, deal in and operate ships of all kinds, warehouses, wharves, docks, etc., and to conduct a general navigation business and to act as agent and purchaser of steamship tickets for the transportation of passengers. The incorporators are E. Klein, S. Syakos, L. Diner, J. Davidson and S. Eliasoph, Montreal.

Welland Ship Canal Contracts.

The contract for the completion of the work on the combined sections 1 and 2, has been awarded by the Railways and Canals Department, to J. P. Porter, Halifax, N.S.

Sec. 1, the contract for which was originally let Aug. 1, 1913, to the Dominion Dredging Co., consists principally of the construction of the new harbor at Port Weller, at the Lake Ontario end of the canal, covering about 1½ miles of dredging in the lake, and considerable pier work, 1½ miles of canal excavation, the construction of lock 1 with its weirs and entrance walls, between Lake Ontario and bridge 2.

Sec. 2, the contract for which was originally let, Dec. 31, 1913, to Baldry, Yerburgh & Hutchinson, Ltd., includes, in addition to the excavation of the canal prism, the construction of locks 2 and 3, with their regulating and waste weirs, the substructure of four bridges in addition to one at the head of lock 2, and a large amount of watertight embankments.

Work on these, as well as other, contracts was suspended in Jan. 1917, on account of war conditions, but was resumed early in 1919, on a cost plus 8% basis, and considerable work has been done at intervals since. It is estimated that on the two sections combined, there remains about 40% of the work to be completed.

A press report from St. Catharines, Ont., states that the work which has been proceeding on a cost plus 8% basis, on contract 3, is to be closed down Sept. 1, and tenders called for its completion. Sec. 3, which was let originally, Dec. 31, 1913, to Doheny, Quinlan & Robertson Ltd., covers excavation of 2,700,000 cu. yds. of rock, 3,400,000 cu. yds. of earth, the diversion of the G.T.R., rendered necessary to obtain a satisfactory location for the canal, the building of a large earth dam with concrete core walls, the building of twin locks 4, 5 and 6, in flight, and single lock 7, which, together with their entrance walls, etc., will contain about 1,200,000 cu. yds. of concrete. The contract also includes the furnishing and crushing of 1,250,000 tons of stone for concrete, for secs. 1 and 2.

Sec. 4a is covered by a small contract for certain portions of work which were to have been included in sec. 4, which could not be deferred when it was decided to postpone the letting of the larger contract, and consisted of the construction of a new supply weir, opposite lock 25 of the present canal, and the construction of some concrete culverts. This contract was completed prior to the war by Maguire & Cameron.

Sec. 5 is under contract to the Canadian Dredging Co., and it now includes some dredging work, originally intended to be incorporated with the contract for sec. 4, when placed.

The International Mercantile Marine Co.'s report for the calendar year 1920, shows gross income, including dividends from subsidiary companies, of $11,307,-441, against $15,193,831 for 1919. P. A. S. Franklin, President, is reported to have stated that the reduction is due to the smaller movement of freight, the recession of freight rates, and labor troubles in various directions, which seriously interfered with the movement of steamships, and materially increased operating expenses.

The Russian Port of Novorossisk.

As mentioned in Canadian Railway and Marine World for July, the 500 tank cars, which are being built by Canadian Car & Foundry Co., for the Russian Soviet Government, are to be shipped by Canadian Government Merchant Marine, to Novorossisk, for use in the oil carrying trade from the Caucasus. Novorossisk is on the Black Sea, in lat. 60 deg. 47 min. n., long. 21 deg. 24 min. e. It has a population of about 40,000, and its shipping consists chiefly of imports of machinery and general merchandise, and exports of grain, seed, oil cake, kerosene, oak staves, etc. The port is connected with the general network of Russian railways by a branch line to Tichoretskai, on the Wladikavkaz, and the railway to Petrovsk and Batu, on the Caspian Sea, brings the two seas into direct connection. The harbor accommodation consists of 7 loading piers, of which 5, including 2 elevator piers, belong to the railway company, one is owned by the French Standard Oil Co., and one by the Russian Steamship Co. There is berthing for 22 steamships by two breakwaters, and a depth of water at the ends of the piers, averaging 24 to 26 ft. The facilities include cranes of 5, 10 and 20 tons capacity, and a floating crane of 40 tons capacity; an elevator of 3,000,000 poods (approximately 1,350 tons) capacity, and there are two large piers, one for Government use, and one exclusively for steamships discharging, now under construction.

The harbor dues, customs charges, loading and discharging expenses, are approximately as follows:—The railway company charges 10 kopeks (6c. normal value) a registered ton for use of its piers; and to merchants, ¾ to 1½ kopeks (0.45 to 0.90c.) a pood (0.90 lb.) of cargo loaded or discharged, for the use of wagons, laborers, etc.; customs dues, 20 kopeks (12c.) a net registered ton on ships, and discharging, general, 50 kopeks (30c.) a ton. There are no pilots.

The s.s. Cap Nord, which was advertised to be offered for sale by public auction in London, Eng., Aug. 16, is one of 6 auxiliary, twin screw, 5-masted schooners, built by Wm. Lyall Shipbuilding Co., Vancouver, B.C., in 1918, for French interests. They were classed 12 A1 at Lloyd's, and have 1,800 tons d.w. capacity on about 20 ft. draft. They are of the single deck type, with 2 tiers of beams, and are fitted with two 200 h.p. oil engines placed aft, with 8 cylinders 11½ in. diar. by 15 in. stroke, and equipped with electric light. Their dimensions are length 242.8 ft., breadth 44.4 ft., depth 18.7 ft. It is reported that the 6 ships were sold to the French Government for $3,000,000, and on completion were handed over to Trenholme and Thorndyke Inc., Seattle, Wash., then operating agents for that Government.

Transmission of Shipping Documents. In response to a complaint from the Montreal Board of Trade that in certain cases merchandise was reaching the other side of the Atlantic before the documents necessary for clearing purposes, and that the delay was detrimental to the cargoes and therefore to the interests of the shippers, the Postmaster General has pointed out that there must be some misunderstanding, as, under the Post Office Act, letters of merchants, owners of vessels, or of cargo therein sent by such vessel or by any person of such letters, according to their respective addresses, and delivered to the persons to whom they are respectively addressed, without pay, hire or reward for so doing, are exempt from mail regulations, and therefore such documents can be handed to the purser of the merchant ship for transmission direct. By such means the documents would arrive on the other side at the same time as the cargoes.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Independent Pneumatic Tool Co., Chicago.—J. D. Hurley, President, is making an extended combined business and pleasure trip through continental Europe, accompanied by his wife.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.— Capt. R. D. Simpson, Owen Sound, Ont.

Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League. A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Webster, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

Sept. 12-14.—American Railroad Master Tinners, Coppersmiths and Pipefitters Association. Chicago, Ill.; C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

Sept. 12-15.—International Railway General Foremen's Association, Chicago, Ill.; W. Hall, 1061 West Wabasha Ave., Winona, Minn.

Sept. 20-22.—Roadmasters' and Maintenance of Way Association. Chicago, Ill.; P. J. McAndrews, Chicago & North Western Ry., Sterling, Ill.

Oct. 3-6.—American Electric Railway Association, Atlantic City, N.J. E. B. Burritt, New York, N.Y.

Oct. 4-6.—Maintenance of Way Master Painters' Association, Buffalo N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Oct. 18-20.—American Railway Bridge and Building Association, New York, N.Y.; C. A. Lichty, Chicago & North Western Ry., Austin Station, Chicago, Ill.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under

Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.

Allow five words where replies are to be sent to a box number. Minimum order—$1.

Rates under other headings and for display advertisements on application.

TANKS FOR SALE

New and used, in all parts of the country

Over 4000 steel storage tanks.
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Chemical and mechanical equipment.

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Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

CANADIAN NATIONAL RAILWAYS

Canadian Government Railways.
Eastern Lines.

TENDERS

SEALED TENDERS, addressed to A. F. Stewart, Chief Engineer, Moncton, N. B., and marked on the outside "Tenders for Dwellings," will be received up to 12 o'clock noon THURSDAY, SEPTEMBER 8th, 1921, for the construction of ten double dwelling houses at Parent, P.Q.

Plans, Specifications and blank form of contract may be seen at the following offices:

Chief Engineer—Moncton, N.B.
District Engineer—Quebec, P.Q.
Division Engineer — Tunnel Station, Montreal, P.Q.

All the conditions of the specification and contract must be complied with. Tenders must be put in on the blank form of tender, which may be obtained from any of the offices at which the plans are on exhibition.

Each tender must be accompanied by an accepted bank cheque payable to the Canadian National Railways for an amount equal to ten per cent. of the tender.

Lowest or any tender not necessarily accepted.

W. A. KINGSLAND,
General Manager,
Eastern Lines.

Dated at Moncton, N.B., August 22, 1921.

CANADIAN PACIFIC RAILWAY COMPANY
Dividend Notice

At a meeting of the Board of Directors held today the following dividends were declared:

On the Preference Stock, two per cent. for the half-year ended 30th June last:

On the Common Stock, two and one-half per cent. for the quarter ended 30th June last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account.

Both dividends are payable 1st October next to Shareholders of record at 3 p.m. on 1st September next.

By order of the Board,
Ernest Alexander,
Secretary.

Montreal, 8th August, 1921.

Canadian National Railways.

EASTERN LINES.

COFFEE RIVER BRIDGE SUBSTRUCTURE.

SEALED TENDERS, addressed to A. F. Stewart, Chief Engineer, Canadian National Railways, Moncton, N.B., and marked on the outside, "Tenders for Coffee River Bridge," will be received up to 12 o'clock noon on Wednesday, Sept. 7th, 1921, for the construction and completion of the substructure for a single track Railway Bridge over the Coffee River, 41.1 miles from Doucet on the St. Maurice Division, Quebec District.

Plans, Specifications and Blank form of Contract may be seen and tender forms obtained from the following offices:

The Chief Engineer, Canadian National Railways, Moncton, N.B.
The Chief Engineer, Canadian National Railways, Toronto, Ont.
The District Engineer, Canadian National Railways, Quebec, P.Q.
The Division Engineer, Canadian National Railways, Quebec, P.Q.
The Division Engineer, Canadian National Railways, Tunnel Terminals, Montreal, P.Q.

Tenders must be submitted in duplicate on the tender forms supplied for that purpose.

Each contractor tendering must submit with his tender, a security deposit in the form of an Accepted Cheque on any chartered bank in Canada and made payable to the "Canadian National Railways" for an amount of Four Thousand Dollars ($4,000.00). Security deposits will be returned to all unsuccessful tenderers. Security deposit of successful tenderer will be forfeited to the railway if the contractor refuses to enter into a contract based on his tender when called upon to do so. Contractor's security deposit will be returned on the satisfactory completion of the work.

Plans and Specifications will be loaned to bonafide contractors on the deposit of security amounting to Twenty-Five ($25.00) Dollars. This security deposit to be in the form of an accepted cheque on any chartered bank in Canada, made payable to the "Canadian National Railways." Security deposit will be refunded on the return of the plans and specifications.

No revision of any tender will be considered if received hy the Chief Engineer at Moncton, N.B., at a date later than 12 o'clock noon, Wednesday, Sept. 7th, 1921.

All conditions of the Specifications must be complied with.

The lowest or any tender will not necessarily be accepted.

W. A. KINGSLAND,
General Manager,
Eastern Lines.

Montreal, P.Q., August 8th, 1921.

CANADIAN NATIONAL RAILWAYS

(Central Lines)

Tenders for Ties

Sealed tenders addressed to the undersigned and endorsed "Tender for Ties" will be received at this office until 12 o'clock noon, Saturday, 17th day of September, 1921, for 1,000,000 railway ties to be manufactured between October, 1921, and May, 1922, and delivered between December 1st, 1921, and September 30th, 1922, on Canadian National Lines between Port Arthur and Quebec, and between Armstrong and Quebec, in accordance with Tie Specification No. 3856, dated March 18th, 1919.

Tender forms and specifications can be obtained at the office of the General Tie Agent, Room 231, New Union Station, Toronto.

Tenders will not be considered unless made on forms supplied by the railway.

No tender for quantities less than 10,000 ties will be considered.

The lowest or any tender not necessarily accepted.

Special arangements will be made to purchase ties fully up to specification, manufactured and delivered by actual settlers from their own lands.

W. H. GRANT, General Tie Agent, Canadian National Railways, Toronto, Ont.

Toronto, July 29th, 1921.

Canadian National Railways.

CANADIAN GOVERNMENT RAILWAYS.
Eastern Lines.

Tenders.

SEALED TENDERS, addressed to A. F. Stewart, Chief Engineer, Moncton, N.B., and marked on the outside, "Tender for Station," will be received up to 12 o'clock noon, Tuesday, September 6th, 1921, for the construction of a station building with dwelling accommodation at Luceville, P.Q.

Plans, Specifications and blank form of contract may be seen at the following offices:

Chief Engineer—Moncton, N.B.
District Engineer—Quebec, P.Q.
Division Engineer—Tunnel Station. Montreal, P.Q.

All the conditions of the specification and contract must be complied with. Tenders must be put in on the blank form of tender, which may be obtained from any of the offices at which the plans are on exhibition.

Each tender must be accompanied by an accepted bank cheque payable to the Canadian National Railways for an amount equal to ten per cent. of the tender.

Lowest or any tender not necessarily accepted.

W. A. KINGSLAND,
General Manager,
Eastern Lines.

Dated at Moncton, N.B., August 5th, 1921.

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CARTER'S GENUINE DRY RED LEAD

For Ships-Bottoms of Wood or Metal, Steam Pipes and Metal Work.

Carter's genuine dry red lead furnishes lasting protection against rust or corrosion and furnishes it at little cost.

It is always uniform in film and spreads very easily, covering more space than other red leads.

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Washout Water at 120°. Refill Water at 200°.

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Head Office - Lachine Quebec

Malleable Castings

High Grade Material
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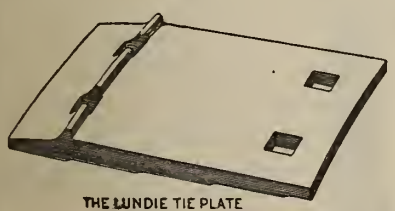
Galt Malleable Iron Co., Limited - GALT, ONT.



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One of the most distinguished, successful and honored Engineers of Canada writes as follows of the

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THE LUNDIE ENGINEERING CORPORATION
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Capital Authorized.....$10,000,000
Capital Paid Up..... 7,000,000
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Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.

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Canadian manufacturers of the Celebrated Wheel Truing Brake Shoe. Best Wheel Grinders in the World.

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September 24th - October 1st

$112,000
in seven days

General Admission $1.75
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Col. Wm. Hendrie, *President.*
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STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

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ELECTRICAL—CIVIL—MECHANICAL

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JOHN A. THOMPSON,
Gen. Man. Western Canada, Toronto.

The Cost of Installing and Maintaining

your electric transmission lines might be materially reduced if you were to investigate the advantages of laying such lines directly in a trench in the ground.

STANDARD Steel-Tape-Armored Cables

may solve this problem for you. STANDARD Steel-Tape-Armored Cables have in many cases shown a 50 per cent. saving in installation cost over single runs of lead-covered cables laid in conduits.

Write our nearest office for Bulletin 680.

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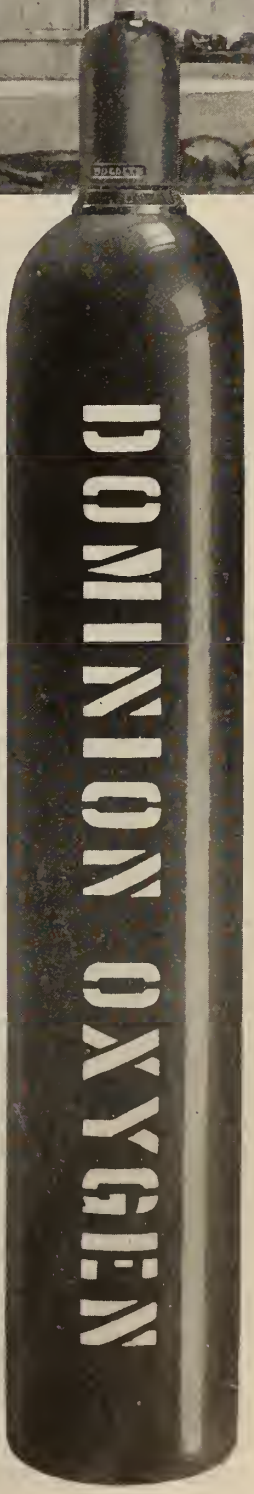
DOMINION OXYGEN has won such preference everywhere in Canada that the Dominion Oxygen Company Limited is constructing another plant with all possible speed at Montreal.

This manufacturing unit will have a producing capacity again as large as that of our plant in Toronto, and will provide facilities for even quicker and better service than heretofore.

With twice the output of this uniformly pure oxygen to take care of constantly increasing demands, ample reserves will be maintained at all times at our various distributing stations to insure immediate supply for your needs — whether you require one cylinder or hundreds.

No matter where your location—at nearby industrial centers or miles away on remote and isolated jobs—forward your order to the nearest of our six plants and distributing stations and it will be filled on the day it is received.

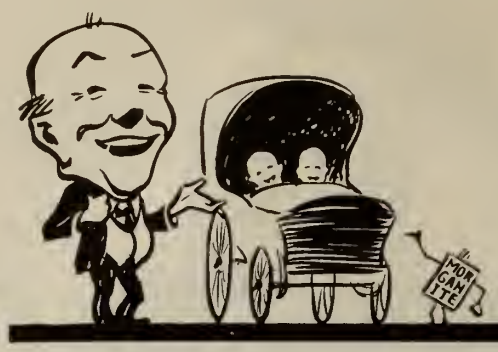


Dominion Oxygen Co., Limited

Hillcrest Park, Toronto

Hamilton, Merritton, Montreal, Welland, Windsor.

D21



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To insure this uniformity—so essential to the efficient performance of electric motors and generators—neither pains nor money have been spared.

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Brushes are made in an infinite variety of shapes and sizes in the following five distinctive classes:

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Hard Morganite Brushes
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"Truly a brush for every purpose and a purpose for every brush."

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Everlastic "Rubber" Roofing is the biggest value in prepared roofing your money can buy.

Made of highest grade waterproofing materials and backed by over 75 years of manufacturing experience. Famous for its durability.

More than a million rolls sold last year throughout the world. Durable—low-priced—easy to lay.

Made in three weights—1-ply (light weight), 2-ply (medium weight) and 3-ply (heavy weight), in rolls containing 108 square feet. Nails and cement are packed with each roll.

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Unequalled for resurfacing worn-out prepared and "rubber" roofs. Has the consistency of thick molasses; is easy to apply and dries quickly into a hard, elastic, wonderfully durable coat. Proof against moisture, acids, alkalies and fumes. Has same base as Barrett Specification Pitch, which is famous for its waterproofing qualities. Comes ready for use in packages ranging from 40-gallon barrels to 1-pint tins.

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Experienced buyers realize that greater service is equivalent to a lower purchasing price. That is why Q & C Rolled Steel Step Joints, by yielding consistently a greater service, have won a growing popularity on the large roads throughout the country.

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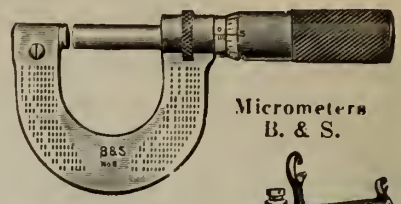

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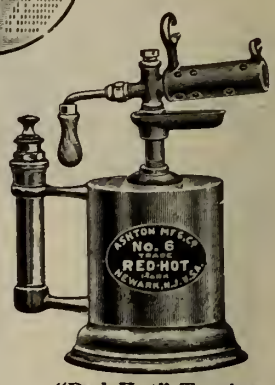

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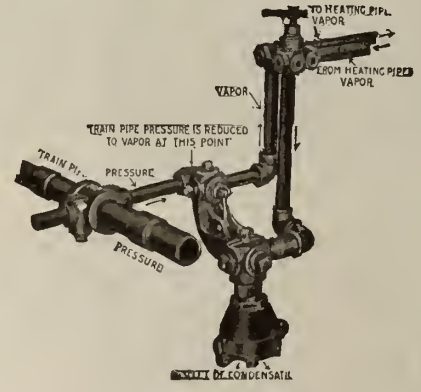

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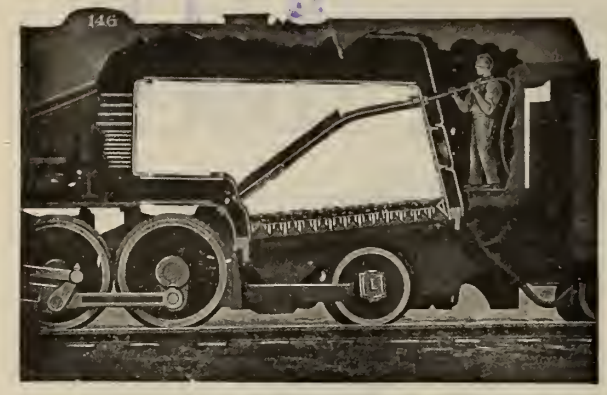
Lagonda Arch Tube Cleaner



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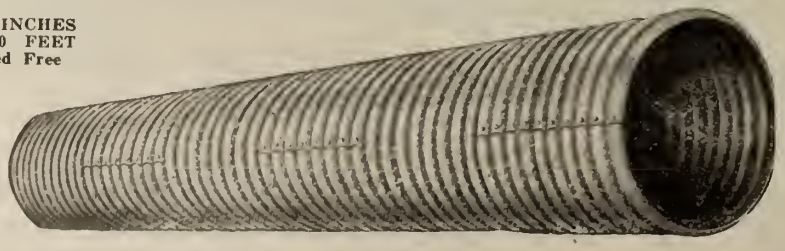

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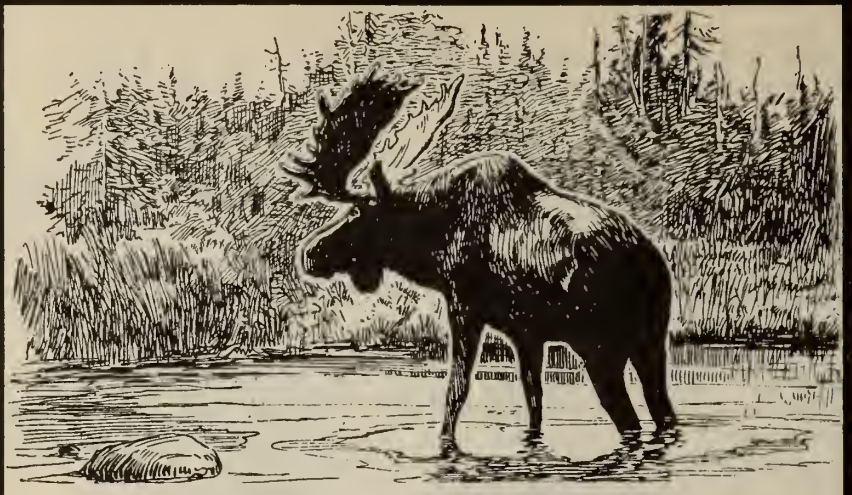

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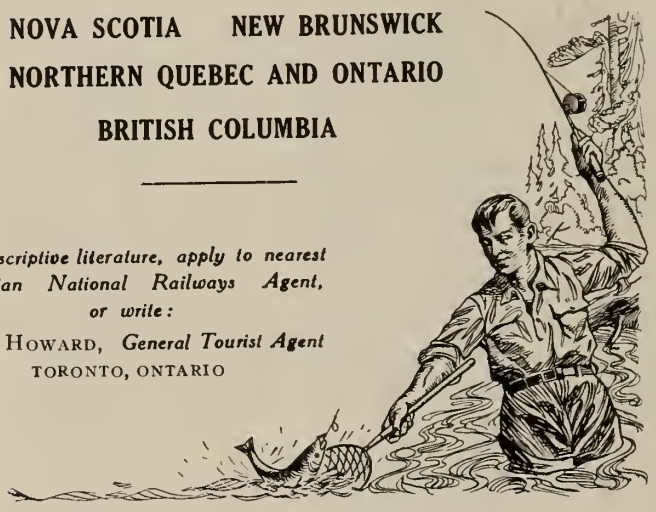

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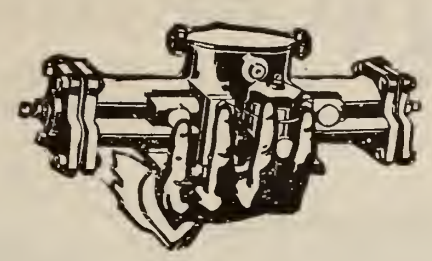

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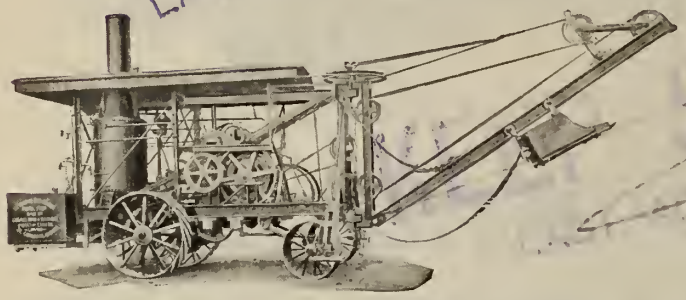

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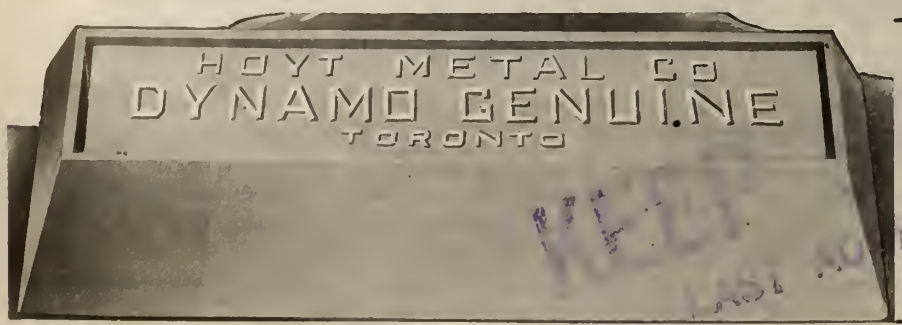

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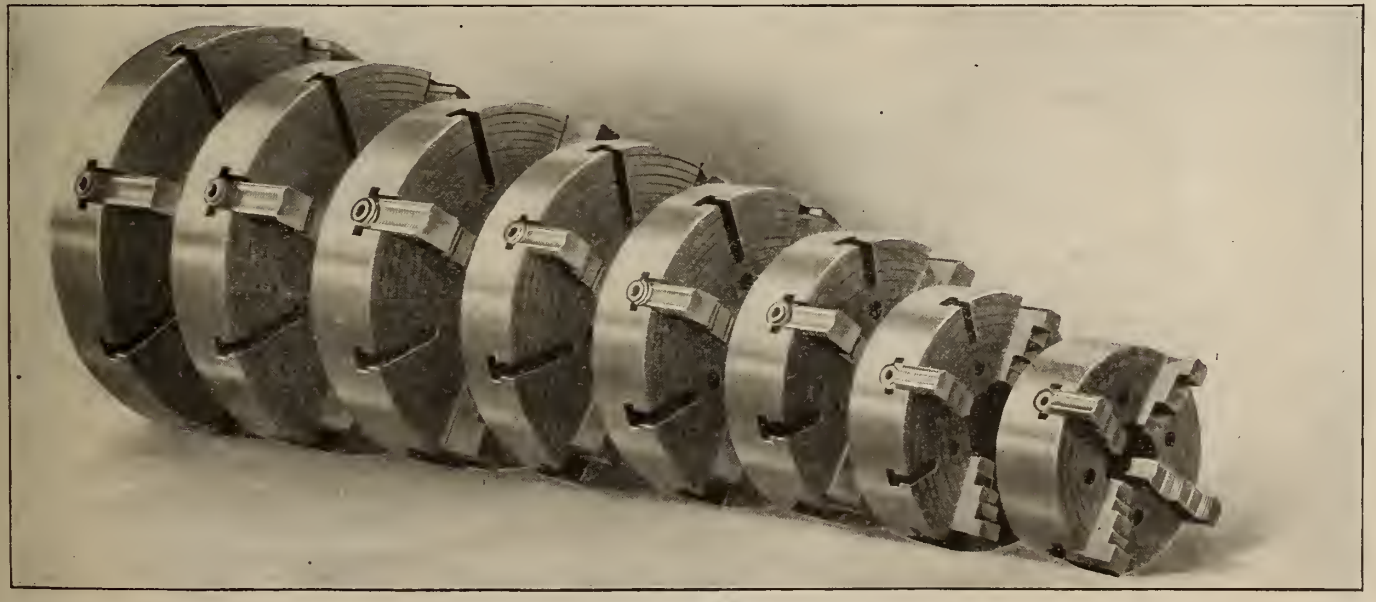

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A

Algoma Steel Corporation 51
American Steel Foundries 2
Arnold Co. 44
*Associated Business Papers Inc. —
*Association of Manufacturers of Chilled Car Wheels ..... —

B

Babcock & Wilcox 54
Barrett Co. 47
Bartram, V. T. 44
Berry Bros. 40
Bertram, John, & Sons Co. 1
Bowser, S. F., Co. 29
Bradstreet Company 44
Brown Hoisting Machinery Co... 3
Brydges, Ltd. 33
Buffalo Brake Beam Co. 26
Butterfield & Co. 40

C

Canada Foundries & Forgings Ltd. 44
Canada Grip Nut Co. .....Cover pg. 4
Canada Iron Foundries, Ltd. 41
Canada Machinery Corporation ... 22
Canada Steamship Lines, Ltd. 25
Canadian Bridge Co. 60
Canadian Bronze Co. 43
Canadian Car & Foundry Co. ..... —
Canadian Clothel Refrigerating Co. Ltd. 30
Canadian Consolidated Rubber Co. 11
Canadian Fairbanks-Morse Co. .. 16
Canadian General Electric Co..... 13
Canadian Gold Car Heating and Lighting Co. 58
Canadian Government Merchant Marine, Ltd. 10
Canadian Johns-Manville Co. 40
Canadian National Carbon Co. 51
Canadian National Railways 60
Canadian Pacific Railway 58
Canadian Porcelain Co. 36
Canadian Railway and Marine World ..... 17 and 65
Canadian Ramapo Iron Works Ltd. 41
Canadian Steel Foundries, Ltd..... 12
Canadian Steel-Tire & Wheel Co. 33
Canadian Vickers, Ltd. 54
Canadian Westinghouse Co. 31
Carr, C. E. A., Co. 53
Carter White Lead Co. 43
*Chase, L. C., & Co. ..... —
Coghlin, B. J., Co. 53
Collingwood Shipbuilding Co. 28
Commercial Acetylene Supply Co. 20
Consolidated Steel Corp. 7
Corbet Foundry & Machine Co... 510
Crane Limited ..... —
Curtiss-Willis Co. 510

D

Date, John 44
Dearborn Chemical Co. of Canada 6
Diamond Saw & Stamping Works 56
Diamond State Fibre Co. of Canada ..... —
Dominion Brakeshoe Co. 55
Dominion Bridge Co. 26
Dominion Foundries & Steel, Ltd. 37
Dominion Iron & Steel Co. 53
Dominion Oxygen Co. 45
Dominion Steel Products Co. 63
Dominion Towing & Wrecking Co. 60
Dominion Wire Rope Co. 19
Duner Co. 60

E

Engineering & Machine Works of Canada 62

F

Fairmont Gas Engine & Railway Motor Car Co. 38
Flannery Bolt Co. 24
Franklin Railway Supply Co. of Canada 32

G

Galena Signal Oil Co. 49
Galt Malleable Iron Co. 43
Gartshore, J. J. 58
General Railway Signal Co. of Canada 43
General Supply Co. of Canada.... 18
Grand Trunk Railway 27
Griffin & Brinkerhoff 43

H

Hamilton Bridge Works Ltd..... 41
Hart-Otis Car Co. 19
Holden Co. 25
Hopkins, F. H., & Co. 19
Hoyt Metal Co. 62
Hunt, Robert W., & Co. 44
Hunt-Spiller Mfg. Corporation... 22

I

Imperial Bank of Canada 43
*Imp. Guar. & Accident Ins. Co. —
Inglis, John, Co. 28
International Correspondence Schools ..... —
International Machinery & Supply Co. 35

J

Joliette Castings & Forgings Ltd. 52

K

Kennedy, The William, & Sons, Ltd. 2
Krauser, Webb. G 8

L

Lewis, Rice, & Son 50
Lundie Engineering Corporation 43
*Luther Grinder Mfg. Co. 58

M

McAvity, T., & Sons 34
Marconi Wireless Telegraph Co. 52
Midland Shipbuilding Co. 39
Miller, F. W., Heating Co. 43
Miller, Roger, & Son 62
Miner, W. H. 20
Montreal Locomotive Works, Ltd. 21

N

National Lock Washer Co. 14
National Pneumatic Co. 61
Nichols, G. P., & Bro. 60
Nicholson File Co. 38
Northern Crane Works Ltd. 58
Northern Electric Co. .....4 and 5
Norton, A. O., Ltd. 31
Nova Scotia Steel & Coal Co..... 34

O

Ohio Brass Co. 15
Orton & Steinbrenner Co. 50
Ottawa Car Mfg. Co. 27

P

Page-Hersey Tubes, Ltd. 30
Peacock Bros. 18
Pedlar People, Ltd. 56
Piper, The Hiram L., Co. 44
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 32

R

Rail Joint Co. of Canada 51
Railway & Power Engineering Corp. 46
Reid Newfoundland Co. 23
Russell, J. E. 39

S

Safety Car Htg. & Ltg. Co. 35
Sinclair, Angus 44
Slater, N., Co. 36
Smart-Turner Machine Co. 52
Standard Car Truck Co. 54
Standard Underground Cable Co. of Canada 44
Star Brass Works 29
Steel Co. of Canada 9
Strauss Bascule Bridge Co. 44
Superheater Co. 62
Symington Co., The T. H. 21

T

Taylor & Arnold Engineering Co. 24
Toronto Drydock Co. 39
Tuco Products Corporation 55
Turnbull, Harvard, & Co. 37

U

Union Draft Gear Co. 8
Universal Draft Gear Attachment Co. 8
Universal Lubricating Co. 55

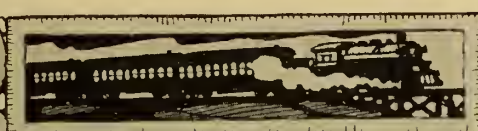
V

Vapor Car Heating Co. of Canada 50

Y

*Yarrows Ltd. 23

*Alternate months.



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Steam Railway and General, Page 511. Electric Railways, Page 543. Marine and Shipbuilding, Page 553.

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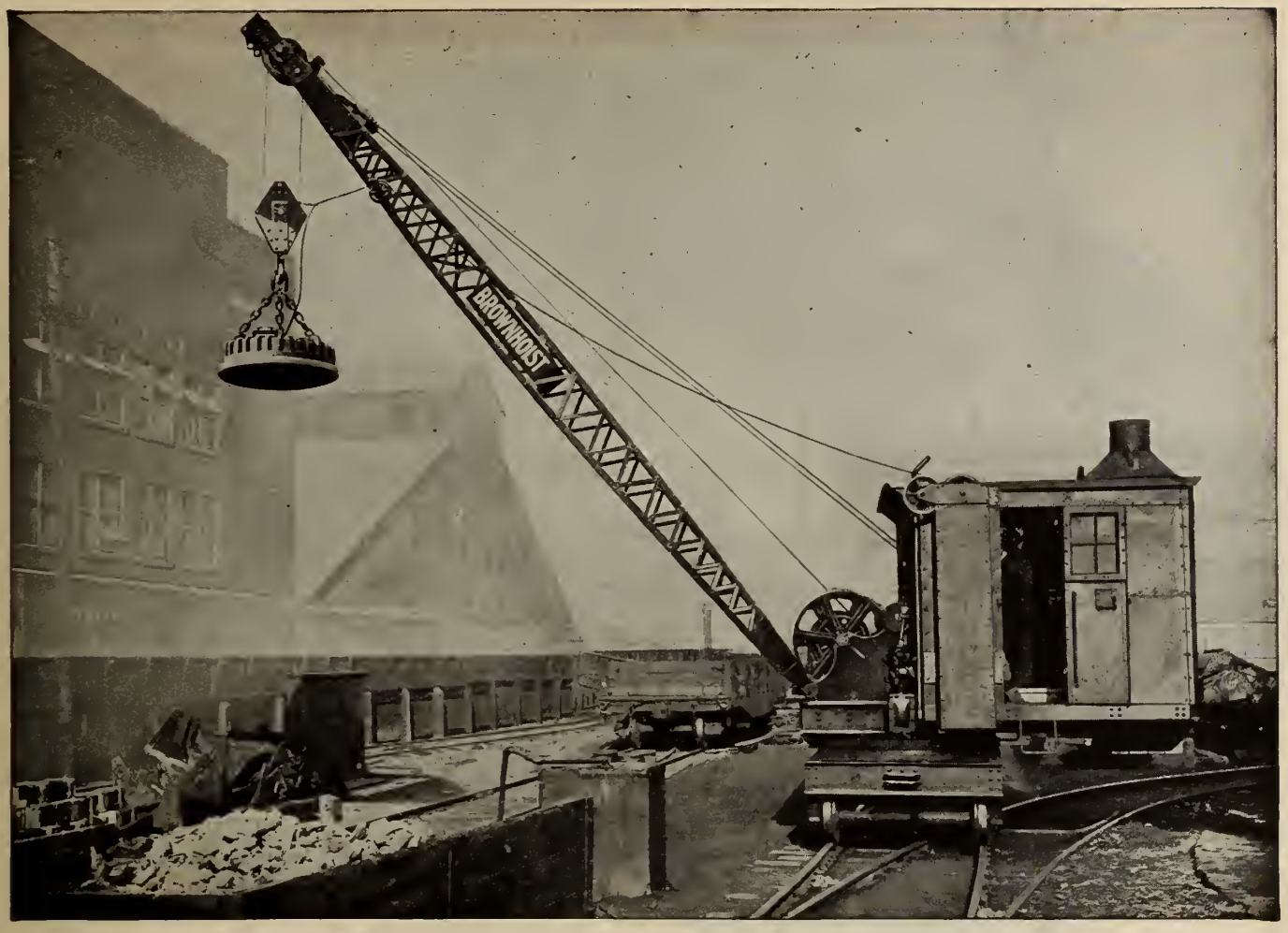

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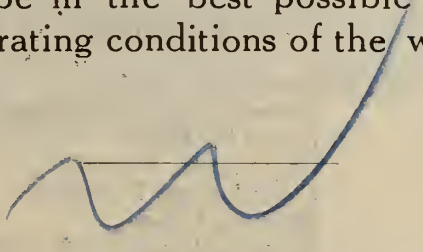

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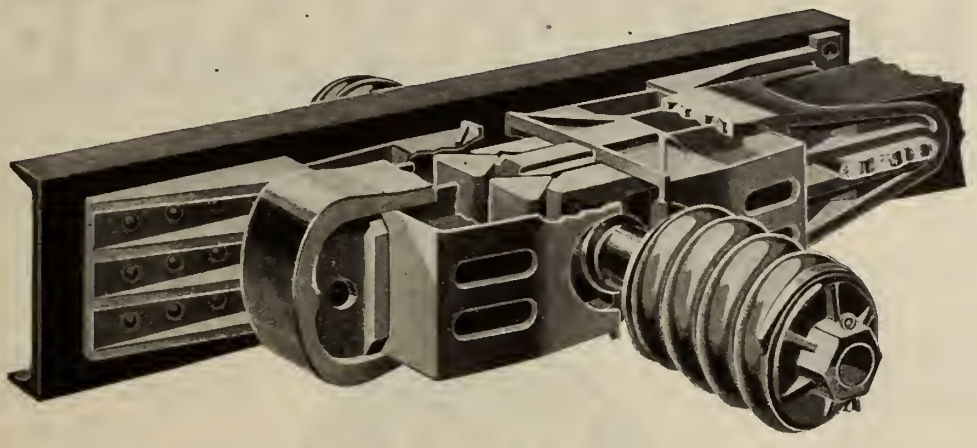

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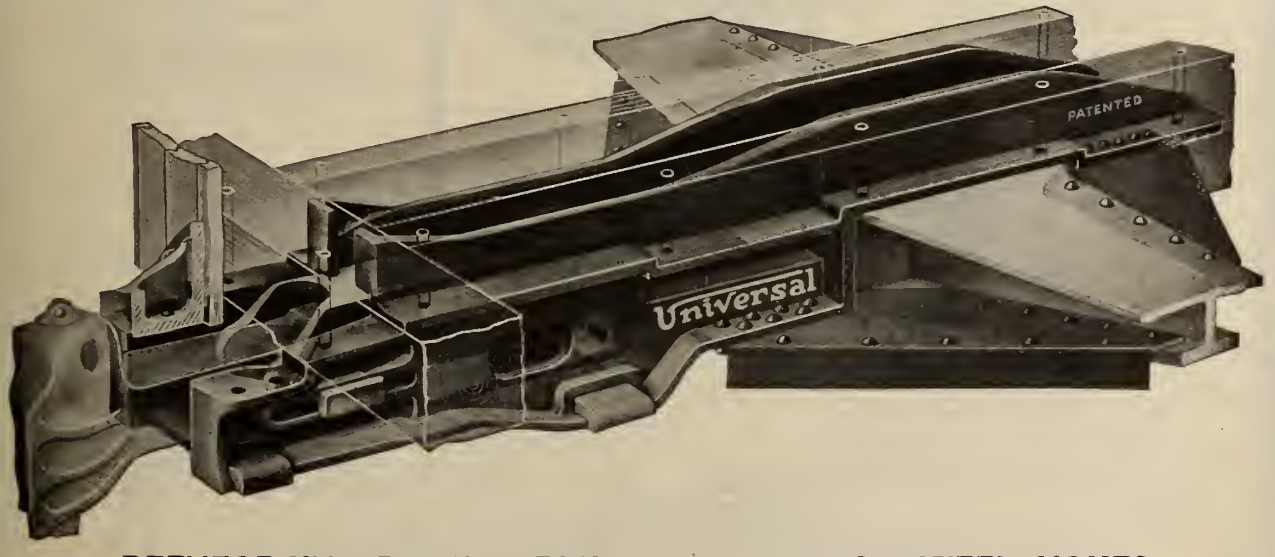

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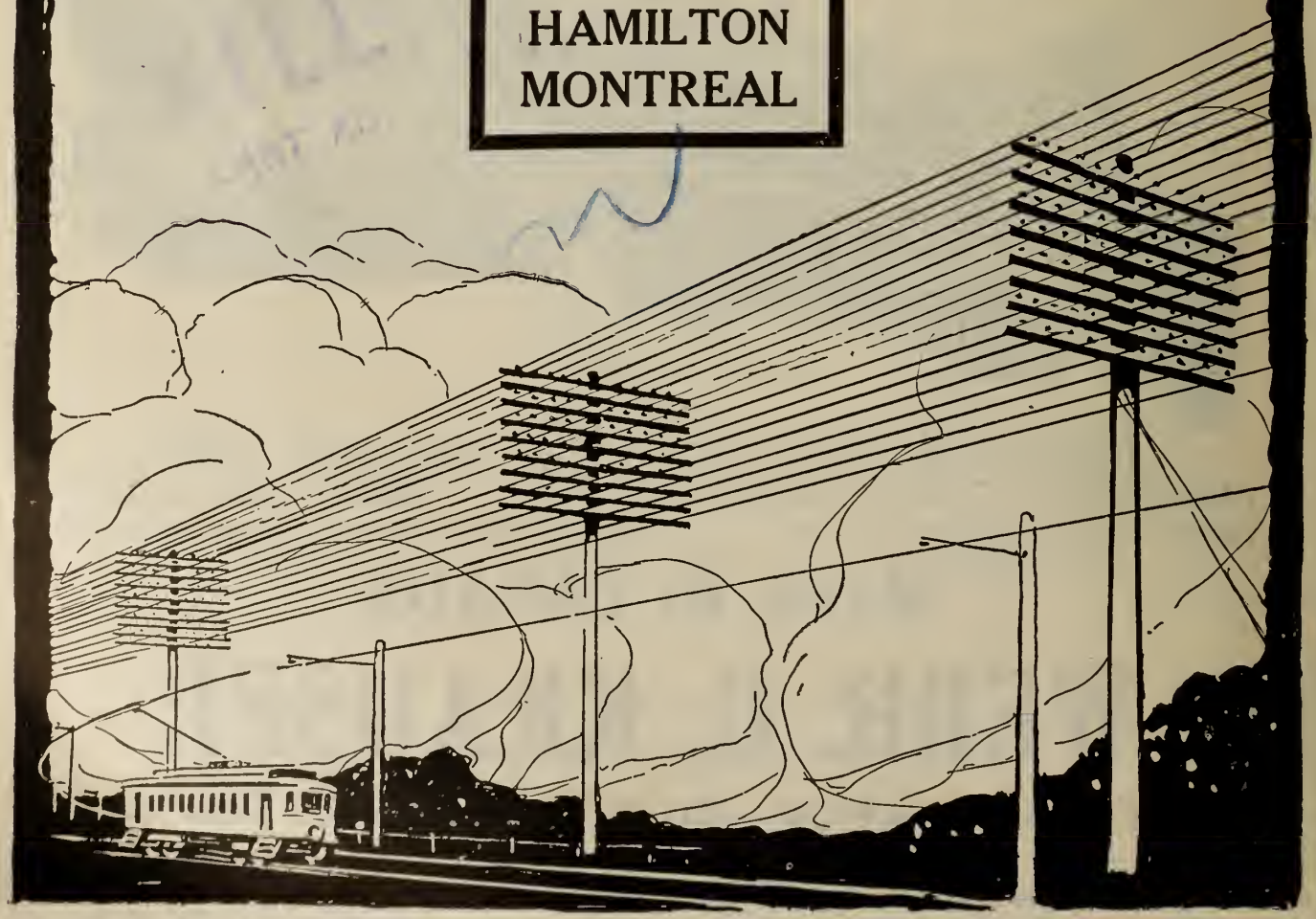

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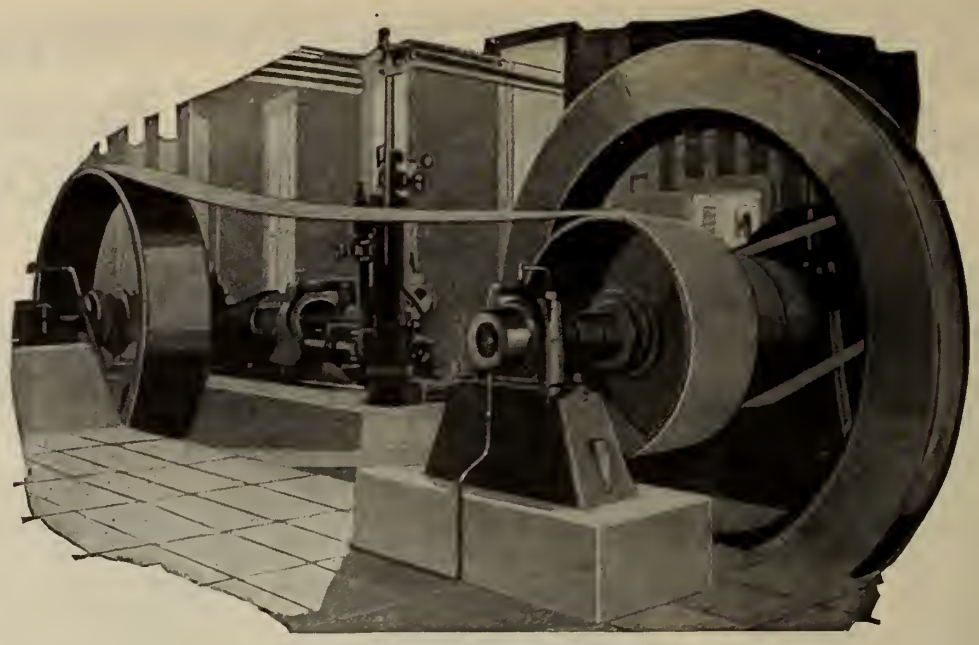

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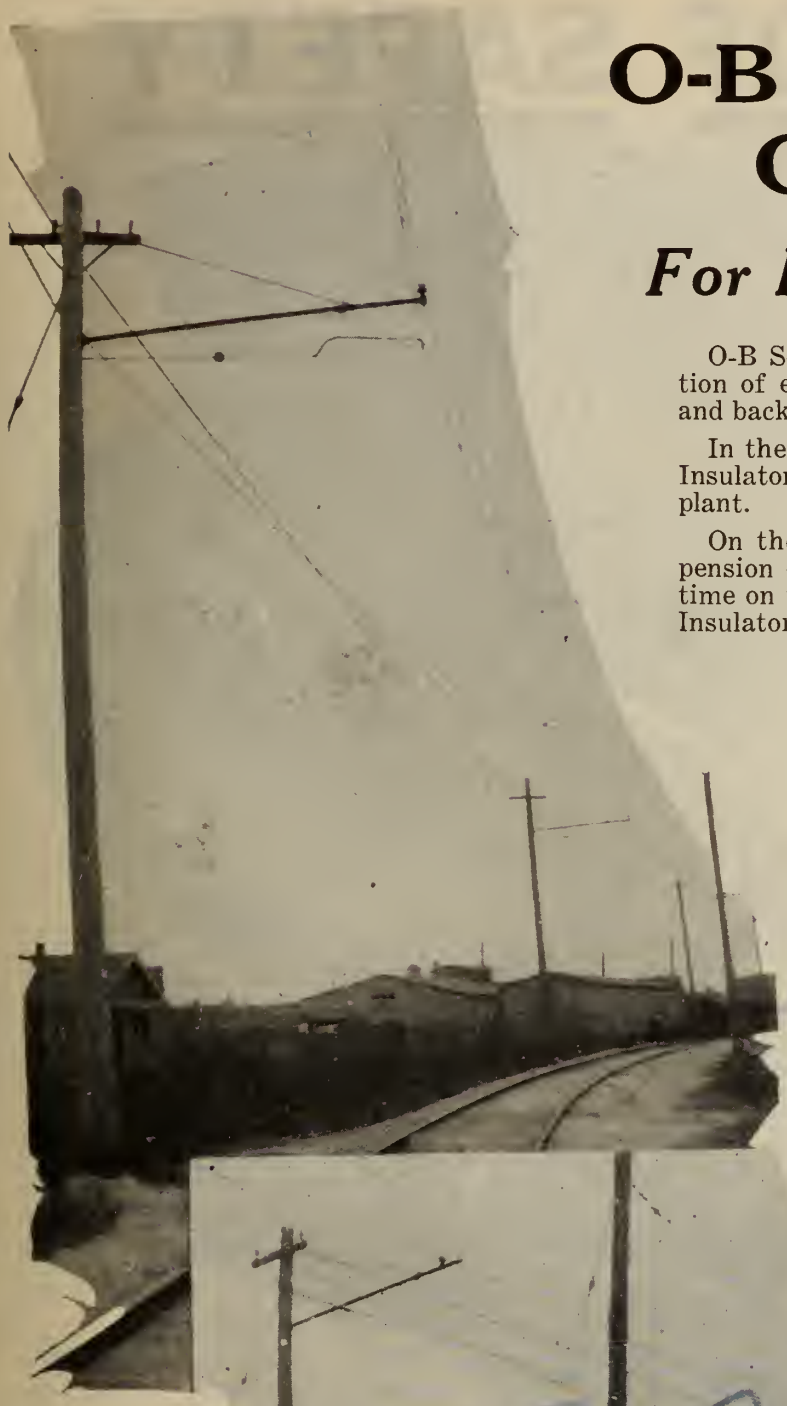

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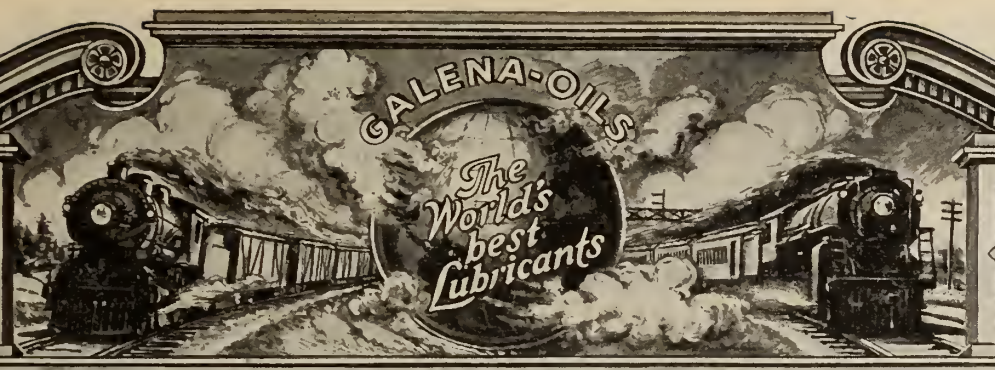

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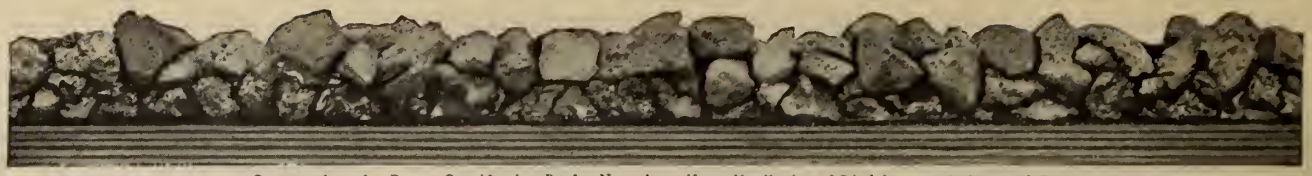

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— that no other surfacing material renders a roof so highly fire-resistant as gravel or slag which serves the further purpose of holding in place the extra-thick *poured* top coat of Barrett Specification Pitch.

The concrete roof-deck is heavily mopped with a uniform coating of Barrett Specification Pitch.

Left: Mopping on the Barrett Specification Pitch. Each layer of felt is hermetically sealed to the adjoining layer by the pitch waterproofing. In no spot do the layers touch each other.

Right: Laying the Barrett Specification Tarred Felt on the pitch seal coat. Four plies with pitch in between are laid over the entire roof surface, each ply overlapping three-fourths of the preceding ply.

Have your roofing contract call for the 20- or 10-year Surety Bond Guaranty. This is issued free of charge through the Montreal Branch of the U. S. Fidelity and Guaranty Company. Then you will be sure that Barrett Specification materials will be applied, in sufficient quantities and by proper methods. For all Barrett Specification Bonded Roofs are constructed under the watchful eye of an experienced Barrett inspector who is present on the job to see that the Specification is strictly complied with.

Before specifying or closing contract for a Barrett Specification Roof, be sure to read carefully all the stipulations in the Specification.

Full details regarding these Bonded Roofs and copies of The Barrett Specifications sent free on request.

Below: Pouring final coat of hot Barrett Specification Pitch and embedding thick wearing surface of gravel or slag after entire roof has received four plies of felt and pitch.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N. B. HALIFAX, N. S.

Barrett Specification Roofs

Bonded for 20 and 10 Years

49 *The map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels*

Chicago	3	Boston	Huntingdon W Va
St. Louis	2	Detroit	Wilmington, Del
Buffalo	4	St. Paul	Houston, Tex
Pittsburg	2	Kansas City, Kan	Hannibal Mo
Cleveland	2	Denver	Reading, Pa
Amherst N.S.		Tacoma	Baltimore
Montreal		Rochester, N.Y.	Richmond, Va
Mich. City, Ind		Savre, Pa	Ft. William, Ont
Louisville		Berwick, Pa.	St. Thomas,
Mt Vernon, Ill		Albany	Hamilton,
Ft. Wayne, Ind		Toronto	Ramapo, N.Y.
Birmingham		New Glasgow N.S.	Marshall, Tex
Atlanta		Madison, Ill.	Los Angeles
Savannah			Council Bluffs

AMERICAN RAILROAD ASSOCIATION STANDARDS

650 lb. wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy Years

Where CHILLED IRON WHEELS *are made for Railway and Street Car Service*

Capacity 20,000 per day
25,000,000 in Service

Association of Manufacturers of Chilled Car Wheels

1847 Mc Cormick Bldg.
CHICAGO

Dominion Iron & Steel Co., Ltd. *Nova Scotia Steel & Coal Co., Ltd.*

Dominion Coal Co., Ltd. *Halifax Shipyards Ltd.*

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STEEL PRODUCTS,

of all kinds.

STEAM COALS,

"Old Sydney", "Dominion"

"Springhill"

British Empire Steel Corporation Limited

120 St. James St.

Montreal, - Quebec.

Returned to Can. Adv. Agency June 21/22.

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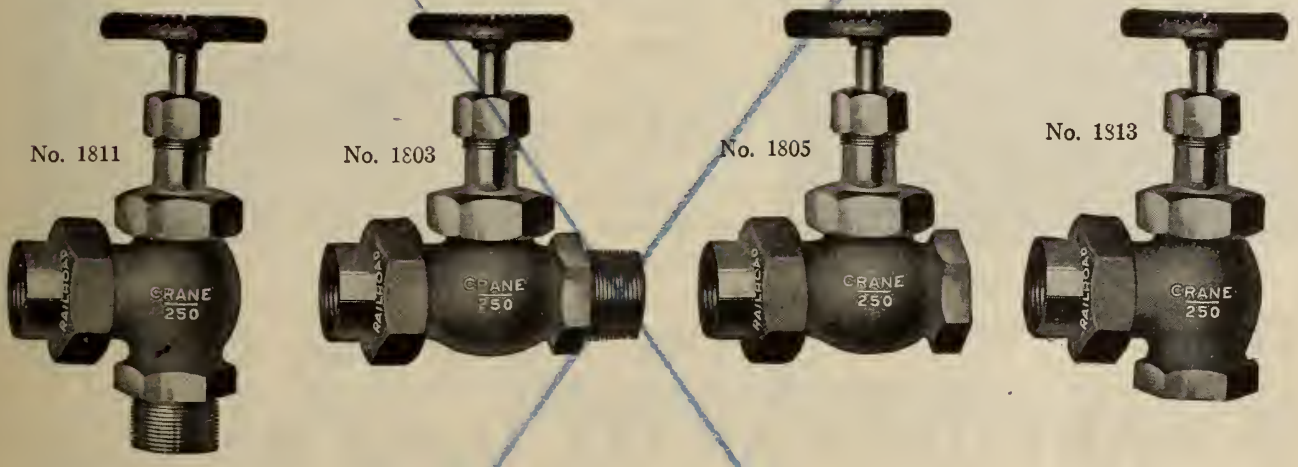
Regrinding Cab Valves



For Locomotive Service

These valves have extra strong stems, deep stuffing boxes, with glands in the stuffing boxes, and malleable iron wheels. The malleable iron union nut is strong and rugged. All parts are interchangeable. Recommended for 250 pounds working pressure.

The union connection ON THE VALVE saves joints.

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

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Sales Offices:
QUEBEC, SHERBROOKE, HAMILTON, VICTORIA.

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Limited
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LONDON, ENGLAND.

Sales Offices:
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3

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THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL Branches: TORONTO, WINNIPEG

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Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

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Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

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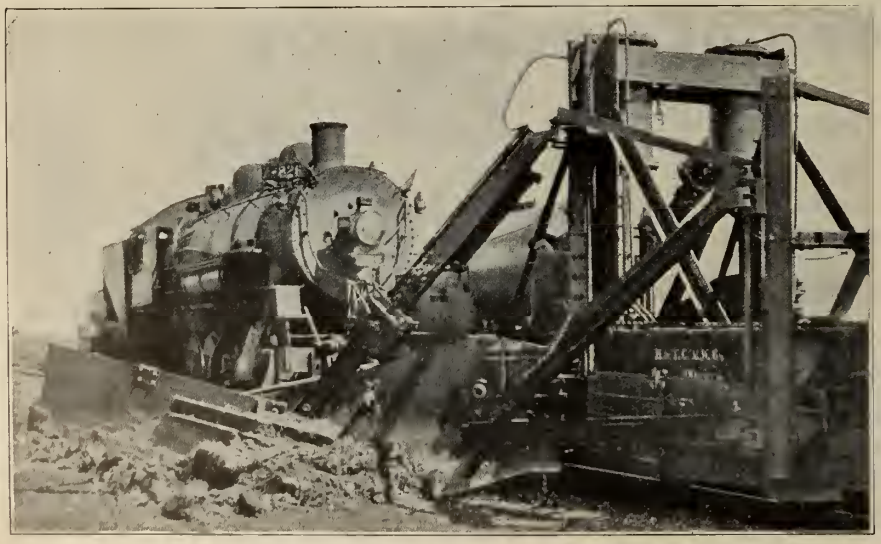

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viz: A ditching attachment and a means of sloping sub-grade and banks in spreading for second tracks and in disposing of waste material adjacent to the track.

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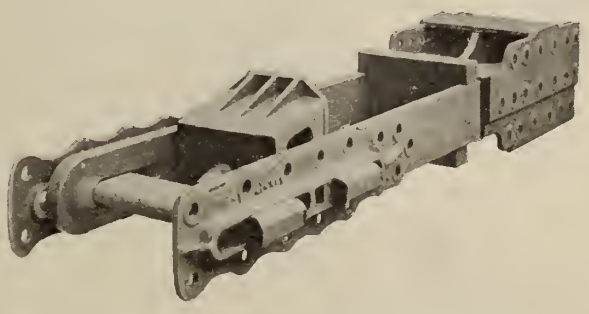
Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



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OUR LATEST ACHIEVEMENT
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COST OF APPLICATION LOWERED
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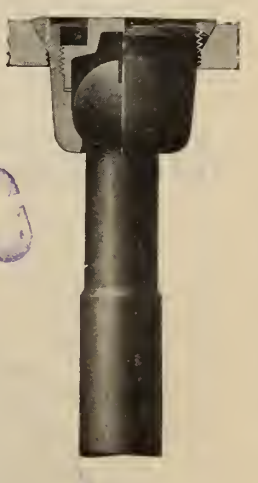

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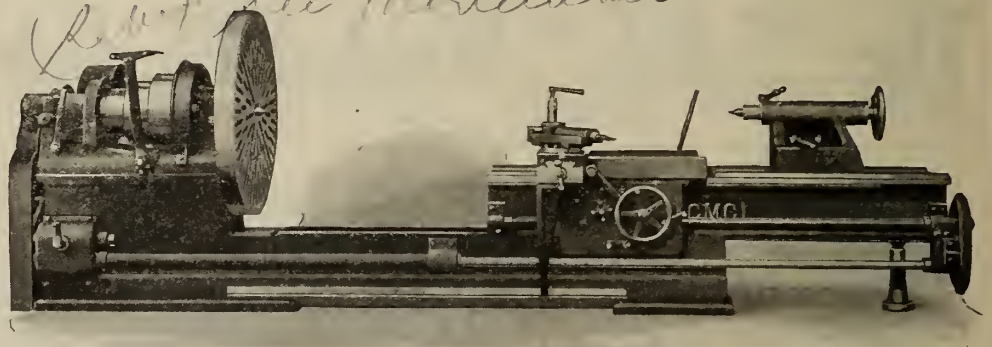

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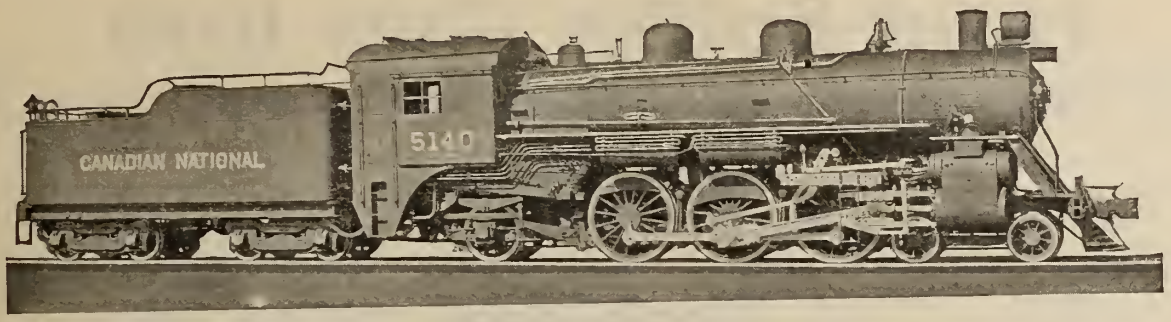

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Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

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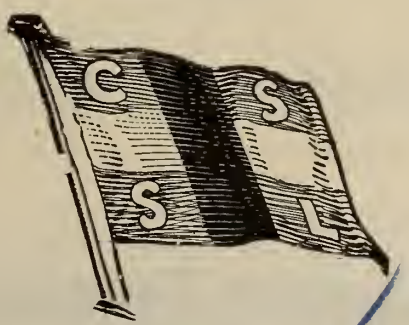

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FOR 12 OF THE PRINCIPAL PARTS OF A LOCOMOTIVE

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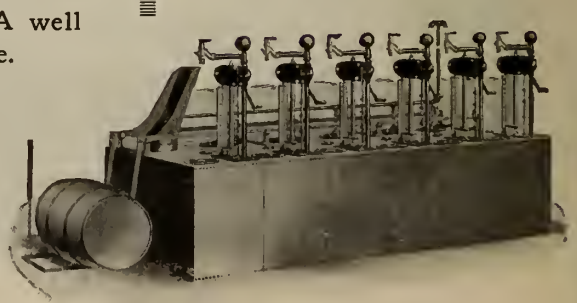

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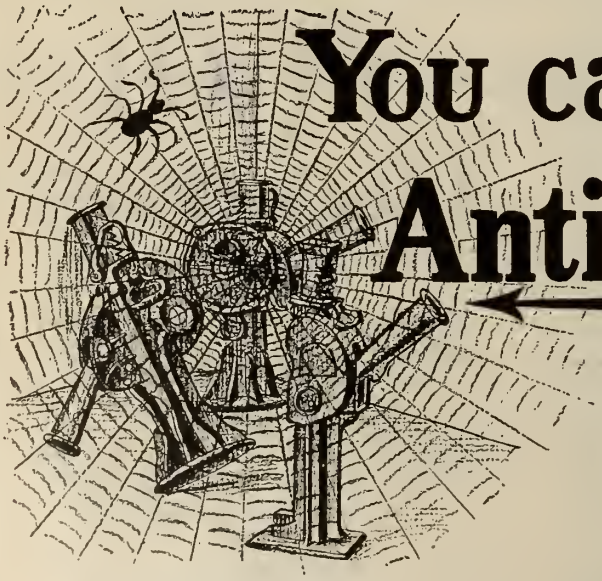

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Every ten to fifteen car passenger train is a source of worry, mainly because in certain spots it's hard to start. There is no trouble to make running time when once going. The same with long freights.

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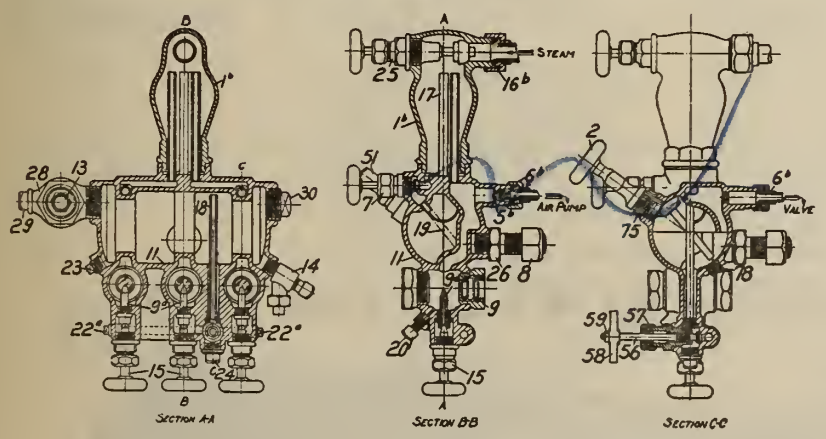

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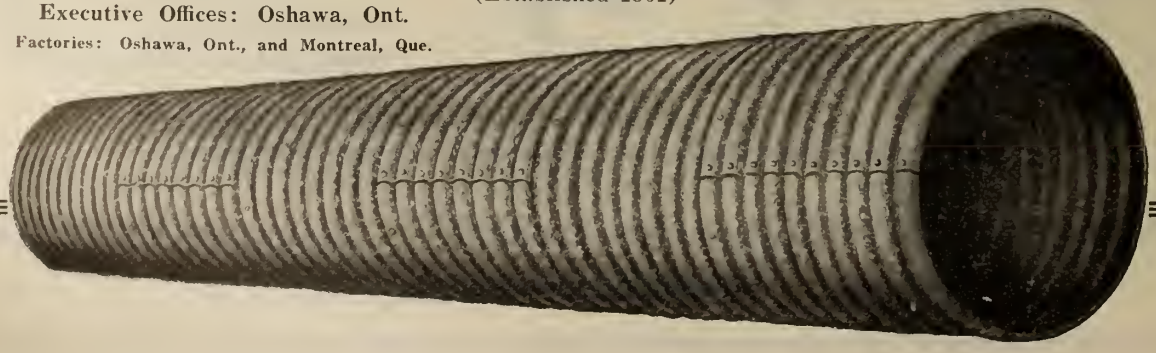

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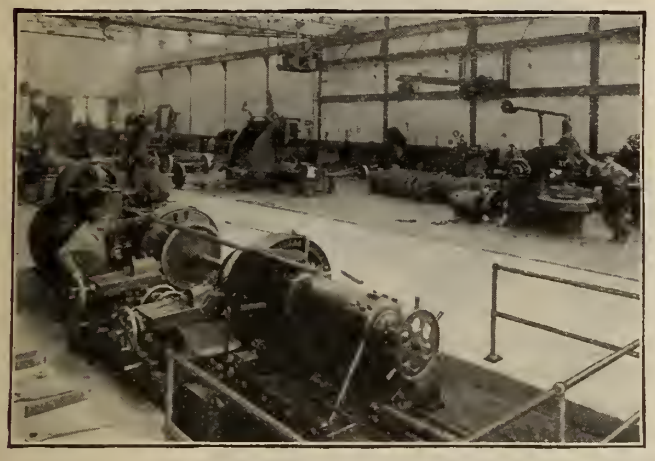

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MOHAIR PLUSH

Use mohair—Chase Goat Brand—for it is the logical and most practical of all fabrics. Why? Because it is DURABLE—lasting according to quality from eight to twenty-five years. Mohair fibre is two and one-half times stronger than wool—according to Government tests—

Because it has RICH APPEARANCE—

Because it is SANITARY—tests by Leading Railroads of America have proven it so. **Particulars on request—**

Because it is FAST IN COLOR.

For more than thirty-three years CHASE Goat Brand Mohair Plush has been the standard with America's largest railroads and steamship lines.

Recently there was exhibited a seat covering in excellent condition after a constant service of twenty-four years. It was CHASE Goat Brand Plush.

L. C. CHASE & CO., Boston, New York, Detroit, Chicago, San Francisco

Leaders in Manufacturing since 1847

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DOZENS of time and labor-saving applications have made the process of gas welding and cutting indispensable in shipyards.

Because of its uniformly high purity, exceptional portability and constant availability, Prest-O-Lite Dissolved Acetylene has proven the most satisfactory gas for welding and cutting in shipbuilding and repairing.

Our numerous plants and warehouses insure immediate deliveries of Prest-O-Lite anywhere and in any desired quantity—a never failing service that has greatly enhanced the value of Prest-O-Lite in the hundreds of yards where it is regularly used.

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Plants at:
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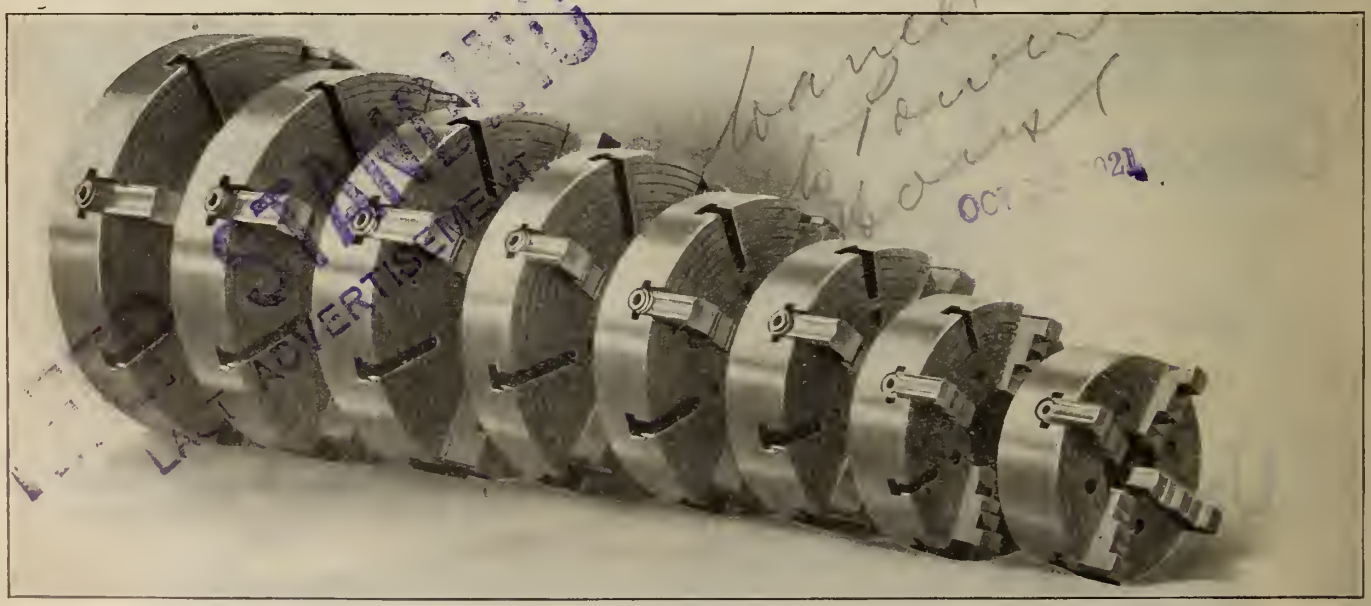
DOMINION CHUCKS



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Built for Long Life and to Stand Severe Service

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Complete Equipment

Electric or Gas

Generators, Regulators, and Fixtures.

MARINE LIGHTING

Complete Apparatus

Coasts, Harbors, and Rivers,

Buoys, Lanterns, Beacon Towers

The Safety Car Heating and Lighting Company

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The "Hancock" Loco. Coal Sprinkler—

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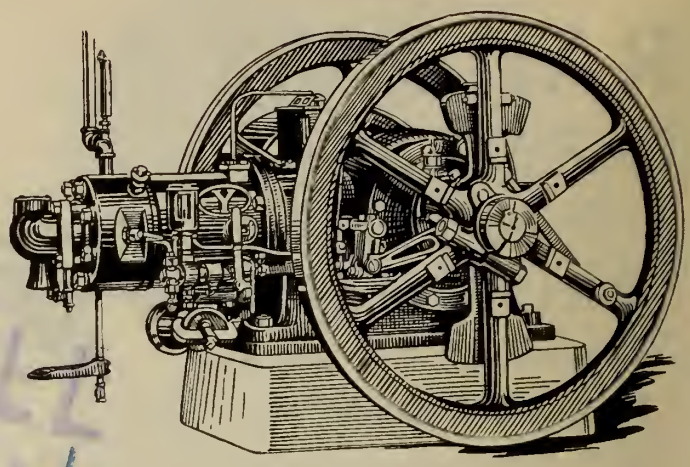

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Canadian Railway and Marine World

October, 1921

Sir Joseph Flavelle's Review of the Railway Situation, for the Prime Minister.

The following letter, to Prime Minister Meighen, from Sir Joseph Flavelle, who was selected a short time ago by the Dominion Government as one of the directors of the Grand Trunk Ry., and who was subsequently elected Chairman of the Board, was given out just as Canadian Railway and Marine World's last issue was being closed for the press, and when it was too late to use it. In view of its importance it is given in full in this issue, as follows:—

You may not consider it inappropriate if I report, in writing, upon the railway situation. There would be no acute railway problem in Canada today if, in 1903, Parliament had refused the proposal to build the National Transcontinental line from Winnipeg to Moncton; if it had refused to grant a charter to the Grand Trunk Pacific to construct a railway from Winnipeg to the Pacific Coast; and had refused the builders of the Canadian Northern further financial assistance, except as the Western division of the Grand Trunk System, carried through to the Pacific Coast. If the Grand Trunk and Canadian Northern companies had been told they must come together and constitute a second transcontinental line, the country would not have been called upon to face the present gravely serious situation, while a powerful corporation, with a serviceable railway from ocean to ocean, owned and operated by private capital, would, with the Intercolonial and Canadian Pacific Railways, have given the needed transportation facilities for the present and reasonable future requirements of Canada.

Parliament decided otherwise. It directed the construction, with public funds, of the National Transcontinental line from Winnipeg to Moncton. Concurrently, it granted the Grand Trunk Pacific a charter, with financial guarantees for both the prairie and mountain sections, to build a line from Winnipeg to the Pacific Coast, as well as a charter for Grand Trunk Pacific branch lines, and the Superior Division, from Superior Jct. to Fort William. It further lent financial assistance for the completion of the Canadian Northern to the Pacific Ocean, and facilitated the extention of the Canadian Northern east from Port Arthur through Ontario and Quebec and the Maritime Provinces. Thus, three transcontinental lines have been constructed, when two were all that the business of Canada required, or could support. Added to the three transcontinental lines, is the National Transcontinental from Winnipeg to Moncton, and the Hudson Bay Railway, projected from Winnipeg to Port Nelson.

Crippling losses through operation and fixed charges followed in these over railroaded territories. The Canadian Northern, the Grand Trunk Pacific, and the Grand Trunk Ry. Co., as the guarantor of the Grand Trunk Pacific enterprises, sought and received repeated advances from Parliament to meet the serious deficits with which they were confronted. Ultimately, Parliament refused to make further advances to these private corporations, and determined to take over, by purchase or the guarantee of securities, the several properties above indicated, including the Grand Trunk System. The effect has been to make the country responsible for the operation of 22,000 odd miles of railway, and for the interest upon the securities issued by these railways and now held by the public. These interest charges, with taxes and rental of leased roads, as of the year ended Dec. 31, 1920, amounted to $36,998,981 a year, exclusive of the interest upon the loans of $353,000,000 made by Parliament to these corporations, and exclusive of interest upon $367,000,000 invested in the National Transcontinental and Intercolonial Railways. The loans of $353,000,000 referred to include $33,000,000 Grand Trunk Pacific bonds held by the Treasury.

Moreover, as, broadly speaking, the 1,800 miles of National Transcontinental road, and 1,800 miles of Grand Trunk Pacific, and probably about 1,000 miles of the Canadian Northern road east of Port Arthur, are not actually needed for the business of the country, they will fail for years to earn operating charges, will require the country to pay their fixed charges, and will perform service of little material value for an extended period. Hence, the necessary portions of the National System (the Grand Trunk in the east and the Canadian Northern lines through the west) will, until there is a material increase in population, and corresponding increase in tonnage, have associated with them a great mileage of immediately unnecessary lines which will register operating losses for many years. In addition, the Intercolonial System, including branch lines and the Prince Edward Island Ry., aggregating 2,258 miles of road, has not generally earned its operating charges, and, under the conditions prevailing in the Maritime Provinces, may similarly fail to earn operating charges for an indefinite period of years.

Further, to enable the National System to command its share of the country's business on even terms with the C.P.R., some time during succeeding years, large capital sums will be expended for general betterment of tracks, for the consolidation of the separate lines constituting the National System, as well as expenditures for terminals in Montreal, and for the completion of terminals in Toronto. These capital expenditures will aggregate $125,000,000 to $175,000,000, and when they are completed, will constitute a new fixed charge of $10,000,000 a year in excess of the present fixed charges, and equivalent to two-thirds of the entire fixed charges upon the C.P.R., which stand at $15,910,516 a year, including rental for leased roads and taxes.

The railways' reports to the Railway Department indicate that exclusive of outside operations (such as street railway, lands, coal mines, etc.), the operating deficit for the year 1920 of lines in the National System was $32,565,105 (including the Grand Trunk System, which had a surplus of $4,507,116), contrasted with net operating revenue for the C.P.R. of $35,352,506. Adding to the operating deficit of the National System lines, the fixed charges of $36,998,981 (but excluding interest upon Government loans of $353,000,000) the deficit is increased to $69,564,176. The estimated operating losses for 1921, recently submitted to Parliament, for the National System, including the Grand Trunk, were placed at $8,377,000, which, plus fixed charges of $36,998,981, make an aggregate loss to be met by the country of $45,375,981, exclusive of the interest due the Government for advances upon loan of $353,000,000, and exclusive of interest upon the investment upon the National Transcontinental and Intercolonial Railways. The loss in operation for the first six months of 1921, which has now been established, indicates the operating loss for the year will exceed the estimate.

It should be remembered that ownership by the public establishes no exemption from conditions inseparable from successful business administration. No great business can survive if it is the contant target of unfavorable comment, and if the management is subject to sustained critical and unfriendly examination. Will Parliament, the press and the public generally, afford to the administration of the National Railways support which will permit administrative capacity of high order, or will the inevitable heavy losses for years cause unrest and distrust, or will the errors of judgment associated with all human action be magnified to the humiliation of the management, and will the political disappointment of members of the House of Commons, who cannot have their way in the administration of the property in their respective constituencies or districts, create such bitterness in Parliament and the press that men of sound capacity and fine spirit will refuse to serve? Parliament will not contract itself out of responsibility to examine critically the estimates for railway administration submitted annually to the House. It has yet to be demonstrated, however, that it will bring to the consideration of the estimates and review of the work of the management, a temper and sense of fairness which is associated with the successful administration of private enterprises. If these are denied, the administration of this publicly sound property will break down.

The C.P.R. Co. deserves well of the country. Under the guidance of two great men, now succeeded by a third, it brought faith, courage and invincible energy, with trained capacity, to the great task of building their line through the untravelled west, and subsequently completing and operating a transcontinental railway in Canada, with steamship services on the Great Lakes and on the Atlantic and Pacific Oceans. Its achievement commands the admiration of both railway experts and the public, and has been a material factor in causing Canada to be favorably known upon three continents. The company has brought pro-

fit to its shareholders, yet has become a national asset of great value and importance. This asset should be preserved. Its preservation will primarily rest upon just treatment of the private corporation by successive Governments. It will be furthered by the low fixed charges upon the property, and by the company's highly efficient operating organization.

As matters now stand, practically all the steam railways in Canada, other than the Canadian Pacific, are in the Canadian National System. Hence, there is the anomaly of 40% of the railways being owned and operated by private capital and 60% directly owned and operated on behalf of the Canadian people. This distinction in ownership was not planned. It was occasioned through the breakdown of a scheme of railway construction and operation authorized by Parliament, and carried out under private ownership. Troubles developed beyond the control of the private corporations, and Parliament, confronted with the necessity of choosing between undesirable alternatives, considered it advisable that the Government should take over the properties which were in default. Hence the C.P.R. Co. and the country are confronted with the fact, not the theory, of public ownership of railways upon a great scale, and these publicly owned properties must be operated on behalf of the Canadian people. If good sense prevails, the executive officers of the two systems will plan together to meet the transportation requirements of the country. If good sense does not prevail, both the private corporation and the public (as owner) will suffer loss through unnecessary multiplication of services, and through the absence of sanity in mutual relations, which already contain sufficient of the unnatural to breed trouble.

I assume that operations of the Government requiring railway transport, such as mails and the movement of troops, will be equitably divided between the two systems, but plainly the privately controlled business will be subjected to competitive conditions. It is but a mere platitude to state that the gross earnings of both properties are dependent upon the support given by those who require a railway to transport their commodities, or those who require a railway for personal travel. Obviously, there can be no relief from losses in operation of the National Railway, and consequent increased demand upon the Dominion treasury, except by earnings secured by the movement of freight and passengers, and revenues from express and other services. Therefore, an organized traffic department will make claims upon the Canadian people to use their own railways. A man owning a motor car, driven by his chauffeur to the place he himself desires to go, will not lightly hire someone else's car to take him to that place while his own car is only partially occupied. A man owning a motor truck, in charge of his driver for the transmission of commodities to the place which he desires to send his goods, will not lightly hire someone else's motor truck to take his goods to that place while his own motor truck is without sufficient load. There will be much advantage to all concerned if these inherent conditions are accepted as inevitable. The wisdom for such acceptance rests no less with the administrators of the great private corporation than with the administrators of the publicly owned properties, and with Parliament, to whom they are responsible.

The railways in Canada have been developed in advance of the requirements of the country. The remedy cannot be found in now materially reducing the miles of railway operated, although economies in this respect will be made if sound practice prevails. Apart from better operating conditions incident to consolidation of the National lines in one system, the chief remedy will be found only in increased population, and consequent increased tonnage of commodities for movement by the railways, and increased passenger, express and other revenues. Canada must secure this increase through settlers who will occupy the unoccupied land in the west. The carrying out of this work should be entrusted to the best available talent for the purpose, and should command the Government's foremost consideration. There should be no stint in the resources placed at the command of those in charge of the work. Colonel Dennis, Chief Commissioner of Colonization and Development, of the C.P.R., in giving his testimony at the Grand Trunk arbitration, said: "Some years ago J. J. Hill made the statement that a farmer adjacent to the Great Northern was worth $1,000 a year to it. That figure was used for a long time, and it would look as if Mr. Hill was a fairly good guesser, because, when we get down to the actual facts, we get the figure of $743."

In addition to the efforts of the Government's Immigration and Colonization Department, the Canadian National Rys. and the C.P.R. should enlarge their departments for the colonization of the lands contiguous to their systems. The officers of these departments, and the officers of the Government, should co-operate in well-considered plans which would compel results.

The method of accounting in the various railway companies entering into the National System records in each separate unit the tonnage which passes from one unit in the system to another, with the result that it is difficult, without labor involving much expense, to secure a statement as to the net number of tons hauled by the united railway system. For purposes of comparison, however, the Grand Trunk System affords an opportunity to estimate the effect of short haul traffic, which is noticeable in that system, as compared to long haul traffic characteric of the C.P.R. The G.T.R. System operating 4,775 miles of road, during 1920 moved 33,026,658 actual net tons, and was paid for the service $80,686,623. The C.P.R., operating 13,402 miles, moved 29,919,645 tons, for which it was paid $143,878,185. You will observe that the G.T.R., moving 3,100,000 tons more freight than the C.P.R., received in payment $63,191,562 less for its services than that company. The greatest single factor in this remarkable difference is that, while the C.P.R. carried each ton an average of 463 miles, the G.T.R. carried each ton an average of 212 miles. Or, stated in another way, the C.P.R. received $4.81 for each ton, while the G.T.R. received $2.44 for each ton. The costs at terminals, to collect and distribute, including switching, are as much per ton whether the freight is short hauled or long hauled. Consequently, there is an added burden affecting net returns by reason of the heavier terminal charge relatively in the short haul business.

In a less pronounced manner the exhibits of the other divisions of the Canadian National System make the same showing in contrast with the C.P.R. The Canadian Northern Division, operating 9,868 miles of road, moved 14,504,411 tons, for which it received $48,074,193. Its unfavorable showing in relation to the C.P.R., as far as miles per ton carried is concerned, is that its average in miles for each ton was 326, for which it received $3.31 a ton.

An analysis of the passenger service for the Canadian National System and Grand Trunk, in contrast with the C.P.R., reveals the same conditions. The miles the C.P.R. moved each passenger greatly exceeds the miles which the G.T.R. moved each passenger, and, though relatively less, the miles each passenger was moved by the Canadian National System.

On the side of gross earnings, these figures plainly indicate that the National System should diligently cultivate the long haul business, both in passengers and freight. It also crosses the continent, and should secure its share of transcontinental tonnage and passengers. If any mileage of the tracks is not equal in standard to the C.P.R., the necessary expenditures should be made to correct the deficiencies. If the information were available, it would probably be found that the C.P.R. has most valuable earnings from its long haul in transcontinental tonnage, originating in the Orient and European ports. The overseas movement of this tonnage is controlled by the company's ocean steamships, and the land transportation across the continent is controlled by the company's railroad. It is apparent that the management of the National System should secure a large share of this business.

There has been an important increase in gross earnings in the various railways during recent years. A consideration of the G.T.R. records will be useful in determining how much of the increase is due to increased traffic, and how much to higher rates. For this purpose, I compare 1911 to 1920. The G.T.R. gross earnings for the year 1911 were $46,465,636, and for the year 1920 $110,796,595, an increase of 138.45%. In each year the same mileage was operated. The freight revenue portion of this increase was $51,327,994, or 174.83%. The increase in freight revenue due to increased freight traffic was $18,912,915, or 64.42%, and the increase due to increased rates was $32,415,079, or 110.41%. Comparing passenger revenue for 1920 with that of 1911, there was an increase of $8,251,684, being 63.17%, all of which was due to increased rates. There was an actual reduction in traffic of $38,077. Mail revenue increased $342,000, or 54.76%, of which 3.8% was from increased traffic and 50.95% from increased rates. Express revenue increased $1,765,342, or 117%, of which 72.88% was due to traffic, and 44.50% to increased rates.

The operating charges of the C.P.R., the Canadian National as at present administered, and the Grand Trunk System, are unfavorable to the National and Grand Trunk lines. In 1918, 1919 and 1920 the operating ratio (i.e., the gross expenditure for operating compared with gross revenue) of the various units was:

	1918	1919	1920
Canadian Northern....	*87.42%	112.94%	125.25%
Intercolonial	111.02%	112.11%	†123.46%
Nat. Transcontinental	124.50%	122.95%	
Grand Trunk Pacific.	109.80%	155.55%	170.33%
Grand Trunk System	87.41%	83.43%	95.94%
Canadian Pacific	74.24%	81.71%	83.76%

*Year ended June 30.

†Intercolonial and National Transcontinental combined in 1920.

Apart from any other causes, the extensive mileage of the National and

Grand Trunk Systems combined, with shorter haul and consequent lower earnings per ton, constitutes a greater overhead and less favorable net return. A consolidation of the Grand Trunk System and the Canadian National as now administered, into the Canadian National Ry. Co., with one organization, will introduce economies which will be reflected in reduced operating charges. It will be wise, however, to guard against optimistic belief that such economies will be reflected immediately following the reorganization. It will take time to establish smooth working conditions in the readjusted body, and not much, if any, relief will be secured until the new organization is shaken down and establishes well balanced qualities.

I attach a memo giving summary of mileage, investment, capitalization, gross and net earnings, fixed charges, operating ratios and revenue statistics of the railways entering into the National System, as well as the C.P.R. From this statement you will observe the total investment in the railways in the National System, including the Grand Trunk, is $1,652,107,965 for 19,433 miles of road owned, being an average cost of $85,000 a mile, in contrast to a cost of $83,117 a mile for the C.P.R. Both systems have considerable double track mileage.

When the railways in the United States passed through their successive periods of depression which discovered the errors of their promoters, relief from interest charges upon outstanding securities was secured through the roads passing under the control of receivers. In the reorganization following the receivership, the outstanding securities were cancelled in whole or in part, or the old mortgage securities were exchanged for income bonds, or for a reduced amount of other mortgage securities, or for issues bearing a lower rate of interest than applied to the defaulted issue. Thus, the fixed charges upon capitalization of over-railroaded communities were kept within compass. In the development of the Canadian railway systems, in which the Government was practically a partner, through guarantees, or through heavy advances to the several corporations, relief through receivership was not considered advisable, or possible. In consequence:

1. The securities issued for the construction of these railways, unreduced by reorganization, are held by the public, and the National Railway System must meet the interest as it matures. The interest amounts to $32,539,471 a year.

2. There will be an increase in interest bearing securities through an issue to provide money to meet the railway appropriations authorized by Parliament at its last session. Interest upon these securities will approximate $7,000,000 a year.

3. Inasmuch as it will be necessary to make improvements chargeable to capital, involving an expenditure of $125,000,000 to $175,000,000 upon the National System during the next five to seven years, there will develop an interest charge upon the securities issued to meet these expenditures, when completed, of $10,000,000 a year.

4. The Dominion Treasury has loans outstanding against the railways in the National and Grand Trunk Systems, aggregating $353,000,000. Interest upon these loans is now being debited by the Treasury to the National and Grand Trunk Systems, and constitutes part of their annual deficits. If this interest charge is continued at 5%, a sum exceeding $16,000,000 a year will be required to meet it.

Summing up these four items of charges, and adding taxes upon railway properties, and rental upon leased lines, which in railway accounting are considered as fixed charges, you have the following:—

Annual interest charges upon securities in the hands of the public	$32,529,471
Annual interest upon issue to meet railway appropriations authorized by Parliament at its last session	7,000,000
Interest upon capital improvements to be made during the next five to seven years	10,000,000
Interest upon Government loans of $353,000,000	16,000,000
Taxes and rental for leased lines	4,459,510
Total	$69,988,981

To this total must be added the interest upon the award, if any, of the arbitration upon Grand Trunk common and preferred stock, as covered by the agreement with the Grand Trunk shareholders.

As an offset to these charges, there are annual earnings aggregating about $4,000,000 from investments in securities of other companies and for use of system equipment by other companies, also rentals, etc. This indicates that the National Railways System would be asked to operate ultimately with net fixed charges aggregating $66,000,000 a year, in contrast with $15,910,516 a year for the C.P.R.

As, however, the C.P.R. pays preferred and common stock dividends of $21,427,276 from its railway earnings, and as the National Railways System will not pay dividends upon its share capital, it may give a truer comparison of the payments to be made out of railway earnings of the two systems if the $15,910,516 of fixed charges of the C.P.R. plus the $21,427,276 paid in dividends, or $37,337,792, are compared with the fixed charges of $66,000,000 to be paid by the National System. Dividends upon share capital are not, however, obligatory obligations, and can be discontinued by the C.P.R. without penalty to the control of its property by the corporation, but failure by the National System to pay fixed charges, and refusal of the Treasury to meet them, would mean the appointment of a receiver and the consequent passing of the control of the property. (The C.P.R. pays additional dividends of $7,800,000 derived from earnings received from activities other than the railway in Canada.) Manifestly, the Canadian National System, with its sound transcontinental line that is not immediately required, plus the burden of the National Transcontinental and Hudson Bay Railways, cannot possibly bear fixed charges of such magnitude.

Remedy Suggested. — Something like the following way of dealing with the situation would relieve the National Railways. The Dominion Treasury cannot be relieved except through increased earnings. That the new National Railway Co. to be formed shall have a nominal capital of, say, 5,000,000 common shares and 2,500,000 6% preference shares—each share par value $100. The total authorized capital would thus be $750,000,000. That the Government take common shares at par, in payment of its existing advances to the various systems. These, as of Dec. 31, 1920, were $320,000,000 of loans and $33,000,000 of Grand Trunk Pacific debentures. The figure would no doubt be increased by Dec. 30 next, or whatever date was fixed for taking over. The Government would turn over to the company the equity in the system, subject only to the bonds and debentures and guaranteed stock issued to the public, and to the fixed charges which may result from the Grand Trunk arbitration. Thus, the existing Government advances, excluding the capital cost of the Intercolonial and Transcontinental, would be represented by common stock ownership only, and no part of the interest on it would be a fixed charge or would be cumulative.

As regards the future: When the issues of National Railway securities incident to the immediate plans of the Finance Minister are completed, I would suggest that any expenditure which can or should properly be charged to capital shall be provided by the Government from year to year, and be capitalized by the issue to the Government of a preference stock at par in respect of its capital advances. Any annual deficit, on the other hand, which has to be met by the Government through the failure of operating revenue to cover operating expenses, plus fixed charges due to the public, should be met by an issue to the Government of common stock at par. Thus the company at the commencement would have the whole of its preference stock unissued, i.e., $250,000,000, and also $172,000,000 of common stock unissued. The preference stock would be issued only against capital expenditure advanced by the Government. The balance of common stock would be issued to capitalize the operating deficits and fixed charges over the next few years. The result of this would be as follows:—

1. The cost of constructing the Intercolonial and Transcontinental Railways would be written off at once.

2. The further actual cost up to date to the Government of acquiring the various systems (except for the fixed charge incurred in respect of the Grand Trunk acquisition) would be converted into the form of common stock.

3. Future capital provided by the Government for betterment, etc., would take the form of preference stock.

4. Future deficits would, for the time being, be converted into common stock until it appeared that there was a prospect of the company being able to pay them off out of the excess earnings within a reasonable number of years.

On some plan like this, the accounts of the company would show clearly from the arrangement of the capital itself:

(a) What the cost to the Government had been of acquiring the system (after writing off the Transcontinental and Intercolonial), since this would be represented by the common stock.

(b) What losses were sustained in operation and in payment of fixed charges, since these would be represented by the increase in common stock over the original issue to cover advances when the new company was formed.

(c) What additional capital expenditure the Government had made to the railway system after its unification, since this would be represented by the preference stock.

(d) What obligations were due to the outside public, since these would remain in the form of bonds, debentures or guaranteed stock on the existing systems.

Plainly, we should face the fact that the $353,000,000 of loans have no immediate interest bearing value; that until the National System is upon a paying basis, the annual deficits in operation and fixed charges are an actual and irre-

coverable loss, and should not be carried as an active debit against the railway.

There are two great departments in a railway organization — the one, traffic, which directs its energies to secure freight and passenger business; the other, operation. The duty of operation is to take care of the business thus obtained. The department charged with operation has to do with all matters affecting transportation, including engineering problems, motive power, equipment, maintenance of way, and general co-ordination and direction of the immense body of men and activities involved in the operation of the railway. The chief traffic officer constantly presses his associate in operation for better service to assist him in securing business. The chief operating officer constantly presses upon his associate in traffic for greater tonnage and more passengers to give adequate return for the service supplied. The united effort of these two departments will, in the course of years, reflect the vision, capacity and vigor of the chief officers and their associates, and will establish their sense of responsibility for service to the public. Hence, one system of railways earns a wide reputation for excellent service, and another system is said to fail in essential qualities.

The immediate and sustained duty which will confront the chief executive head of the National Railway Co., when the selection is made, will be to develop an organization which will secure a full share of the country's business, and will establish operating costs within reasonable limits, while giving to the public a service as excellent as circumstances may warrant. It will fall to the lot of but few men to undertake a task of such moment and magnitude. Whether the senior executive officer be a man of affairs, or a man conspicuous in railway traffic, or railway operation, he must be given freedom in determining the character of organization which he will establish, and the men he will bring to his help in the conduct of the enterprise.

You will remember that there are three organizations which are to be merged into one when the National Railway Co. is established — the Grand Trunk, the Canadian Northern and the Intercolonial. These contain, in all, some 800,000 employes, staff and officers. Much patience and good sense will be required to establish an esprit de corps in this great body of men in the new organization. Their goodwill and loyalty are vital in the long struggle which must precede the ultimate successful operation of the property. It is very desirable, if it is possible, to secure leaders for the departments from the personnel of the present organizations. Such a selection will secure the support of the officers and men, and will be of substantial assistance in developing the qualities needed for an uphill fight. The determination whether this is possible or not, however, must rest with the senior executive of the company.

In the interval between the present alarming losses in operation and fixed charges, and the ultimate successful operation of the properties, the patience of all concerned will be severely taxed. It should be accepted that the conditions responsible for the present and anticipated unfavorable results cannot be remedied in short order through the administrative genius of a superman. They are inherent, and will, for years, register disappointment and loss. They will yield only to the patient and capable administration that develops power and efficiency, supported by increased tonnage made available through increased population.

There is no burden which the Canadian people are called upon to bear that should occasion fear. The abundant resources of the country and the character of the people will enable the country to meet every obligation. There will be periods of readjustment, when anxiety and concern will be present, but these will always pass. When the construction of the C.P.R. was proposed there were leaders in Parliament who sincerely thought the enterprise was doomed to failure. Within 30 years, men whose opinion upon financial matters was considered authoritative predicted the C.P.R. would pay no more dividends. We will have an uncomfortable time for years with this publicly owned railway property, but we need not give way to fear if we retain patience and balance, and afford a publicly owned property, developed before its time, but with unlimited credit, an administration operating under conditions reasonably corresponding to those present in successfully operated private properties.

If politics will permit, and Parliament and the press will allow the necessary freedom and give the necessary support, the gravity of the issues should command resourceful leadership. Given such leadership, with sufficient time to work out the problem, a National System which will pay its way will in due course emerge. I do not venture an opinion as to what will happen to these great properties if politics will not permit and Parliament and the press will not allow the necessary freedom and will not give the necessary support to the administration of publicly owned railways.

Traffic Orders by Board of Railway Commissioners.

Grain Rates, Georgian Bay to Quebec.

31,313. July 26.—This order was published in Canadian Railway and Marine World for September, pg. 467. Following is Chief Commissioner Carvell's judgment, on which the order was based:

The application, as I construe it, was based upon two grounds, first, that Quebec was being discriminated against in the export trade, because the rate to Quebec was ½c. per 100 lb. higher than to Montreal, whereas the all rail rate from Fort William and Port Arthur to Quebec was the same as to Montreal; and, second, that Quebec was being discriminated against because it was given the same rate as St. John, N.B., Portland, Me., and Boston, Mass., which are all a greater distance from Georgian Bay ports than is Quebec.

W. B. Lanigan, for the C.P.R., and D. O. Wood for the G.T.R., explained the reasons for both of these apparent discriminations. It was explained that, prior to the construction of the National Transcontinental Ry., the all rail rate from the head of the lakes to Quebec was greater than to Montreal, because of the greater mileage, excepting for a few years from 1900 to 1903, when the old Great Northern Ry., then acting in conjunction with the Canada Atlantic, granted the same rates to both ports; but, after the construction of the National Transcontinental, the distance from Armstrong, which would be practically opposite Port Arthur and Fort William on both the C.P.R. and C.N.R., to Quebec, was 945 miles, whereas the distance from Fort William to Montreal is 998 miles. The rate of the shorter distance prevailed, and, from that time to the present, the all rail rates to both ports have been the same.

As to the second point, Mr. Lanigan entered into a lengthy explanation of the conditions governing export rates on grain. The grain is assembled, either at Port Arthur or Fort William, and West Fort, on the Canadian side of the line, or at Duluth on the U.S. side. It is then, as far as possible, carried by water from the head of the lakes to Port McNicoll, Tiffin, and Goderich (called the Bay ports), and Port Colborne, in Canada, and to Buffalo, in the U.S. It seems that, for many years, Philadelphia has enjoyed a 1c. lower rail rate from the Great Lakes than has been granted to New York. The reason was not explained, but I have always understood it was because of the natural advantages possessed by New York over other ports, in the tremendous amount of shipping, cheap insurance, and other things by which that port can command a large amount of traffic, even with a handicap of 1c. per 100 lb. For many years past, Montreal has enjoyed the Philadelphia rate, I understand because of its natural disadvantages as compared with New York, such as the absence of a great amount of shipping as compared with the latter port, and the higher insurance rate owing to the alleged dangers of the St. Lawrence route. Once the grain is landed in the elevators at the Bay ports or Buffalo, a new contract of carriage then arises. either by water in the St. Lawrence and Erie Canal movement or by rail, and all the ports on the seaboard practically must be given the same rate, otherwise the business would all go to the ports enjoying the more favorable rate, excepting, as hereinbefore mentioned, that Philadelphia and Montreal take a rate of 1c. below the New York, Boston, Portland, St. John, and Quebec rate. Even with this handicap, millions of bushels of Canadian wheat are annually diverted from Montreal to New York purely for economic and business reasons.

It is not my intention to enter into a discussion as to the advantages of Quebec as compared with other ports. Without a doubt, it possesses a splendid harbor, ample dockage, and reasonable elevator space, and, could the grain be landed there as a business proposition, every facility exists for speedy and economical transshipment. On the other hand, however, the distance from the Bay ports to Montreal is 371 miles, and to Quebec 532 miles, or 161 miles greater to Quebec than to Montreal. It was argued that the Board would have the power to direct the railway companies to grant the same rate to both Montreal and Quebec. That, I believe, is correct, but, on the other hand, this Board is directed by the Railway Act to grant to the railway companies just and reasonable rates, and I am at a loss to see how we can contend that we are carrying out the law in granting a rate to Quebec the same as to Montreal under the mileage

conditions just above described. I know in answer to this it will be argued that Canadian railways are carrying grain to St. John, N.B., a distance of 500 miles beyond Montreal, for 1c. per 100 lb. over the Montreal rate; and to Portland, which is 297 miles beyond Montreal, at the same rate as to St. John; but, as explained by Mr. Lanigan, they are compelled to grant these rates in order to get the business by Canadian channels. If the same rates, especially during the winter, were not given to St. John, and Halifax with 1c. over St. John, as are granted to Portland, Boston and New York, not a bushel of grain would move through the Canadian ports, and hence, as stated by Mr. Lanigan, it is purely a question of compulsion in order to get the business. These conditions, however, do not exist as between the ports of Montreal and Quebec, and I fail to see how this Board would be justified in forcing the railway companies to carry this grain 161 miles beyond Montreal absolutely free. Therefore, I think the application should be dismissed.

This judgment was concurred in by Deputy Chief Commissioner Nantel, and Commissioner Rutherford.

Stop off Arrangements for Agricultural Products.

31,329. July 28.—Re application of C.P.R. Co. for an order authorizing it to cancel the stop off arrangements at Montreal, Outremont, Toronto and West Toronto, on shipments of grain products, hay, and potatoes for inspection and forwarding orders. Upon hearing the application at Ottawa, Dec. 21, 1920, the C. P.R., the Toronto and Montreal Boards of Trade, and the Montreal Corn Exchange Association being represented, and upon reading the written submissions filed, the Board orders that the company be granted leave to cancel the stop off arrangements at Place Viger, in Montreal, and at Simcoe St. and the Esplanade, in Toronto. Inspection to be retained in all cases as it now exists, and stop off for inspection, change of destination, or for orders, to be retained at Outremont and West Toronto, or Lambton, as at present.

Grain Rate from Head of Lakes to Levis.

31,342. July 25.—Re application of Chamber of Commerce, Levis, Que., for a reduction in the rate on grain and grain products, carloads, from Western Canada to Levis to the same basis as in effect to Quebec City. Upon hearing the application at Quebec, Feb. 3, 1921, in the presence of counsel for the Canadian National Railways, the applicant and the Quebec Board of Trade being represented at the hearing, and what was alleged in support thereof; and upon reading the further submission filed, the Board orders that the Canadian National Rys. be authorized to file a rate on grain and grain products, in carloads, from the head of the lakes to Levis, Que., of 40½c., the same as that which is now in effect to Quebec City.

Nipissing Central Railway Passenger Fares.

31,361. Aug. 12.—Re application of Nipissing Central Ry. Co. for approval of its Standard Passenger Tariff of Maximum Tolls C.R.C. 23. The said tariff having been filed on the basis prescribed in order 31,317 of July 27, the Board orders that it be approved.

Charges for Weighing Carload Freight.

31,379. Aug. 13.—Re application of Thos. Myles' Sons, Hamilton, Ont., for an order suspending operation of items in Canadian Freight Association's Tariff C.R.C. 45, providing increased charges for weighing carload freight. Upon hearing the application in the presence of counsel and representatives for the applicants, the Canadian Lumbermen's Association, the Montreal and Toronto Boards of Trade, the Canadian Freight Association, the Canadian Manufacturers' Association, the Union Lumber Co., the Laidlaw Lumber Co., and the Canadian Pacific, Grand Trunk and Toronto, Hamilton & Buffalo Railway Companies, the evidence offered and what was alleged; and reading the written submissions filed, and the reports of the Board's Traffic Officers, the Board orders that the application be dismissed.

The Assistant Chief Commissioner, S. J. McLean, prepared the following memorandum on the case for the Chief Commissioner:—It appears that on the average the movement on the T.H.&.B.R. from the Thomas Myles' Sons' plant is 1.62 miles, while from the Grand Trunk scales it is 1½ miles. The service involved is, as pointed out in Mr. Brown's report, made up of two factors, 50c. a car for weighing, and a switching charge as follows: 1c. per 100 lb., minimum $5 a car, if weighed before placement, and 2c. per 100 lb., minimum $10 a car, if weighed after placement. The reason for the 2c. per 100 lb., minimum $10 a car, in the latter case, is that two switching movements are required. It seems to me that the matter must be looked at from the standpoint of the switching service. I do not think the charge of 50c. for weighing is out of line; and, further, as to this charge, the complainant is safeguarded by sec.. 18, in conjunction with sec. E of Rule 7, Tariff 14, C.R.C. 45, effective May 25, 1920. This is a Canadian Freight Association tariff, dealing with special and joint freight tariff rules and regulations governing weighing of freight traffic. It provides for a tolerance "on all other freight (including coal and coke) the weight of which is not subject to change from its inherent nature, 1% of the weight of the lading, but not less than 500 lb. a car." This provision is in accordance with what is set out as to "tolerance" in sec. 4 (c) of General Order 283, in the matter of track scale allowances, also of tolerance. Under this provision, a 50 ton car would have a tolerance of 1,000 lb. Under these sections, if the car is found to be short less than the tolerance, the shipper stands the cost of weighing; if the shortage is in excess of the tolerance, the railway stands the weighing.

The 1c. local switching charge is, in general, the minimum applicable. The switching tariff for Hamilton, for example, shows switching rates of from 2 to 3½c. per 100 lb., rates of 2 and 2¼c. being very common. It might be argued that in the case of the local switching service, a special service was being done for the individual concerned and that, therefore, the analogy would be imperfect between this and what is involved in Myles' case, for it might be urged in Myles' case that the hauling of the car to the weighing scales was due to the railway being short in its weights; and it might then be urged that it was unfair to charge a man for a railway service, that is to say, local switching, in connection with the checking up of railway shortage. Myles, I understand, in every case desires the car to be weighed, assuming it to be short, but, leaving this aside, I think he is adequately safeguarded, because under sec. 18 of the tariff already cited, and referring to secs. 14 to 17, inclusive, provision is made that neither the weighing charge nor the switching charge shall apply if on weighing the shortage of the load is found to be more than the tolerance as provided in rule 7, sec. E of the tariff. The situation then is that if the car has a shortage of less than the tolerance Myles has to stand the weighing charge and also the switching charge; if it has a shortage in excess of the tolerance, the railway has to stand both the weighing and switching charge. I see no reason why the car should be hauled free of local switching charge, on mere suspicion. If the applicant has good evidence which stands the test of weighing, he is amply safeguarded.

This was concurred in by the Chief Commissioner, the Deputy Chief Commissioner and Commissioner Boyce.

Express Rates on Fruits and Vegetables from T.H. & B. Ry. Points.

31,400. Aug. 17.—Re complaint of Dominion Agriculture Department against rate on fruits and vegetables from points on the Toronto, Hamilton & Buffalo Ry. to Hamilton for shipment beyond, charged by American Railway Express Co. Upon reading what is filed in support of the complaint and on behalf of the American Railway Express Co., the Board orders that the American Railway Express Co. be required to publish and file a tariff showing a proportional rate of 24c. per 100 lb. on fruits and vegetables from shipping points on the T.H. & B.R. to Hamilton, applicable to shipments destined beyond Hamilton; the same to become effective Aug. 27.

Scrap Iron Rate from Canada to United States.

31,405. Aug. 6.—Re complaint of Consumers Metal Co., Montreal, against rates charged on scrap iron from Canada to the United States. Upon hearing the complaint at Montreal, March 23, the applicant and the G.T.R. being represented at the hearing, and what was alleged; and upon reading the written submissions filed, the Board orders that the complaint be dismissed.

Revised Ratings on Rubber and Rubber Articles.

31,406. Aug. 6.—Re application of the Rubber Association of Canada, Toronto, for revised ratings on rubber and rubber articles as they appear in supplement 15 to Canadian Freight Classification 16. Upon hearing the aplication at Ottawa, March 15, the applicants, the Canadian Freight Association, the Toronto Board of Trade, and the Grand Trunk, Canadian Pacific and Canadian National Railways being represented; and upon reading the written submissions filed, the Board orders that item 12, page 45, of Supplement 15 to Canadian Freight Classification 16, be corrected to read as follows:—

	L.C.L.	C.L.
Tires, rubber, pneumatic (See note 1)—		
In wrapped bales or wrapped bundles (see note 2)	1½	
In metal strapped and sealed bundles (see note 3)	1	
In boxes or crates	1	
Loose or in packages, c.l. minimum weight 20,000 lb. (see note 4)		3

That item 16, page 45, of Supplement 15 to Canadian Freight Classification 16, be corrected to read as follows:—

	L.C.L.	C.L.
Tire Tubes—		
In boxes or crates	1	
In packages named; c. l. minimum weight 20,000 lb.		3

Note 1.—Ratings apply also on tires containing inner tubes.

Note 2.—Wrapping must be burlap; or of paper and burlap; or of waterproof paper reinforced with a cotton cloth of not less than 40 x 40

threads to the inch, the combined wrapping material having a resistance of not less than 60 lb. to the square inch, Mullen test; or of two thicknesses of waterproof paper, fastened together with a waterproof composition and containing parallel strands of yarn not more than ⅜ in. apart, the combined wrapping material having a resistance of not less than 60 lb. to the square inch, Mullen test; or of a waterproof material produced by uniting with a waterproof composition two thicknesses of paper, each weighing not less than 60 lb. to a ream (480 sheets 24 x 36 in.), the combined wrapping material having a resistance of not less than 100 lb. to the square inch, Mullen test.

Note 3.—Wrapped to comply with note 2 and strapped with not less than 2 metal straps not less than ¾ of an inch in width, and not less than 0.015 of an inch in thickness, and having a tensile strength of not less than 500 lb. and sealed with metal seals.

Note 4.—Tires when shipped loose must be loaded and unloaded by owners.

And it is further ordered that the changes herein mentioned be made effective forthwith in Supplement 17 to Canadian Freight Classification 16.

Rates on Sugar from St. John, N.B., to Levis, Quebec and Montreal.

31,407. Aug. 22.—Re complaint of Atlantic Sugar Refineries, Ltd., of Montreal, against cancellation by C.P.R. of rates on sugar from St. John, N.B., to Levis, Montreal, and Quebec. The matter having been considered at a meeting of the Board in the Chief Commissioner's office on Aug. 19, the Board orders that item 863B, as published in Supplement 19 to C.P.R. Tariff C.R.C. no. E-3808, effective Sept. 6, be suspended until a further order is made after hearing the complaint at the first September traffic sittings in Ottawa.

Commodity Rates on Coal Briquettes from Toronto.

31,439. Aug. 23.—Re complaint of Nukol Fuel Co., Toronto, against cancellation of commodity rates on coal briquettes from Toronto. Upon hearing the complaint at Toronto, May 27, the complainant, the Grand Trunk, Canadian Pacific and Canadian National Railways being represented; and upon the report and recommendation of the Board's Traffic Officer, the Board orders that the complaint be dismissed.

Additional Traffic Orders appear on another page farther on in this issue.

President Beatty, of the C. P. R., on Canadian Railways Position.

During his recent inspection trip of C.P.R. Western Lines, E. W. Beatty, K. C., President, and the official party accompanying him, were entertained at dinner at Moose Jaw, Sask., by the Board of Trade and the Kiwanis and Rotary Clubs, combined. In responding he said in part:—I know there is abundant ground for difference in opinion about many subjects pertaining to railways, and it is not my purpose to deal with questions of past policies. We would not be right, however, in assuming that we have reached a finality in the railway situation and the end of the problems it represents. I doubt whether, for many years, any of us will be able to say that the railway problem is behind us, and, therefore, that we need not give serious or particular attention to it. The size of the country, and the magnitude of the systems, render it quite unlikely that a permanent solution has yet been reached, and if it has not, then the subject will for some time be one in respect of which all Canada should be profoundly concerned. The railways are our greatest national necessity and at the moment they are a great national burden, but, whatever we may think of the different policies of administration which are advocated in different quarters, there at no time existed, as exists today, the necessity for keener appreciation of the problems of the companies or of sympathetic assistance towards their ultimate solution.

Never in the history of this country were greater efforts made by the railways to capitalize public opinion in their favor and gain strength from public support than is the case today. It would be a pity if these efforts were neutralized, by misunderstanding or failure on the companies part, to not only do their full duty, but also to take the public into their confidence in respect of the difficulties which they have to meet. I would regard it the part of, not only wisdom, but ordinary common sense, that the utmost candor should be shown by the officers of the companies, in order that the support and sympathy which they need should be obtained in full measure. We are apt only to discuss before courts and commissions the questions of the differences between the public and ourselves. That, to my mind, is a mistaken policy. The questions are so important, and the necessity of information in respect of them so great, that they should be publicly and frankly discussed, in order that all misapprehensions may be removed, or, if not, minimized to the greatest possible extent. The question of rates will always be a subject in respect of which there will be a difference of opinion, due to the difference in interest, and also the difference in the point of view. The recent increases granted in Canada and the United States were accepted as necessary in the latter country, but were somewhat misapprehended in certain parts of Canada, notwithstanding the fact that Canadian rates are lower than those on U.S. railways, and the necessities of Canadian railways are equally great. A good deal of this misapprehension would be removed if the people knew or cared to know (and in some cases they do not care to know) more of the conditions under which the operations of the companies are carried on, and showed to them a more generous attitude; an attitude which, I may add, in my opinion, would prevent more awkward complications in the future.

One of the small beginnings which has added to the difficulty of the railway situation in the U.S. was this very lack of appreciation of the railway companies' needs by public tribunals, up to 1917. The railways were not altogether free from blame in bringing this about, because initially their attitude of inelasticity in dealing with the public developed a sentiment which found reflection in acts of Congress relating to transportation and to the administration under which they were passed. The Interstate Commerce Commission seemed, in former years, to regard it as its paramount duty to permit the railways to suffer, if by so doing the public interest was temporarily advantaged. Obviously this was a wrong view, and has since been corrected by statute. The duty of any commission so established is to protect the interest both of the companies, and the proprietors of their influence should be directed in favor them, and the public, rather than that of either one or the other of the parties in any controversy affecting the railways and the public.

Now whatever may be said of our railway mistakes of the past, it cannot be said that during the last few years Canadian railways have exacted more in tolls for their service than they required. The companies have not been in the slightest degree profiteers, and their earnings, where there were earnings, have been moderate to a degree. In spite of these factors, and the strain upon them by war activities, they were able, during the last five years, to perform a transportation service which, for efficiency and effectiveness, was unequalled in any country in the world. It is significant, too, that while the so-called increased cost of living has been met, in whole or in part, by wage increases, and while the increase in the price of commodities has enabled the traders in them to have secured in many instances the same or higher relative profits than before the war, in no case in Canada has the holder of a railway security obtained more than he did formerly, and what he received, by way of interest or dividend, was, up to last year, due to the diminishing purchasing power of the dollar, worth half what it was even as recently as 1916.

The increases which were granted were claimed, in some quarters, to be excessive, and the only ground upon which this claim was urged was that because of them the C.P.R. earnings would be unduly swelled. The results of the operations for 1920 entirely disprove this theory, because, even with the increases and a quick and large fall movement of grain, only the very moderate surplus of $450,000 was earned, after paying fixed charges and usual dividends. What has happened since? Towards the end of 1920, a pronounced depression in business took place throughout the whole of the country; people were apprehensive, and corporations tightened their belts; all unnecessary expenditures were avoided and those not immediately essential were postponed. It was the only way open to any company, to meet the high cost and decreasing traffic, and doubtful future conditions. The C.P.R. gross earnings to the end of August were $16,500,000 less than during the same period last year. In spite of this decrease, by the exercise of the greatest possible economy, we were able to show a slightly better position at the end of the first six months than for the first six months of 1920. A small margin between revenues and expenditures is not a healthy condition for any corporation, particularly so in the case of a large corporation, whose ability and willingness to spend is of the greatest possible advantage to the country. The company which I represent is one of the largest individual purchasers of goods in Canada, and you do not need any assurance from me to indicate the disadvantage of the company being compelled to defer purchases, or buy in very small quantities from day to day, rather than freely and courageously, against its future necessities. No one is more anxious than I am that rates should come down as soon as they can come down with safety. There is not a railway executive in America who would not prefer to

make money by the free movement at moderate rates than by a slight movement at high rates. One is a healthy condition and the other one of abnormality.

The problems which have to be met are, first of all, the protection of the property, viz., that it should not be allowed to run down so that the character of the service may be depreciated; secondly, the maintenance of the kind of service an exacting public demands; and thirdly, but equally important, the continuance, through a satisfactory earning power, of a high credit, in order that money may be forthcoming to enable the companies to meet Canada's future transportation necessities. If we fail in any of these three essentials we cannot claim success, and, without them, we cannot do our plain transportation duty to the people of this country. I do not propose to weary you with a statement of our individual needs, because that would involve a statement of C.P.R. plans and aspirations which could not, with accuracy or appropriateness, be made at this time. I am as anxious as you are to see a much lower scale of expenses, and, therefore, a lower scale of rates, but I am not one of those who believe that lower rates is a panacea for our commercial depression, which is universal and exists by reason of conditions not connected with the transport of goods. I would, however, ask that Canadian railways be permitted, and particularly the C.P.R., to work themselves into a position where they can face problems of expansion and improvements in railway service, and extension of railway activities, with some certainty. I know you are not going to be unmindful of what has taken place in the past, or of the progress we have been able to make, and I feel, too, that you will agree with me that those past achievements should be duplicated in the future, if this country has in it, as we think it has, latent resources of infinite variety and value.

The companies themselves have realized that they have a common purpose in their existence, and to that end have associated themselves together in what is known as the Railway Association of Canada. Of this the presidents of the five larger systems are the executive, and through the medium of this executive the activities of all the systems should be carried on in a spirit of fair competition, which will, I think, inure to the benefit of the country, and the companies themselves. Both the larger systems are, in every sense of the word, national; one conceived and undertaken as a part of Confederation, and the other appropriated by reason of what was considered to be at that time a national necessity. Both systems will further their individual interests by every legitimate means, and contribute their share to the general development of the country. While we are doing this, and it is a proper ambition, the C.P.R. should be permitted to make profits on rates which are determined by an independent tribunal to be fair and reasonable. If we are able to accomplish this no one of business experience will, I think, object, and if in this development we can perform still better public service, and extend our outside activities in development, colonization, hotels, and steamships, I can assure you that the satisfaction of having done so successfully will equal, if not exceed the satisfaction of fair financial returns. It can be said, I think, of all the larger companies, that they are in every sense citizens of Canada, and as such we desire to see its problems determined in such a way as to restore and increase that confidence in Canada and its enterprise upon which the prosperity of the country is so largely dependent.

Birthdays of Transportation Men in October.

Many happy returns of the day to:

A. Aitken, Assistant Superintendent, Toronto Terminals, C.P.R., Toronto, born at Decewsville, Ont., Oct. 12, 1872.

E. W. Beatty, K.C., President, C.P.R., Montreal, born at Thorold, Ont., Oct. 16, 1877.

L. S. Brown, Assistant General Manager, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Nelson, N. B., Oct. 19,1864.

F. F. Busteed, Assistant Engineer, C. P.R., Vancouver, B.C., born at Battery Point, Que., Oct. 10, 1858.

J. M. S. Carroll, Sales Manager, Canadian Consolidated Rubber Co., Montreal, born at Ballarat, Australia, Oct. 22, 1875.

J. W. Corbett, Purchasing Agent, Candian Government Merchant Marine Ltd., Montreal, born there, Oct. 4, 1887.

H. H. Couzens, A.M.I.E.E., General Manager, Toronto Transportation Commission, born at Totnes, Devonshire, Eng., Oct. 16, 1877.

H. A. Dixon, Chief Engineer, Western Harbor Commission, Quebec, born at L'Islet, Que., Oct. 1, 1871.

H. A. Dion, Chief Engineer, Western Lines, Canadians National Rys.-Grand Trunk Pacific Ry., Winnipeg, born at Sand Hill, Ont., Oct. 7, 1878.

L. V. Druce, Travelling Traffic Representative, Canadian National-Grand Trunk Pacific Rys., born at London, Eng., Oct. 20, 1873.

J. H. Edwards, Freight Claims Agent, Canada Steamship Lines, Montreal, born at Birmingham, Eng., Oct. 4, 1890.

R. G. Edwards, Assistant Superintendent, Windsor Division, Ontario District, C.P.R., London, Ont., born at Maitland, Ont., Oct. 10, 1883.

A. C. Egan, General Auditor, Canadian Northern Ry. System and Grand Trunk Pacific Ry., Toronto, born at Winnipeg, Oct. 6, 1883.

C. E. Friend, Comptroller, Canadian National Rys., Toronto, born at Brighton, Eng., Oct. 12, 1871.

W. P. Fitzsimmons, Commissioner of Industries, G.T.R., Montreal, born at Detroit, Mich., Oct. 27, 1868.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., Hull, Que., and President, Canadian Electric Railway Association, born at Quebec, Que., Oct. 9, 1882.

C. N. Ham, Secretary, Express Traffic Association of Canada, Montreal, born at Winnipeg, Oct. 21, 1884.

G. Hodge, Assistant to Vice President, Eastern Lines, C.P.R., Montreal, born there, Oct. 2, 1874.

J. H. Hughes, Assistant Superintendent, Ottawa Division, Quebec District, C.P.R., Ottawa, Ont., born at Charlottetown, P.E.I., Oct. 7, 1865.

H. Irwin, Consulting Right of Way and Lease Agent, C.P.R., Montreal, born at Newgrove, County Down, Ireland, Oct. 27, 1847.

W. B. Johnson, Master Mechanic, Halifax Division, Maritime District, Canadian National Rys., Truro, N.S., born there, Oct. 8, 1872.

W. B. Lanigan, Freight Traffic Manager, C.P.R., Montreal, born at Three Rivers, Que., Oct. 12, 1861.

O. M. Lavoie, Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal, born at St. Cyril de Wendover, Que., Oct. 16, 1884.

A. E. McMaster, Treasurer, Whalen Pulp & Paper Mills Ltd., Vancouver, B.C., born at Perth, Ont., Oct. 22, 1885.

C. Malcolm, chief clerk, Auditor of Stores and Mechanical Accounts, Alberta District, C.P.R., Calgary, Alta., born at Tatamagouche, N.S., Oct. 18, 1881.

W. T. Marlow, General Freight Agent, Ocean Traffic, C.P.R., Montreal, born at Limerick, Ireland, Oct. 25, 1872.

Fred. R. Miller, member, Toronto Transportation Commission, and Hydro Electric Power Commission of Ontario, born at St. Catharines, Ont., Oct. 31, 1878.

C. R. Moore, General Superintendent of Car Service, G.T.R., Montreal, born at Hamilton, Ont., Oct. 12, 1867.

Hugh Paton, President, Shedden Forwarding Co., Montreal, born at Johnstone, Renfrew, Scotland, Oct. 5, 1852.

J. W. Porter, Special Engineer, Western Lines, Canadian National Rys., Winnipeg, Man., born at Aberdeen, Scotland, Oct. 15, 1877.

H. G. Reid, General Master Mechanic, Western Lines, Canadian National Rys., Winnipeg, born at Pembroke, Ont., Oct. 27, 1863.

O. J. Rowe, Local Freight Agent, Grand Trunk Pacific Ry., Edmonton, Alta., born at Binghamton, N.Y., Oct. 11, 1879.

J. K. Savage, General Superintendent, Quebec District, C.P.R., Montreal, born at Forreston, Ill., Oct. 5, 1876.

The Lord Shaughnessy, K.C.V.O., Chairman, C.P.R., Montreal, born at Milwaukee, Wis., Oct. 6, 1853.

T. Duff Smith, Lake Forwarding Agent, Canadian National Rys., Cleveland, Ohio, born at Barking, Essex, Eng., Oct. 2, 1868.

Lieut.-Col. C. C. Stibbard, D.S.O., Trainmaster, C.P.R., Lethbridge, Alta., born in Sussex, Eng., Oct. 19, 1885.

C. E. Stockdill, Assistant to Vice President, Western Lines, C.P.R., Winnipeg, born at London, Ont., Oct. 25, 1881.

D. A. Storey, ex-Freight Traffic Manager, Canadian Government Railways, Moncton, N.B., now of Kingston, Ont., born at Halifax, N.S., Oct. 26, 1853.

E. N. Todd, General Foreign Freight Agent, C.P.R., Montreal, born at Huntingdon, Que., Oct. 17, 1879.

J. H. Valleau, Secretary-Treasurer, Thousand Islands Ry. and Oshawa Ry., Gananoque, Ont., born at Selby, Ont., Oct. 14, 1889.

J. A. Vallerand, Superintendent and General Freight and Passenger Agent, Roberval-Saguenay Ry., Chicoutimi, Que., born at Quebec, Que., Oct. 21, 1878.

R. Walton, Master Mechanic, Montreal Division, Quebec District, C.P.R., Montreal, born at Peterborough, Ont., Oct. 16, 1880.

A combined coal and oil locomotive is being tried in England, using both coal and oil as fuel, or either.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

31,341. July 26.—Ordering Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to move material from bottom of outlet of Thynne Lake, B.C., deposit it away from high water channel from stations 1602 and 1612; and dredge bottom of lake to an elevation not greater than 2616; work to be done by Oct. 31.

31,342. July 25.—Authorizing Canadian National Rys. to file rate on grain and grian products, in carloads, from head of lakes to Levis, Que., of 40½c., same as in effect to Quebec City.

31,343. July 25.—Authorizing C.P.R. to remove station agent at St. Lazare, Que., caretaker to be appointed.

31,344. July 30.—Authorizing Canadian Northern Ry. to build spur for W. Errington, Dalehurst, Alta.

31,345. Aug. 2.—Approving Canadian Northern Quebec Ry. bridge renewals over St. Norbert River, St. Lawrence Subdivision, mile 128.81 from Quebec.

31,346. Aug. 4.—Authorizing City of Hamilton, Ont., to build bridge over G.T.R. and C.P.R. at Burlington Heights.

31,347. Aug. 3.—Rescinding order 30,445, Jan. 26, ordering Canadian National Rys. to build farm crossing for John Kearney, Sleemans, Ont., at his expense, by May 1.

31,348. Aug. 4.—Authorizing C.P.R. to build spur for Mason & Hickey, Fort William, Ont.

31,349, 31,350. July 29, 28.—Approving Canadian National Rys. plan showing changes to be made in spurs for Newcastle Junior Mining Co. and Manitoba Coal & Development Co., Drumheller, Alta.

31,351. Aug. 2.—Approving G.T.R. plan of location and details of structure and yard tracks of station t obe built at Howland, formerly Kinmount Jct., Ont.

31,352. Aug. 3.—Approving Canadian National Rys. plan of changes in interlocking plant at crossing of G.T.R. and James Bay Ry. on Lot 21, Con. 8, East Gwillimbury Tp., Ont.

31,353. July 29.—Extending for two months time within which C.P.R. may install protection at crossing near Moffatt, Ont., as required by order 31,107, June 6.

31,354. July 29.—Ordering Canadian National Rys. to erect a one car stock pen with usual gangway and chute for loading live stock at Brancepeth, Sask.

31,355. July 29.—Authorizing Canadian National Rys. to rebuild bridge over Belle River, in Signal Tp., Que., at mile 191.0 Jonquiere Subdivision.

31,356. July 29.—Extending for 90 days from date time within which Montreal & Southern Counties Ry. may build spur for Slate Milling Corporation of Canada, Granby Parish, Que., as authorized by order 30,363, Nov. 24, 1920.

31,357. Aug. 5.—Ordering Canadian National Rys. forthwith to keep their cars 100 ft. from crossing at 7th Ave., Regina, Sask., and to install electric bell with wigwag signal there within two months.

31,358. July 5.—Ordering Edmonton, Dunvegan British Columbia Ry. to build by Oct. 15 standard portable shelter station, with platform not less than 200 ft. long, and standard 2-car combination loading platform and stock yard at Girouxville, Alta.

31,359. July 25.—Ordering Canadian National Rys. to move station at St. Eustache, Que., not more than 500 ft. west of its present location; work to he done to satisfaction of Board's Engineer; on condition that St. Eustache municipality applies for authority to make highway crossing where station is to bc located.

31,360. Aug. 4.—Ordering Grand Trunk Pacific Ry. to install standard portable stock chute at Endako, B.C., by Sept. 1.

31,361. July 28.—Dismissing application of Eugene Phillips Electrical Engineering Works for order requiring C.P.R. to lease its siding on Marmier St., Montreal.

31,362. Aug. 4.—Approving G.T.R. plan of changes in interlocking plant at Paris Jct., Ont.

31,363. Aug. 4.—Dismissing application of City of Calgary, Alta., for order directing C.P.R. to pay portion of the maintenance of crossing at Second St. East.

31,364. Aug. 9.—Authorizing Canadian Northern Ry. to build spur for Douglas Fuel Co., St. Boniface, Man.

31,365. Aug. 10.—Recommending to Governor in council for sanction, agreement between the London Railway Commission and Michigan Central Rd.

31,366. Aug. 8.—Declaring that for the present, C.P.R. crossing at Francis, Sask., is protected to Board's satisfaction.

31,367. Aug. 9.—Ordering that crossing of G. T.R. and C.P.R. at George St., Toronto, be protected by watchman.

31,368. Aug. 10.—Declaring that for the present the third public crossing of highway by G.T. R., east of Campbellford, Ont., is protected to Board's satisfaction.

31,369. Aug. 9.—Ordering Canadian National Rys. to furnish improved station facilities at Lashburn, Sask., by Aug. 1, 1922.

31,370. Aug. 3.—Extending for two months, time within which C.P.R. may build spur for Knechtel & Sons and Pepler Bros. Co., Hanover, Ont., as required by order 31,027, May 13.

31,371. Aug. 9.—Dismissing Canadian National Rys. application to close station at Elgin, Ont., and authorizing them to remove station agent and appoint a caretaker agent there instead; also C. N.R. to stop trains 5 and 6 there, on flag, to take up passengers, and to stop there whenever necessary to set down passengers.

31,372. Aug. 9.—Extending to Sept. 1, time within which C.P.R. may install gates to protect crossing at Waterloo and Paul Sts., London, Ont., under order 30,132, Sept. 25.

31,373. Aug. 11.—Amending order 31,086 approving location of Canadian National Rys. Acadia Valley Branch, and authorizing the crossing of highways.

31,374. Aug. 9.—Authorizing Grantham Tp., Que., to make highway across C.P.R. at Range 3.

31,375. Aug. 10.—Authorizing C.P.R. to remove station agent at Plaisance, Que., caretaker agent to be appointed.

31,376. Aug. 12.—Authorizing C.P.R. to build spur for Skingle Coal Co., Moose Jaw, Sask.

31,377. Aug. 11.—Declaring that for the present G.T.R. crossing of highway west of Iroquois station (Carman Road), Ont., is protected to Board's satisfaction.

31,378. Aug. 17.—Approving location of C.P.R. standard A3 station to be built at Dufrost, Man.

31,379. Aug. 13.—Dismissing application of Thos. Myles Sons, Ltd., Hamilton, Ont., for order suspending operation of items in Canadian Freight Classification C.R.C. 45, providing increased charges for weighing of carload traffic.

31,380. Aug. 12.—Relieving Canadian National Rys. and C.P.R. from maintaining signalman on Sundays at crossing at Delta Jct. (Transcept), Man., so long as present character of movements there exists.

31,381. Aug. 12.—Approving Nipissing Central Ry. Standard Passenger Tariff of maximum tolls, C.R.C. 23.

31,382. Aug. 18.—Authorizing C.P.R. to build spur across Water St., Toronto, for Thomas Davidson Mfg. Co.

31,383. Aug. 18.—Authorizing G.T.R. to build spur for U. Richardson, Fergus, Ont.

31,384. Aug. 17.—Authorizing Canadian Northern Ry. to divert highway in n.w. ¼ Sec. 5, Tp. 57, Range 7, west 5th meridian, Alta.

31,385. Aug. 18.—Declaring that for the present G.T.R. crossing near River Beaudette, Que., is protected to Board's satisfaction.

31,386. Aug. 17.—Declaring that for the present Grand Trunk Pacific Ry. crossing 450 west of Homewood station, Man., is protected to Board's satisfaction.

31,387. Aug. 17.—Authorizing C.P.R. to build extension spur for D. H. Bain Co., Calgary, Alta.

31,388, 31,389. Aug. 18, 17.—Authorizing Canadian Northern Ry. to rebuild viaducts over Don River, York Tp., at miles 13.0 and 15 from Toronto.

31,390. Aug. 17.—Requiring C.P.R. to fence east side of right of way from mile 2.5 to Cooper Creek, mile 4. on its Lardo Subdivision, B.C., by Oct. 1.

31,391. Aug. 18.—Authorizing Toronto, Hamilton & Buffalo Ry. to rebuild bridge over Grand River, Brantford, Ont.

31,392. Aug. 17.—Authorizing C.P.R. to build spur for Lake of the Woods Milling Co., Calgary, Alta.

31,393. Aug. 17.—Approving revision of Canadian Northern Ry. spur for Elgin Coal Co., Drumheller, Alta., and authorizing C.N.R. to build spur from same for Gibson Syndicate Coal Co.

31,394. Aug. 19.—Approving British Columbia Telephone Co.'s tariff C.R.C. 5, covering exchange rentals and charges, and Supplement 1 to Tariff tive Sept. 1.

31,395. Approving location of Canadian Nor- C.R.C. 3, covering toll charges, to become effecthern Ry. 3rd class station at Lucky Lake, Sask.

31,396. Aug. 18.—Authorizing International Transit Co. to operate its cars over C.P.R. crossing at Cathcart St., Sault Ste. Marie, Ont., without first stopping them, speed not to exceed 10 miles an hour.

31,397. Aug. 18.—Declaring that for the present C.P.R. crossing at Lorette, Three Rivers Subdivision, Que., is protected to Board's satisfaction.

31,398. Aug. 18.—Extending to July 19, 1922, time within which Lake Erie & Northern Ry. may build spur for Slingsby Manufacturing Co., Brantford, Ont., authorized by order 30,573, Jan. 19.

31,399. Aug. 18.—Authorizing Michigan Central Rd. to build spur for Bridgeburg Coal Co., Bridgeburg, Ont.

31,400. Aug. 17.—Ordering American Railway Ex. Co. to file tariff showing proportional rate of 24c. per 100 lb. on fruit and vegetables from shipping points on Toronto, Hamilton & Buffalo Ry., applicable to shipments destined beyond Hamilton; to become effective Aug. 27.

31,401. Aug. 17.—Declaring that for the present C.P.R. crossing east of Cooksville station, mile 14.2 London Subdivision, is protected to Board's satisfaction.

31,402. Aug. 18.—Declaring that for the present G.T.R. crossing west of Alvinston, Ont., is protected to Board's satisfaction, and ordering that nothing be placed on the land which may obstruct the view.

31,403. Aug. 17.—Ordering Canadian National Rys. to stop trains 9 and 10 on flag at diamond crossing, mile 450, Battleford Subdivision, Sask., to pick up and let off passengers from or to points onits Cudworth Subdivision.

31,404. Aug. 18.—Declaring that for the present Canadian National Rys. crossing 335 ft. north of Gamebridge station, Ont., is protected to Board's satisfaction.

31,405. Aug. 6.—Dismissing complaint of Consumers Metal Co., Montreal, against rates on scrap iron from Canada to U.S.

31,406. Aug. 6.—Ordering that items 12 and 16, page 45, Supplement 15, of Canadian Freight Classification 16, be corrected to provide certain new ratings for tires, tire tubes, etc., effective forthwith, in Supplement 17.

31,407. Aug. 22.—Suspending until further order after hearing, item 863B, in Supplement 19 to C.P.R. tariff C.R.C. no. E-3808, effective Sept. 6, re rates on sugar from St. John, N.B., to Quebec, Levis and Montreal.

31,408. Aug. 23.—Authorizing form of release from liability in respect of persons travelling on the French exhibition train through Canada.

31,409. Aug. 23.—Authorizing City of Port Arthur, Ont., to build temporary roadway over C.P.R. to serve grain elevators at northerly end of city.

31,410. Extending to Sept. 1, 1922, time within which C.P.R. may build spur for Gray-Dort Motors, Ltd., Chatham, Ont., authorized by order 30,767, March 7.

31,411. Aug. 23.—Authorizing C.P.R. to build spur for Milton Pressed Brick Co. at mile 34 Galt Subdivision, Esquesing Tp., Ont.

31,412. Aug. 24.—Authorizing Saskatchewan Highways Department to make highway crossing over Canadian National Rys. on surveyed road in s.e. ¼ Sec. 36, Tp. 44, Range 7, west 3rd meridian.

31,413. Aug. 24.—Extending to Aug. 29, 1922, time within which C.P.R. may build spur for Ruggles Truck Co., London, Ont., authorized by order 30.407, Nov. 29, 1920.

31,414. Aug. 23.—Authorizing G.T.R. to build spur connecting its tracks with Canadian National Rys. in Brighton, Ont.

31,415. Aug. 20.—Ordering C.P.R. to make temporary farm crossing for McKee & Ferguson, Albion, B.C.

31,416. Aug. 19.—Authorizing C.P.R. to build its Moose Jaw Southwesterly Branch (Assiniboia to Consul revised location) over road allowance on south boundary of s.w. ½ Sec. 13, Tp. 3, Range 22, west 3rd meridian, Sask., mile 39.97 (new mile 228.52).

31,417. Aug. 20.—Authorizing Canadian Northern Ontario Ry. to rebuild bridge over Kioshkoqui Lake, Pentland Tp., Ont., mile 20.4 North Bay Subdivision.

31,418. Aug. 20.—Authorizing C.P.R. to build its Moose Jaw Southwesterly Branch across road allowance on west boundary of s.w. ¼ Sec. 18, Tp. 3, Range 21, west 3rd meridian, Sask., at mile 40.76.

31,419. Aug. 20.—Authorizing Canadian National Rys. to extend Railway Ave., Galahad, Alta., across its tracks.

31,420. Aug. 23.—Authorizing Hydro Electric Power Commission of Ontario to build two tracks across Windsor, Essex & Lake Shore Rapid Ry. single track at intersection of Aylmer Ave. and Wyandotte St., Windsor, Ont.

31,421. Aug. 19.—Approving agreement between Bell Telephone Co. and Brooke Tp., Ont.

31,422. Aug. 19.—Relieving C.P.R. from maintaining signalman on Sundays at crossing of G.T. R. at mile 38.15, Port McNicoll Subdivision, Eldon Tp., Ont., so long as present character of movements there exists.

31,423. Aug. 19.—Amending order 30,878, Apr. 8, authorizing Alberta Public Works Department to make highway crossing over C.P.R. in s.c. ¼ Sec. 10, Tp. 8, Range 5, west 5th meridian, Alta.

The Award in the Grand Trunk Railway Stock Arbitration.

Under the agreement between the Dominion Government and the G.T.R. Co., ratified by the Dominion Parliament at its 1920 session, the Government undertook to guarantee the payment half yearly of dividends at 4% a year on the company's guaranteed stock, and the interest on the debenture stocks as and when payable. It also undertook to acquire the following stocks from the shareholders, the amounts mentioned being their par values:—

First preference stock 5½%	£3,420,000
Second preference stock 5%	2,530,000
Third preference stock, 4½%	7,168,055
Ordinary or common stock	23,955,437
	£37,073,492

The agreement provided that the value, if any, to the holders of the preference and common stocks should be determined by three arbitrators, the value, so determined, to be not greater than an amount on which the annual dividend at 4% on the aggregate face value of the then present guaranteed stock, and the new guaranteed stock taken together, would be $5,000,000, i.e., the value must not exceed $64,166,666.66. The fixing of this limit was not to be taken by the arbitrators as any admission, or indication, that the value to be determined was the amount so fixed, or any other amount.

This meant that the arbitrators could not award a larger sum than is represented by $5,000,000 capitalized at 4%, and as out of this amount $2,432,500 would have to be taken to fulfil the Government guarantee of $60,812,500 of present guaranteed stock, there would remain $2,566,600, or $64,166,666 capitalized at 4% that might be awarded the holders of the preference and common stocks. As these amount to $180,362,000, at par of sterling exchange, the utmost the holders of these securities could obtain would have been a little more than one third their face value. The arbitrators were also directed to determine in what proportion the amount of their award, if any, should be distributed among the holders of the first, second and third preference, and the common stock.

The Arbitration and the Award.

The arbitrators were Sir Walter Cassels, President of the Exchequer Court, chairman, appointed by statute; Sir Thos. White, ex Finance Minister, representing the Dominion Government, and W. H. Taft, ex President, United States, representing the G.T.R. Co. The arbitration proceedings opened in Montreal Feb. 1, but were suspended in April, the arbitrators' powers having lapsed by the effluxion of time, and the Government having refused an extension until the G.T.R. Co. met the conditions is imposed. These conditions having been agreed to, the Dominion Parliament passed an act at its last session, authorizing the arbitration to proceed, and the hearing of evidence was resumed on June 1 and concluded on June 24, counsels' arguments commencing June 30, and ending July 8.

The arbitrators' award was given on Sept. 7. Two of them, Sir Walter Cassels and Sir Thos. White, worded their decisions as follows:—"We the undersigned arbitrators, a majority of the board, after mature deliberation, and after careful consideration of the evidence adduced, do order, award, adjudge and determine, that there is no value, to the holders thereof, in the first, second or third preference stock, or in the ordinary or common stock of the Grand Trunk." Mr. Taft added under the above:—"For reasons stated in a memorandum filed this day I dissent." Sir Walter Cassels' reasons for the award occupy 41 pages of typewritten matter, foolscap size; Sir Thos. White's reasons occupy 28 pages, and Mr. Taft's dissenting reasons occupy 59 pages.

Sir Walter Cassels' Reasons.

In commencing his reasons for the award, Sir Walter Cassels, chairman of the arbitration board, said: "There are two questions raised by counsel for the Crown which I had hoped might not be necessary to be dealt with, but which I feel must be carefully considered. The first point raised is that the G.T.R. system accounts have been so manipulated —I use a milder term than that used by Mr. Tilley, K.C.—as to render the accounts as presented by the books, unreliable and unsatisfactory. The second point is that, for reasons of his own—I will quote later his own reasons as stated by himself—dividends were paid when, to the Chairman's knowledge, there were no earnings applicable to the payment of such dividends, and those monies so paid were diverted from paying claims due to the Government, which should have been paid, leaving the Government claim unpaid to the present time." He then points out that while G.T.R. counsel argued that stock market quotations were of value in arriving at the exchange value of the stocks, the dealings referred to would effectually destroy any value to be derived from such quotations. He refers to one incident in the arbitration hearing as an example of the juggling of the company's accounts as follows:—"McLaren is Chief Auditor of the Grand Trunk Ry. In 1919, according to his sworn statement, there was a deficit of $6,483,000. Instead of showing this deficit he shows a surplus of $5,556. I asked him this question, 'And that being a deficit, instead of showing a deficit of $6,483,000, you showed a surplus of $5,556, and that is the same all the way through?' His answer was 'Exactly.'"

He then quotes verbatim a series of cablegrams which passed between Sir Alfred Smithers and E. J. Chamberlin, then Chairman and President respectively of the G.T.R., in order to demonstrate the methods employed by Smithers and his associates in conducting the company's affairs. A portion of a cablegram from Chamberlin to Smithers, Jan. 28, 1917, reads:—"Mr. Biggar" (Vice President and General Counsel) "thinks that unless Government waives its rights or gives consent, it would be improper, if not illegal, to pay dividends on the guaranteed stock, or any preference stock, without first making provision for payment of overdue interest on Government loans of 1909 and 1913 to the Grand Trunk Pacific, and also the guaranteed interest on Grand Trunk Pacific securities which rank ahead of the preferred stock. We were criticized by the Government for having paid last year on first preference, and if we were now to pay on first, second and third it would be impossible for us to get consent of Parliament for the increase we are asking." It is evident that the question involved is the payment of dividends to holders of the preferred stocks. The G.T.R. had not the right, until it had met its liabilities to the Government, to pay a dividend out of net earnings. As Sir Walter Cassels states, "There could not be, in the mind of any reasonable man, a belief that net earnings means anything but earnings after payment of interest on liabilities due."

In this connection, Chamberlin again cabled Smithers on Feb. 2, 1917, in part as follows: "With regard to legal obligations to preferred stockholders, would call your attention to definition of net earnings set out in paragraph 18 of agreement of Feb. 9, 1914." Further cablegrams quoted by Sir Walter demonstrate how, despite the warnings conveyed by Chamberlin, Smithers and other directors manipulated the accounts so as to avoid trouble with the shareholders and make the company's affairs present a satisfactory appearance. The last cablegram quoted, dated March 10, 1917, from Smithers to Chamberlin, reads as follows: "Board have decided to pay Grand Trunk second preference stock dividend in full, reduce general interest by £100,000 and include amount in preferred credit items, as suggested in your cable message of Feb. 27, also debit net income account with £400,000, as a reserve toward meeting contingencies and possible liabilities, showing amount specially in the general balances. Announcement published today." Respecting this Sir Walter says: "Dividends paid; unpleasantness to directors avoided. Neither Sir Alfred Smithers nor Mr. Chamberlin were produced as witnesses on the part of the G.T.R. Co. of Canada. Further comment is unnecessary."

A letter from Sir Alfred Smithers to Sir Robert Borden, dated Dec. 10, 1915, in which is contained the request that the Government relieve the G.T.R. of its G.T.P. liability, is quoted. It made plain the G.T.R.'s inability to carry the G.T.P.R.

The question of maintenance of the G.T.R. property is then taken up, and it is emphasized that the company was seriously at fault in not establishing a depreciation reserve, to which a sum should have been contributed annually, to take care of replacement requirements. The case of the City of Knoxville vs. the Knoxville Water Co., decided in the U. S. Supreme Court, is reviewed, and the conclusions drawn in another and similar case are also quoted. Both showed that so called net earnings were decreased to an extent commensurate with the amount which should have been set aside to meet depreciation, but which was not, and it is pointed out that the G.T.R. was in the position of having set aside nothing.

Mr. Chamberlin's testimony before the commission of investigation into the railway situation, resulting in the presentation of what is familiarly termed the Drayton-Acworth report, is next referred to and passages are quoted which have to do with the reasons Mr. Chamberlin advanced as to why the Government should take over the G.T.P.R., viz., because on account of its location and on account of the agreement which the G.T.R. entered into concerning the carriage of export traffic through Canadian ports. Sir Henry Drayton is quoted as saying: "Your point, Mr. Chamberlin, is that the G.T.P.R., as contracted for and laid out is something which takes traffic away from the parent G.T.R. system in-

stead of giving traffic to it . . . The representatives of the G.T.R. must have known all that when this contract was entered into." Mr. Chamberlin answered: "I don't know; they must have. Of course, I do not want to criticize my predecessors." Further, Sir Henry Drayton said: "Suppose you are left to yourself, the thing crashes, no one confiscates it. Isn't that right?" Mr. Chamberlin admitted this and further specifically stated that the G.T.P.R. would have to go into insolvency if the G.T.R. attempted to carry out its contract.

In a continuation of these quotations, it is shown that Mr. Chamberlin admitted paying $2,500,000 in dividends in 1916, and further admitted that if the company had paid out all it should have paid out for improvements, nothing would have been paid in dividends. He expressed the opinion that a reserve should have been established and contributed to to the extent of 5% annually, to meet rolling stock depreciation, and admitted that no reserve had been so constituted.

The next thing dealt with is the report of H. G. Kelley, then Chief Engineer, now President, as to the physical condition of the property in 1917, and it is pointed out that putting together revenue and capital expenditure required, it would have taken $51,000,000 to put the railway in first class condition, according to the estimates of its own responsible officers at the time. Sir Walter then calls attention to the G.T.R.'s estimated cash requirements from Jan. 1, 1921, to March 31, 1922, totaling $89,687,633.39, and withholds comment as being entirely unnecessary.

In regard to the construction of the agreement, Sir Walter states that he cannot regard the proceedings as a forcible expropriation of the three preference and common stocks, as argued by E. Lafleur, K.C., because there was no compulsion or forcing of the G.T.R. shareholders; they were free agents and as such voted in favor of the agreement. He points out that under the agreement the Government assumed large liabilities of the G.T.R. from the date of the appointment of the committee of management in May, 1920. A case, Peake vs. Derry, is quoted to show that value must necessarily depend on earning power, while another case, Watcham vs. Attorney General, E A., is quoted to show that stock market quotations would be no indication of value in the case. It is pointed out that Mr. Taft agreed with this view.

In connection with the attempted introduction of evidence as to physical values, Sir Walter points out that if the value is to be determined on the basis of earning power, reproduction costs cut no figure. Further cases are quoted, from which Sir Walter draws the inference that it is the value of these stocks as of May, 1920,-which is to be determined, the present value alone. So far as potential or future value is concerned, this is reflected in the present value. Further, concerning potential value, if this must be made an issue, it must be ascertained as if the Government had not come to the aid of the railway. In the concluding portion of his statement Sir Walter says: "If, therefore, the value of these four classes of stock, including their potential value, is to be ascertained on the basis of the G.T.R. system continuing to operate as heretofore, could any sane business man, with a knowledge of the facts, come to any conclusion different from that come to by Mr. Chamberlin, that a crash was inevitable, and insolvency and receivership the sequel, and would there be any reasonable chance of these four classes of stockholders ever receiving a cent on their investments? I think not." He further says: "I . . . am of opinion that our award should be that there is no value in any of the four classes of stocks. If equitable or moral considerations are to be considered, those who control the public funds must deal with the question, not this board."

Sir Thomas White's Reasons.

After briefly reviewing the terms of the agreement providing for the arbitration, Sir Thos. White first makes the point that the date as of which the value of the preference and common stock was to be determined was the date of the appointment of the committee of management, i.e., as of May, 1920. He makes it clear that with regard to the G.T.P.R., counsel for the G.T.R. took the position that, as the G.T.P.R. stock was fully paid, the G.T.R. was liable in respect of the G.T.P.R. only to the extent of its guarantees on G.T.P.R. bonds and debentures, and he states that as this seems to be the strictly legal view of the situation, he has adopted it as correct for the purposes of the arbitration. Concerning the attempted introduction by G.T.R. counsel of evidence having to do with physical values, Sir Thomas reviews the reasons for rejecting evidence of this nature, and cites several cases in support of the majority view in this connection. He argues, in a convincing manner, that from whatever angle the question is viewed, net earnings, actual and potential, are the true indicators of value in the stocks, and therefore the essential factors to be determined. He, like Sir Walter Cassels and Mr. Taft, places no faith in stock market quotations for G. T.R. shares as an indication of the value of the complete issues of those shares.

He says that in seeking to ascertain the earning capacity of the capital represented by the preference and common shares, all evidence relating to G.T.R. earnings as of May 1920, as well as the earnings prior to that time, and since that time, must be considered. He continues: "All evidence as to physical condition of the system and its proper maintenance, the advantages or disadvantages of the location of its lines, volume of business, traffic rates, operating costs and fixed charges must be given its due weight in its bearing upon the question of earning capacity, and there must also be taken into account the contingent annual liability upon G.T.R. guarantees in respect of securities of other companies."

Concerning the disclosures made in connection with the juggling of G.T.R. accounts, he says: "It was clearly proven in the course of the enquiry that the reports of earnings shown in the annual statements to the shareholders, and to the Railways Department, for many years past were inaccurate and misleading. For 1913 the published earnings were considerably larger than those shown by the books themselves. Later, during 1915, 1916 and 1917, a substantial portion of the earnings was concealed by the creation of an "inside reserve" account. Subsequently this account was availed of to show in subsequent years larger earnings than were actually made. It is not necessary to deal here with the motives which actuated this policy on the part of the directors. It will be sufficient to say that these motives were fully revealed in the evidence and that they were not directly connected with the purpose of creating adequate reserves against deferred maintenance or depreciation."

Turning next to a perusal of G.T.R. earnings in past years, as disclosed by the accounts, after correction and change to accord with the facts, he shows that after the payment of operating expenses and fixed charges, for the G.T.R. alone, and not including the Central Vermont and G.T.P. Rys., in 1918 there was a deficit of $3,872,344; in 1919, of $6,488,918, and in 1920 of over $6,500,000.

Speaking next of maintenance, he lays particular emphasis on the point that the G.T.R. did not lay aside a sum each year to meet depreciation in the property. With regard to annual maintenance he holds that the evidence firmly established that the G.T.R. had allowed its property to run down badly within the last 10 years; figures he quotes show that for 1911 to 1917 inclusive, about $6,000,000 a year was expended for maintenance of way and structures, but that for 1918 the expenditure under this head was $11,600,000; for 1919 it was $17,000,000, and for 1920 it was $18,100,000. He also mentions the report as to physical condition made by Mr. Kelley in 1917 as showing conclusively the run down condition of the property. Even after the heavy maintenance expenditures of 1918, 1919 and 1920, continues Sir Thomas, it is estimated by the Government that over $69,000,000 will have to be spent on maintenance between 1920 and 1925.

Another point stressed is that the G. T.R. revenues were made misleading, not only by the juggling of accounts, but also by crediting the company with interest on loans and advances made to subsidiaries, which had not actually been paid. He points out that some of these charges, aggregating very large amounts, de not represent collectible indebtedness.

Taking into consideration all of the facts developed, he continues, it is perfectly clear that without taking into consideration the G.T.P.R., the G.T.R.'s financial position was most precarious at the time of the appointment of the committee of management in May 1920. In his opinion, its financial position, even excluding its G.T.P.R. obligations, was such that a receivership was inevitable, and if the liability in respect of the G. T.P.R. be added, its position was hopeless. He says that a more misconceived project than the G.T.P.R. would be hard to imagine, and presents a statement showing that its deficit was $1,358,435 in 1916; $5,300,512 in 1917; $6,318,594 in 1918; $11,940,432 in 1919, and $23,141,016 in 1920. These figures take into consideration operating losses and fixed charges. To this, he states, must be added about $20,000,000 now required to meet deferred and extraordinary maintenance. He makes it plain that the serious nature of the G.T.P.R. problem cannot be overestimated, and quotes the letter of Sir Alfred Smithers to Sir Robert Borden in 1915, and also Mr. Chamberlin's testimony before the commission of investigation in support of his statement.

He also deals with complaints to the effect that the G.T.R., desiring only a western connection for its existing line, was coerced into entering into the Grand ernment into entering into the Grand Trunk Pacific-National Transcontinental project, and to the effect that the Government permitted rival lines to build into the territory occupied by the G.T. P.R. He takes the stand that neither of these complaints is justified, and presents arguments in support of his position. He says that he deals with these

features because it appears to him that the complaints were put forward as raising some equitable claim in favor of the G.T.R., but as no legal claim is involved, complaints of such a character could not be considered in the arbitration proceedings. Speaking of a sale of the G.T.P.R. assets, which had been suggested as a possibility by G.T.R. counsel at the hearing, he is confident that such a sale of all its assets would not yield sufficient to satisfy all claims against the property which have priority over the securities guaranteed by the G.T.R. Speaking of guarantees to subsidiaries, he points out that the G.T.R. has guaranteed interest upon Central Vermont Ry. bonds for $13,359,000; and considering the C.V.R.'s unsatisfactory earnings, it would be impossible to say that no loss will be incurred by the G.T.R. in respect of this guarantee, but he does not, for the purpose of his finding, treat this obligation as one upon which loss will be incurred.

In the concluding portion of his reasons, he says: "Reviewing all the evidence in the case, I have reached the following conclusions: 1. The actual earning power of the G.T.R. of Canada, before, during and since the war, and, so far as can be estimated, for the future, does not justify the assumption that any profits would, from the date of the acquisition by the Government of the preference and common shares, in May, 1920, ever have been available for distribution to the holders thereof, after providing for the contingent liability of the company in respect of G.T.P.R. securities guaranteed by the company, and dividends upon guaranteed stock. 2. Having regard to its own continuing heavy deficits, the necessity for making provision for deferred and extraordinary maintenance and capital construction, and its heavy liabilities in respect of securities of the G.T.P.R. Co. bearing its guarantee, the G.T.R. Co. of Canada, but for the Government's financial support since May, 1920, would have been forced into a receivership. Upon these conclusions I find that the preference and common stocks of the G.T.R. Co. of Canada have no value. Any question as to compassionate consideration of the shareholders must be for the Government and Parliament of Canada to deal with and not for this board."

Mr. Taft's Dissenting Reasons.

In giving his reasons for dissenting from the other arbitrators, Mr. Taft briefly reviews the circumstances leading up to the arbitration proceedings and summarizes the agreement on which the arbitration was based. He then describes the system, emphasizing the favorable location and traffic connections of the lines. He points out the great advantage the G.T.R. enjoys in the number of its outlets to the Atlantic seaboard, the number of branch lines in Ontario and Michigan, the connection with the lake system of transportation at many points, and in the partial or complete ownership of steamship lines, elevator companies, electric lines, subordinate railway lines, bridge companies, terminal companies and other corporations owning hotel properties used in connection with the railway system. He goes on to review some of the history of the property, emphasizing the influence brought to bear by the late C. M. Hays, who improved it greatly, and in large part by charging the expenditures for such improvement to operating expenses rather than to capital, to the end that the value of the property was vastly increased without new capital expenditure, while been declared. He then passes on to redividends were withheld that should have view the company's organization, praising the loyalty and efficiency of its employes, and makes the significant statement that had the policy of the company, as dictated from London, been as prudent, wise, and effective as the local management, the fate of the property would have been different. He mentions the value of the U.S. connections, pointing out that the main line through business from points in the U.S. through Canada to destinations in the U.S. has been built up to large proportions. He points out the advantage enjoyed by the G.T.R. in connection with land acquired by the company in Montreal, Toronto, Detroit and Chicago, for terminal purposes. In connection with grade separation work in different cities, a subject stressed by Government witnesses at the hearings, he seriously questions the accuracy of the statement that the G.T.R. will be called upon to spend $46,000,000 on grade separation work in the near future. In his opinion, half the sum mentioned, spread over 20 years, more nearly represents the obligation the G. T.R. will have to incur in this connection.

The G.T.P.R. venture is next reviewed. It is emphasized that the G.T.R.'s desire was but to secure a western connection for the railway, to the Pacific coast, but that the then Government, not content with this, was responsible for initiating the G.T.P.-National Transcontinental Ry. arrangement. He points out that the Government, by the terms of the contract, required the high standards of construction embodied in the G.T.P.R., and that for this reason the line was not built as economically as the limited traffic available would require to make it financially successful in a reasonable time. He states that the Government guaranteed interest due on G.T.P.R. debentures to the extent of $68,000,000, while the G.T.R. guarantees the G.T.P. debentures absolutely to the extent of $2,594,080, and to the extent of $1,395,-170 conditional on the G.T.R. being able to first pay interest on its guaranteed stock.

After reviewing fully the circumstances attending the G.T.P.R. receivership, he frankly states that no value at all can be attributed to the G.T.P.R. shares which the G.T.R. holds. Although, he states, Mr. Atwater, K.C., argued strongly that something might be realized out of a sale of the G.T.P. to reduce the G. T.R. liability on its guarantee, he expresses the opinion that a sale of the G. T.P.R. property would not realize a sum greater than would satisfy the first lien of the receiver's debts, now over $9,000,-000, and the prior debentures guaranteed by the Government, $68,000,000. He characterizes the association of the G.T. R. with the G.T.P.R. and the National Transcontinental Ry. as "the tragic part of the story of the G.T.R. of Canada."

Speaking next of Government aid, he points out that while both the C.P.R. and the Canadian Northern Ry. were generously aided by the Government, the G.T. R., which was much earlier in the field, and offered the opportunity to Ontario and the western part of Quebec to develop prosperously, had comparatively little assistance.

In connection with his argument concerning the introduction of evidence concerning physical values at the hearing, he states that he did not desire to introduce this evidence as a means of compelling the Government to pay the reproduction value of the property, but merely to enable the arbitrators to use the value as a circumstance in judging its potential net earning capacity. In his opinion, because the U.S. Valuation Act and the U.S. Transportation Act use the actual physical value of a railway as a basis on which its earnings must be figured for the determination of rate levels, and because 70% of the G.T.R. earnings are affected by rate levels in the U.S., the G.T.R.'s physical value should have been introduced as one of the factors to be used in determining the earning power value of the property and of the exchange value of the common and preference shares. He points out that a budget of expenditures on behalf of the G.T.R. under Government operation was made out by G.T.R. officials to a total of $44,000,000, but that this was increased to $89,000,000 on direction from the Railways Department, and he argues that a major part of the expenditure which the Government claims as necessary in the near future is not necessary, and not advisable, and that if such large and unnecessary expenditures were figured on the value of the stocks would shrink to nothing, under the great annual fixed charges which such expenditures would bring to bear. In reply to the argument advanced by Government counsel to the effect that the G.T.R. did not set aside each year a sum to meet depreciation, he says that although failure to comply with a prescribed system of accounting in that respect may have a tendency to induce the belief that the road could not be in good condition, yet the actual physical condition, demonstrated to his satisfaction as being first class, must take precedence over such theoretical considerations. The proof of the good condition of the road, he maintains, is found in the fact that the company is doing, and has done, its work of transportation efficiently and without accident of consequence.

He speaks freely of the juggling of G. T.R. accounts. In reference to the great stress laid by Government counsel on the report furnished by H. G. Kelley when he was Chief Engineer in 1917, a time when the London directors were trying to make a showing of great poverty, to induce the Government to relieve them of the G.T.P.R. liability, he says that while this report made the company seem to require a great deal to be spent on maintenance and improvement, Mr. Kelley, in making his report, used discretionary judgment, and apparently had in mind a state of physical perfection approaching that in the minds of Lt. Col. Monsarrat and other Government witnesses when they were criticizing the G.T.R.'s physical condition at the arbitration hearings.

Coming to the main question of the case, viz., a reasonable anticipation of the future net earnings of the three preferred and the common stocks, he reviews the "frozen assets" of the G.T.R., mentioning (1) the Southern New England Rd., on which $7,000,000 had been spent, and which should be a money maker on completion; (2) the Jacques Cartier Ry., around the Montreal mountain, costing $1,600,000; (3) the G.T.P. Development Co., which owes the G.T.R. $11,000,000, and which has assets conservatively valued at $12,160,834; (4)

the G.T.R. fire insurance fund and the compensation fund; (5) the Montreal & Southern Counties Ry.; (6) the surplus lands of the Rail & River Coal Co. He expresses the opinion that $20,000,000 can be realized from these assets in the next 10 years.

He places no faith in the contention of G.T.R. counsel that prices prevailing on the London Stock Exchange in the years ending with 1913 could be made a basis of proof of the preferred and common stocks being worth the maximum amount mentioned in the agreement. Neither does he lean for support on the argument involving the applicability of the terms of the U.S. Transportation Act. He states emphatically that past earnings, and probable future net earnings, are the only evidence of value of the stock. Before proceeding with an examination of these, he points out, in reply to the argument that the stocks at the date of transfer were valueless, because the company was bankrupt, that their value as of that date is not limited by their earning capacity as of that date, if within a few years their earning capacity will be greatly increased. Also, before proceeding with his examination of past and probable future earnings, he tells of the London management "exercising a discretion" to overstate the G. T.R. revenues in 1913, to declare a full dividend on the first and second preference stocks, and a half dividend on the third preference stock; of similarly "exercising a discretion" in 1915, 1916 and 1917, to understate the revenues by $8,-000,000, so as to make a showing of poverty and induce the Government to take over the G.T.P.R., and in 1919 and 1920 to overstate the revenue, when the sale of the road was being faced, as the best course. "Although," he says, "this dealing with the accounts by the London management admits of no defence, it cannot be permitted to prejudice the interests of the stockholders in this case.." The fund created by the understatement of revenues in 1915, 1916 and 1917 was used as a reserve accunt for renewals and repairs in 1919.

After showing how the accounts would look when straightened out and corrected, he shows that for seven years before 1917, the G.T.R. had 25.97% of its earnings left after paying all operating expenses; while in 1919 the percentage was 3.16% and in 1920 it was 3.9%. He points out that operating costs are returning to normal, and by a chain of reasoning comes to the conclusion that the G.T.R. would have 25% of its earnings left in 1926 after paying operating expenses, or $22,500,000 applicable to the payment of fixed charges and dividends.

Dealing with the fixed charges, se sets down the present annual obligations of the G.T.R. as $17,421,455.88, which excludes the G.T.P.R. obligations, but includes the fixed charges on a $25,000,000 issue in 1920, and the 4% dividend on the guaranteed stock. Adding the G.T. P.R. guarantees of $2,291,660 and $1,-395,000; adding the cost of refunding 4, 5 and 6% bonds falling due in 1922, amounting to $297,200; adding $1,112,-153 for interest for an $18,000,000 working fund for the company and its subsidiary lines; subtracting the non operating or outside income, which was for 1920, a poor year, $1,942,648; subtracting further the surplus income for subsidiary companies, which for 1920 was $448,532, he figures the total fixed charge for 1926 as $20,075,252, which, deducted from the net estimated operating income in 1926, amounting to $23,400,000, leaves $3,324,748 applicable to the payment of returns on the preferred and common stock. He further states that, while the fixed charges of the Central Vermont and other lines are included in the statement of fixed charges in the above calculations, he expects the time will come in the near future when these properties will meet their owned fixed charges, relieving the G.T.R. of an annual liability of $1,312,649.

He realizes that he is liable to be met by the equiry "Assuming your estimates for 1926 to be correct, how about deficits in the meantime?" He answers that the $2,433,333.33 annual payment on the guaranteed stock, and the conditional payment annually of $1,395,000 on account of the G.T.P.R., both of which were figured in the above calculation, if not paid would not constitute an increase in funded or unfunded debt. Deducting this from the total fixed charge of $20,075,-252, leaves $16,246,918.67 to be met annually. He predicts that this could be met easily in two or three years; if deficits continued for two or three years from the present, to an extent sufficient to demand the addition of as much as $10,000,000 to permanent liability, this would add but $700,000 to the annual fixed charges, which would be adequately taken care of as the above calculation discloses.

In conclusion he states that while the stock may yield by 1926 a return to make it worth the maximum sum named in the agreement, he realizes it is not as valuable at present as it would be if it were capable of yielding that return now. He expresses the opinion that this feature should not make the present value more than 25% less than the maximum value prescribed, and for these reasons he considers that the G.T.R. Co. of Canada's preferred and common stocks are worth not less than $48,000,000.

The Question of Appeal.

The agreement, made March 8, 1920, between the Dominion Government and the G.T.R. Co., contained the following provision: "The unanimous award of the arbitrators shall be final, but should the award not be unanimous, and should notice of appeal be given by either party to the other, within 30 days after the making of the award, an appeal therefrom, upon any question of law, shall lie to the Supreme Court of Canada, and/or to the Judicial Committee of the Privy Council, if leave be granted by the said Committee."

A London, Eng., cablegram of Sept. 20 said that the holders of G.T.R. preferred and common shares would probably apply for leave to appeal direct to the British Privy Council's Judicial Committee, against the award, which declared their holdings to be of no value. The main grounds for an appeal will probably be the decision of a majority of the arbitrators to exclude evidence as to the properties' physical value.

Simplon Tunnel.—The second Simplon tunnel under the Alps, connecting the Swiss and Italian railway lines, which is under construction parallel to the original tunnel, is nearing completion. The opening of the passage through was completed Sept. 13; the masonry work is well advanced, and it is expected to have the tunnel completed by Dec. 31.

Voluntary Freight Rate Reductions.

The Railway Association of Canada has compiled a statement showing that from Jan. 1 to the middle of September 1,450 freight rates have been voluntarily revised and reduced by Canadian carriers to meet varying traffic and commercial conditions since the blanket reduction of 5% ordered by the Board of Railway Commissioners, effective Jan. 1, 1921, as against rates in effect prior to that date. These reductions cover about 400 commodities.

Outstanding reductions are those on lumber from British Columbia to eastern Canadian destinations to enable the producer to meet the competition. (See Canadian Railway and Marine World, June, pg. 315.) Besides other commodity rates on canned salmon and rice from coast points have also been substantially reduced. On live stock between all Canadian points a reduction of about 25% has been made. (See Canadian Railway and Marine World, August, pg. 422, and September, pg. 466.) On grain and grain products for export from Georgian Bay ports and Fort William via Montreal and other Atlantic ports reductions of from 9 to 26% have been made. Transcontinental rates on 48 different staple commodities show reductions of from 6 to 32%. Seventy-eight commodities to U. S. consuming points show reductions varying from 4 to 64%. Rate revisions on 10 export commodities via Atlantic and Pacific ports received attention by reductions varying from 4 to 39%, 151 commodities have received reductions varying from 5 to 47% on domestic traffic between points in Canada. These commodities represent a substantial proportion of the entire traffic.

In connection with the rate reductions on grain we are advised that, effective Sept. 23, a reduction of 7½c. per 100 lb. in the all rail rate on grain and grain products was made from Fort William and Port Arthur to St. John, Halifax, Portland, New York and Boston, and that a reduction of 4c. per 100 lb. was made from Fort William and Port Arthur to Montreal and Quebec, leaving the rate to thetwo latter 1c. lower than to the above mentioned Atlantic ports. These reductions are in addition to a reduction of 3c. per 100 lb. made in May. A reduction of 5c. from Georgian Bay ports has also been put into effect. Consideration is being given to a reduction of 4½c. per 100 lb. on grain from Fort William and Port Arthur for domestic consumption and of 2½ c. per 100 lb. between station in eastern Canada.

Railway Lands Patented. — Letters patent were issued during August for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	480.12
Canadian Northern Pacific Ry.	36.46
Canadian Northern Western Ry.	1.06
Grand Trunk Pacific Branch Lines Co.	.65
Manitoba Southwestern Colonization Ry.	51.20
Total	569.49

Duty on Transportation Men's Uniforms.—The Canadian Manufacturers' Association, Montreal, Branch, has been advised by the Commissioner of Excise and Customs, that a sales tax of 3% is payable by manufacturers of clothing or customs tailors on uniforms sold by tender to transportation companies.

Steam Railway Operating Revenues, Expenses and Other Statistics for June.

The following comparative table, for June, 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of $500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	$21,672,835	$24,180,584	$1,830,220	$2,078,820	$2,923,139	$3,214,864	$8,683,710	$10,395,536	$4,283,654	$4,675,336	$843,133	$573,437
Passenger	8,148,065	9,252,875	673,800	866,469	836,367	1,408,824	4,034,785	4,363,101	1,445,835	1,389,168	171,304	201,412
Mail	641,698	314,533	90,454	40,462	80,590	31,577	269,374	148,547	133,459	56,866	21,951	11,835
Express	1,581,626	1,227,072	109,184	115,388	162,738	128,461	610,276	648,403	598,601	216,725	33,916	30,580
All other	2,030,571	2,440,918	156,236	167,600	293,045	333,384	1,152,393	1,344,829	211,214	284,784	38,747	98,150
Total railway operating revenues	34,074,797	37,415,984	2,859,896	3,268,741	4,295,881	5,117,113	14,750,540	16,900,417	6,672,765	6,622,882	1,109,053	915,414
Operating expenses												
Maintenance of way and structures	7,468,588	9,537,808	$1,050,985	$1,128,278	$1,503,777	$1,969,905	$2,371,878	$3,202,718	$1,073,485	$1,173,235	$ 449,881	$1,063,695
Maintenance of equipment	7,231,211	9,003,902	842,777	758,545	1,258,828	1,262,550	2,205,413	2,574,134	1,738,648	1,831,611	354,575	706,478
Traffic	971,112	763,731	61,792	49,329	104,059	108,016	552,030	409,084	148,481	103,070	28,268	28,064
Transportation	15,186,286	15,930,614	1,787,526	1,794,986	2,491,387	2,655,888	5,919,939	6,381,841	2,652,794	2,803,051	624,976	575,634
Miscellaneous operation	513,674	696,081	52,342	62,013	107,735	125,782	236,059	408,065	40,989	31,775	11,336	21,009
General	940,122	942,406	15,780	84,044	159,819	129,855	310,548	322,314	264,925	223,389	39,487	36,684
All other Cr.	99,181	40,508	.....	.....	88,836	Cr. 50,071	.....	.....	Cr. 261	.....	Cr. 20,159	.....
Total railway operating expenses	32,211,813	36,834,034	3,811,205	3,877,197	5,536,711	6,201,928	11,595,870	14,298,160	5,919,063	6,166,135	1,488,366	2,431,567
Net operating revenue	1,862,983	581,949	.....	.....	.....	.....	3,154,670	2,602,257	753,702	456,746	.....	.....
Net operating deficit	.....	.....	951,308	608,455	1,240,889	1,084,814	.....	.....	.....	.....	379,313	1,516,152
Ratio of operating expenses to revenue	94.53%	98.44%	133.26%	118.61%	128.88%	121.19%	78.61%	84.60%	88.70%	93.10%	134.20%	265.62%
Mileage and operating statistics												
Average No. of miles of road operated	38,301.20	37,810.75	4,564.05	4,201.75	9,757.4	9,654.7	13,785.8	13,772.1	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue)	7,096	9,752	508	969	847	1,119	1,963	2,790	1,691	2,250	274	170
Tons moved one mile (revenue)	1,538,356	2,264,429	137,626	219,768	231,234	336,229	605,365	962,355	286,979	424,087	82,465	52,321
Tons moved (all freight)	9,152	11,117	726	1,120	1,101	1,301	2,579	3,431	1,905	2,523	323	224
Tons moved one mile (all freight)	1,827,898	2,552,683	178,032	237,695	304,539	400,517	736,842	1,122,441	308,076	449,294	99,302	67,083
Passengers carried	3,686	4,109	485	610	411	457	1,419	1,574	920	974	55	64
Passengers carried one mile	253,276	329,947	25,312	40,875	26,832	45,772	124,893	159,055	42,640	44,155	6,217	7,253
Freight train miles	3,320	4,529	340	496	556	862	1,223	1,744	679	834	165	164
Passenger train miles	3,797	3,929	391	406	510	564	1,753	1,844	647	616	125	113
Mixed train miles	549	601	87	103	163	154	141	170	59	63	28	40
Loaded freight car miles	78,875	106,315	8,424	10,843	12,373	16,380	30,276	44,444	13,941	18,871	4,046	3,351
Empty freight car miles	37,857	33,166	2,733	2,614	6,818	6,589	12,571	13,343	7,981	6,012	2,043	1,332
Passenger car miles	27,028	29,095	2,908	3,175	3,511	4,275	12,906	13,836	3,909	3,826	1,067	1,007
Total amount of pay roll	$20,220,219	$24,578,769	$2,356,392	$2,726,006	$3,855,709	$4,887,347	$7,500,721	$9,584,288	$3,879,873	$4,452,784	$806,034	$1,199,615
Averages per mile operated												
Operating revenue	$889.65	$989.56	$626.61	$777.94	$440.27	$530.01	$1,069.98	$1,227.15	$1,868.60	$1,854.63	$395.06	$326.08
Operating expenses	$841.01	$974.17	$835.05	$922.76	$567.44	$642.37	$841.15	$1,038.20	$1,657.54	$1,726.73	$530.17	$866.16
Net operating revenue	$48.64	$15.39	.....	.....	.....	.....	$228.83	$188.95	$211.06	$127.90	.....	.....
Net operating deficit	.....	.....	$208.44	$144.82	$127.17	$112.36	.....	.....	.....	.....	$135.11	$540.08
Tons moved one mile (revenue)	40,164	59,888	30,155	52,304	23,698	34,825	43,912	69,877	80,364	118,759	29,375	18,638
Tons moved one mile (all freight)	47,724	67,512	39,008	56,570	31,211	41,484	53,449	81,501	86,271	125,818	35,373	23,896
Average per freight and mixed train mile												
Freight receipts	$5.60	$4.71	$4.28	$3.47	$4.06	$3.16	$6.36	$5.43	$5.81	$5.21	$4.34	$2.80
Tons of freight (revenue)	397.5	441.4	321.9	366.4	320.9	330.6	443.5	502.7	388.6	472.1	424.8	255.2
Tons of freight (all freight)	472.4	497.5	416.4	396.2	422.5	393.8	539.8	586.3	417.2	500.2	511.5	327.2
Loaded freight cars	20.4	20.7	19.7	18.1	17.2	16.1	22.2	23.2	18.9	21.0	20.8	16.3
Empty freight cars	9.8	6.5	6.4	4.4	9.5	6.5	9.2	7.0	10.8	6.7	10.5	6.5
Average per passenger and mixed train mile												
Passenger receipts	$1.87	$2.04	$1.41	$1.70	$1.24	$1.96	$2.13	$2.17	$2.05	$2.04	$1.11	$1.31
Passengers carried	58.3	72.8	52.8	80.2	39.8	63.7	65.9	79.0	60.4	64.9	40.4	47.0
Passenger cars	6.2	6.4	6.1	6.2	5.2	6.0	6.4	6.9	5.5	5.6	6.9	6.5
Average per freight, passenger and mixed train mile												
Operating revenue	$4.44	$4.13	$3.49	$3.25	$3.50	$3.24	$4.73	$4.50	$4.82	$4.37	$3.47	$2.87
Operating expenses	$4.20	$4.07	$4.65	$3.85	$4.50	$3.92	$3.72	$3.80	$4.27	$4.07	$4.65	$7.63
Aver. length of haul (rev. freight) miles	216.8	232.2	270.9	226.7	272.7	300.4	308.3	344.1	169.7	188.4	300.0	306.2
Average passenger journey, miles	68.7	80.3	52.2	67.0	65.3	100.0	88.0	101.0	46.3	45.3	112.3	112.0
Average tons per loaded freight car	23.2	24.0	21.1	22.0	24.6	24.5	24.3	25.3	22.1	23.8	24.5	20.0
Ratio loaded to total freight car miles	67.6%	76.2%	75.5%	80.6%	64.5%	71.3%	70.7%	76.9%	63.6%	75.8%	66.4%	71.5%
Ratio of pay roll to revenue	59.3%	65.7%	82.4%	83.4%	89.8%	95.5%	50.9%	56.7%	58.1%	67.2%	72.7%	131.0%
Ratio of pay roll to operating expenses	62.8%	66.7%	61.8%	70.3%	69.6%	78.8%	64.7%	67.0%	65.5%	72.2%	54.2%	49.3%
Aver. freight receipts per rev. ton mile	1.409c.	1.068c.	1.350c.	.946c.	1.264c.	.956c.	1.434c.	1.080c.	1.493c.	1,103c.	1.022c.	1.096c.
Aver. passenger receipt per pass. per mile	3.217c.	2.804c.	2.662c.	2.120c.	3.117c.	3.077c.	3.231c.	2.743c.	3.391c.	3.146c.	2.755c.	2.777c.

Last 3 figures omitted

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc., includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

The Railways' Operating Results for June.

The gross operating revenues of Canadian railways as given on the preceding page show a good increase in June, as compared with May and April, although they are smaller than those of June 1920 by over $3,000,000. While the improvement shown by the comparison with preceding months this year is gratifying, the fact remains that traffic is not moving in nearly the volume that it was in the corresponding months of 1920. Even if freight rates were at the same level as they were in the same months of 1920, the decrease in revenue would indicate a falling off of large importance. When the increased rates are taken into consideration, the figures showing the great decrease in revenue passenger mileage and ton mileage are read without surprise.

The Canadian Government, the Canadian Northern and the Canadian Pacific Railways experienced such large reductions in operating revenue as to offset by the amount noted the increases shown by the Grand Trunk and the G.T. Pacific. While the Grand Trunk shows a falling off in freight revenue, and in revenue from miscellaneous sources, it shows an increase in passenger revenue, and very large increases in revenue from mail and express, so that its total gross revenue for the month exceeded that of June last year by $49,883.45. The G.T. Pacific, due chiefly to its large increase in freight revenue, shows a total operating revenue $93,639 greater than for June 1920. The Canadian Government Rys. show a decrease from June 1920 of 9% in freight revenue and 22% in passenger revenue, although freight and passenger earnings were 40 and 25% higher per mile, respectively. The Canadian Northern shows about 8% decrease in freight revenues, and over 40% decrease in passenger revenues from June 1920. June passenger receipts were 13% greater than May, but the June 1920 passenger traffic was very heavy being 87% greater than May 1920, which helps to account for the 40% decrease in June this year, compared with June 1920. The C.P.R. operating revenue decreased $2,149,877.68, or over 12%, compared with June 1920. This was chiefly in freight revenue, passenger revenues, due to increased fares, about holding their own, despite the 20% decrease in revenue passenger mileage.

A notable feature in connection with the revenues, of the railways as a whole, is the large increase in passenger revenues compared with May and April. For all the roads, the passenger revenue for June was 16% greater than for May; but a comparison with June 1920 shows the same facts obtaining as in the case of total revenue, viz., that the returns for June of this year were much smaller than for June 1920, the decrease in passenger revenue for all roads being $1,-104,810. Although the rates in June of this year were 10% greater, the figures for revenue passenger miles account for the result.

The operating expenses increased, for all roads, by $1,145,972.34 over those of May, but they were $4,622,221.05 less than in June 1920. Taking the roads as a whole, the accounts for maintenance of way and structures, and maintenance of equipment, show decreases as compared with June of $2,069,220 and $1,772,-691 respectively. This cutting of maintenance expenditure has been characteristic of Canadian railway operation during the year to date. Although the savings effected have been large, it is a reasonable supposition that such large curtailments of expenditure cannot continue. Although maintenance can be cut to a certain extent and for a certain period of time, in keeping with reduced traffic and consequent reduced revenue, without affecting the wide margin of safety that the roads maintain, it is a fact that maintenance expenditures cannot be curtailed in this way indefinitely. No doubt the improved showing made by the roads as a whole is due in large degree to these maintenance economies, and it would be well for those who so confidently point to increased net earnings as a reason for lowered rates to take this into consideration.

Transportation expenses do not show as much reduction as would be expected on examining the traffic figures, but this is a natural and unavoidable effect of conditions. Train mileage, particularly passenger train mileage, cannot be reduced in proportion to a falling off in traffic, while freight car loading and freight train loading tend to decrease, the while all the various items of transportation expense, which are not affected by a change in traffic conditions, continue to exist.

Although revenue decreased by $3,341,-187, compared with June 1920, the large decrease in operating expenses above noted resulted in the reduction of the operating ratio for all roads from 98.44 to 94.53. This is the lowest operating ratio for any month so far this year, and if it were not for the fact that so large a part of the reduction in operating expenses resulted from the reduction in maintenance expenditures, it could be well said that the railways were beginning to get on their feet financially. As a matter of fact, however, improvement has been evident, it being probable that the savings in maintenance made to date were justified, and that the properties have not suffered; but these expenditures cannot be withheld indefinitely, so that the future trend of operating results is by no means faithfully indicated by the showing made this year to date.

The effect of a traffic slump, and unfavorable conditions generally, on roads of low traffic density, is seen in the operating ratios of the Canadian Government Rys. and the Canadian Northern, which increased from 118.61 to 133.26 and from 121.19 to 128.88 respectively in June 1921, compared with June 1920. The C. P.R. shows an operating ratio of 78.61, compared with 84.60 in June 1920. If as much had been spent on maintenance of way and maintenance of equipment in June this year as in June 1920, the net would have been reduced to $955,109, and the operating ratio would have been over 93. The G.T.R. shows a great improvement in operating ratio, the figure of 88.70 being the lowest it has obtained this year. While its revenue freight ton-mileage decreased 30% and its revenue passenger mileage decreased 3%, the higher rates gave it more revenue, as noted previously, which, in combination with a 4% decrease in expenses, gave it the operating ratio it obtained. The G. T. Pacific, which is surely, even if slowly, emerging from the colonization stage, despite all the pessimistic utterances made concerning it, shows a remarkable improvement in bringing its operating ratio down to 134.20, compared with 265.62 in June of 1920. Although its passenger traffic decreased 14%, freight traffic increased 50%, resulting in an increase in revenue of 21%, which combined with a 38% reduction in expenses to make the improvement noted.

The traffic figures show that the revenue freight ton mileage for all railways decreased 32% compared with June 1920. Revenue passenger mileage decreased 24%. The only exception to the decrease in freight traffic is found on the G.T. Pacific, its increase being noted above. The average haul on the G.T.P. decreased slightly; the average haul on the roads as a whole decreased 7%, while the average passenger journey decreased from 80.3 to 68.7 miles, or 14.5%. Compared with May, the revenue ton mileage for June was about 3% smaller.

The number of freight train miles for all railways decreased 27% in June 1921, compared with June 1920. With a 32% decrease in revenue freight tonnage, as above noted, the fact of freight train mileage being decreased by 27% would indicate that operating efficiency has been maintained, and that no more trains were run light than absolutely necessary. While train loading decreased from 441.4 to 397.5 revenue tons, and from 497.5 to 472.4 tons for all freight, this is but an outcome of the prevailing traffic and economic conditions, and unavoidable. Prevailing conditions are also reflected by the figures dealing with empty and loaded cars in freight trains, the ratio of loaded to total freight car miles decreasing from 76.2 to 67.6% in June 1921. While, as above noted, revenue passenger mileage for the roads as a whole decreased 24% between June 1920 and June of this year, passenger train miles decreased but 3.4% and passenger car miles decreased by but 0.3%. This shows the difficult proposition with which the railways are faced when a large falling off in travel takes place. While revenues are reduced in large amount, the expense of providing the service is continued with but small decrease. Freight car loading shows a decrease of 0.8 ton a car, but, like train loading, this is a logical consequence of conditions.

The pay roll shows a large reduction from that of June 1920, due principally to the smaller number of employes in service in June of this year. The ratio of pay roll to operating expense is smaller in June this year than last, as is also the ratio of pay roll to revenue.

The average freight earning for the month was 1.409c. a revenue ton mile,

which is undoubtedly the highest average amount Canadian railways have received for transporting freight. The average receipts in January were 1.204c. a revenue ton mile. Since no rate increases of importance took effect in the first six months of the year, a conclusion which may be drawn is that a larger percentage of the freight handled consisted of high grade and high rate commodities. The average passenger rate, 3.217c. a mile, represents a large increase over the average rate of June 1920, but as June was the last month in which the 10% advance remained in effect, the average rate may be expected to be decreased considerably.

Taken on the whole, the performance of the railways for June marks another step in the gradual improvement in railway conditions. But it must not be lost sight of that the C.P.R. is the greatest factor in this improvement in the operating ratio, and that a large improvement remains to be effected before the railway industry of Canada as a whole is on a sound basis. The position of the Canadian National Rys. could not be made more unfavorable than it has been by the prevailing light traffic movement of past months. There was not nearly enough traffic to make them able to pay their way in 1920, and the falling off in 1921 has made their position much more difficult. In view of these conditions, the fact of their operating ratio having been kept down to what it has, constitutes a remarkable performance. The great need of the National Railways is more traffic, and the length of time it will take for these lines to become financially self supporting will necessarily depend largely on the rapidity with which population, and consequent commerce and industry, increase. The lines have a capacity greatly in excess of the present traffic demands, and for that reason it may be reasonably anticipated that each succeeding increase in the volume of traffic offering will be handled at a continually decreasing unit cost.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Alberta & Great Waterways Ry. — JOHN CALLAGHAN, heretofore in C.P.R. service at Calgary, who has been appointed acting Deputy Minister of Railways and Telephones for Alberta, and Manager of Railways, is now Manager of the A. & G.W. Ry., vice H. A. Warner, resigned. Office, Edmonton.

Alberta Railways and Telephones Department.—JOHN CALLAGHAN, heretofore in C.P.R. service at Calgary, has been appointed acting Deputy Minister of Railways and Telephones, and also Manager of Railways. Office, Edmonton.

Algoma Eastern Ry.—F. M. DONEGAN, heretofore Superintendent, has been appointed Chief Dispatcher at Sudbury, Ont.

Board of Railway Commissioners.—G. A. BROWN, Chief Clerk, Traffic Department, is acting as Traffic Officer, in consequence of James Hardwell's death.

Canadian National Rys. — J. DEED, heretofore District Freight Agent, Canadian National Rys., London, Eng., has been appointed City Agent, Freight and Passenger Departments, Canadian National-Grand Trunk Rys., and not City Freight and Passenger Agent, as mentioned in our last issue. Office, 44 Leadenhall St., London, Eng.

P. K. HUNT, heretofore Manager, Prince Arthur Hotel, Port Arthur, Ont., has been appointed Manager, Macdonald Hotel, Edmonton, Alta., vice J. B. Windross, assigned to other duties.

D. O. LEWIS, Assistant Engineer, Maintenance of Way, Toronto, has resigned, and has associated himself with the Engineering Corporation Ltd., Vancouver, B.C.

G. H. LINNEY has been appointed acting Assistant Superintendent, Battleford, Carlton and St. Brieux Subdivisions, Saskatoon Division, and Humboldt Subdivision, Dauphin Division, Prairie District, vice E. W. Cameron, transferred. Office, Humboldt, Sask.

J. P. McCLELLAND, not J. D. McClelland, as mentioned in our last issue, heretofore Assistant General Passenger Agent, Canadian National Rys., London, Eng., has been appointed District Passenger Agent, Canadian National-Grand Trunk Rys. Office, 44 Leadenhall St., London, Eng.

J. H. McDIARMID has been appointed Assistant Superintendent, Fort William Division, vice D. W. Steeper, transferred to Edson, Sask. Office, Sioux Lookout, Ont.

Canadian National Express Co.—F. C. SALTER, heretofore European Traffic Manager, G.T.R., and Canadian Express Co., London, Eng., has been appointed Manager, Foreign Department, Canadian National Express Co. Office, Montreal.

Other Canadian National Express Co. appointments are given on pg. 541.

F. J. G. SMITH, heretofore Publicity Eng., has been appointed Publicity Agent, Canadian National-Grand Trunk Rys. Office, 17 Cockspur St., London, Eng.

D. W. STEEPER, heretofore Assistant Superintendent, Fort William Division, Central District, C.N.R., Sioux Lookout, Ont., has been appointed acting Superintendent, Edson Division, Grand Trunk Pacific Ry., vice A. D. Carey. Office, Edson, Alta.

J. VANWYCK, heretofore Manager, Minaki Inn, Minaki, Ont., has been appointed Manager, Prince Arthur Hotel, Port Arthur, Ont., vice P. K. Hunt, transferred.

Canadian Pacific Ry. — J. GIBSON, heretofore Master Mechanic, Moose Jaw Division, Saskatchewan District, Moose Jaw, has been appointed General Foreman, Revelstoke, B.C.

W. G. McPHERSON, heretofore Master Mechanic, Regina Division, Saskachewan District, Regina, has been appointed Master Mechanic, Moose Jaw Division, Saskatchewan District, vice J. Gibson, transferred to Revelstoke, B.C. Office, Moose Jaw.

Canadian Pacific Steamships Ltd.—The name of The Canadian Pacific Ocean Services Ltd. was changed, on Sept. 8, to Canadian Pacific Steamships Ltd. G. M. BOSWORTH continues as Chairman, and the organization and personnel remain as hitherto.

Canadian Pacific Steamships Ltd. has appointed the Canadian Pacific Ry. Agency (Belgium) Societe Anonyme to act as its agent in Belgium. In future, therefore, the Canadian Pacific Ocean Services' office at Antwerp will be operated by the C.P.R. Agency. Sir George McLaren Brown, Sir Thomas Fisher, W. D. Grosset, Administrateur Delegue of the Canadian Pacific Ocean Services Agency (Belgium), Societe Anonyme at Antwerp, and C. De Mey, Agent, Canadian Pacific Ry. at Brussels, have been elected directors, W. D. Grosset being appointed Managing Director and C. De Mey being appointed Director of the agency at Brussels.

Erie Rd.—E. M. SNELL, heretofore Export and Import Agent, New York, has been appointed General Agent and will devote all his time to freight matters. Office, 59 Yonge St., Toronto.

Esquimalt & Nanaimo Ry. — J. D. FRASER has been appointed acting Superintendent, vice John Goodfellow, deceased. Office, Victoria, B.C.

Grand Trunk Ry.—G. A. GODFREY, Assistant to Auditor of Revenues, Montreal, has been appointed acting Auditor of Revenues, Western Lines, Detroit, Mich.

D. A. INNES has been appointed Locomotive Foreman, Stratford, Ont., vice H. Battley, resigned.

See also Canadian National Rys.

Reid Newfoundland Co.—It was stated in Canadian Railway and Marine World for September that R. C. Morgan, Superintendent, Winnipeg Terminal Division, C.P.R., had been offered the General Managership of the Reid Newfoundland Co.'s Ry. and having been granted a month's leave of absence had left Winnipeg Aug. 21 for Newfoundland, to decide whether to accept or not. He was installed in the position, made a few changes in the organization, but resigned on Sept. 12, stating his reasons in a letter to H. D. Reid, President, as follows: "When we first discussed the question of my accepting an engagement as General Manager of the railway for five years, I was unwilling to bind myself for a definite term until I had given the position a trial and become acquainted with its requirements. The time I have spent here since then has afforded me an opportunity to size up the present situation and the future prospects of the road. The conditions attending railway operation here are very different from those in Canada and the United States, and while I might be able to effect some economies in operation, large capital expenditures on the railway are necessary in order to put the freight traffic on a sound basis, and effect other savings of great importance. After careful consideration I do not feel justified in giving up my prospects with the C.P.R. to accept the managership of the Newfoundland Ry. I therefore beg to tender my resignation, and should wish, if convenient to you, to be able to return to Winnipeg at once, before my leave expires. I wish to express to you and to the staff my appreciation of the courtesy shown me and the assistance afforded me in getting acquainted with the details of operation."

Mr. Morgan left St. John's Sept. 13, for Winnipeg.

The position was offered previously to other Canadian railways officials. The salary offered is $15,000 a year for five years.

Mainly About Railway People Throughout Canada.

E. W. Beatty, K.C., President, C.P.R., and Chancellor of Queen's University, Kingston, Ont., is one of those who will deliver lectures in connection with the special commercial course for engineer students at the university.

Sir George McLaren Brown, European General Manager, C.P.R., and William Phillips, European Manager, Canadian National-Grand Trunk Rys., London, Eng., have been elected honorary vice presidents of the recently organized Canadian Club of Great Britain.

Miss B. M. S. Cantlie, eldest daughter of Lt. Col. G. S. Cantlie, D.S.O., formerly General Superintendent, Car Service, C.P.R., was married at Montreal, Sept. 5, to Robt. Hampson, Jr.

Percy Acton Clews, whose appointment as General Freight Agent, Canadian National-Grand Trunk Rys., London, Eng., was announced in our last issue, was born at Rock Ferry, Cheshire, Eng., Jan. 19, 1882, and entered transportation service in March, 1898, since when he has been, to Jan., 1907, with G. H. Fletcher Co., ship owners and forwarding agents, Liverpool, Eng.; Jan. 1907 to Jan. 1909, freight clerk, G.T.R., Liverpool, Eng.; Jan. to July, 1909, freight clerk, G.T.R., London, Eng.; July, 1909 to Apr. 1910, City Agent, G.T.R., London, Eng.; Apr. 1910 to Aug. 1914, acting Agent, G.T.R., Antwerp, Belgium; Aug., 1914 to Dec. 1918, City Agent, G.T.R., London, Eng.; Dec. 1918 to Sept. 1, 1921, General Agent and Assistant to European Traffic Manager, G.T.R., and Canadian Express Co., London, Eng.

F. Geraldi, C.P.R. station agent, Tweed, Ont., died there suddenly, Sept. 7, while on duty.

G. A. Godfrey, Assistant to Auditor of Revenues, G.T.R., Montreal, was presented with a smoking set and umbrella, by the local staff, Aug. 30, on leaving Montreal, for Detroit, Mich., where he has been appointed acting Auditor of Revenues, G.T.R. Western Lines.

John Goodfellow, Superintendent, Esquimalt & Nanaimo Ry., died at Victoria, B.C., Aug. 29. He entered railway service in Oct. 1882, since when he was, to Dec. 1884, dispatcher, C.P.R., Winnipeg; Dec. 1884 to June 1886, chief dispatcher on construction, C.P.R., Yale, B. C.; June 1886 to Apr. 20, 1902, chief dispatcher, C.P.R., Vancouver, B.C.; Apr. 20, 1902 to July 1, 1905, Trainmaster, C. P.R., Vancouver, B.C.; July 1, 1905 to Apr. 1, 1912, Assistant Superintendent, Esquimalt & Nanaimo Ry., Victoria, B.C., and from Apr. 1, 1912, Superintendent, same road.

Grant Hall, Vice President, C.P.R., was one of the guests at the Sherbrooke, Que., annual exhibition, Sept. 1, and, at the directors' luncheon, spoke of the relation of the C.P.R. to the Dominion and the railway situation in general.

Geo. H. Ham, of the C.P.R. executive staff, was a guest at directors' luncheon at the Sherbrooke, Que., annual exhibition, Sept. 2.

B. E. Holloway, General Manager, Mexican Ry., Mexico, with his wife and daughter, visited Montreal recently.

Miss Jessie B. B. Hutchison, daughter of Col. J. Alex. Hutchison, C.B.E., M.D., Chief Medical Officer, G.T.R., was married in Montreal, Sept. 9, to E. F. Newcombe, of Ottawa, son of the Deputy Minister of Justice.

A. H. Johnston, agent, G.T.R., Glasgow, Ont., has declined nomination as a candidate in the forthcoming Dominion elections, on the ground that the G.T.R., being now a Government road, employes are prohibited from being candidates for parliamentary honors, while holding their positions.

William Kennedy, Winnipeg, who recently attained his 97th birthday, came to Canada in 1853, and entered G.T.R. service as a locomotive man, running out of Belleville, Ont. He moved to Winnipeg in 1872, travelling by way of Chicago and Emerson, and was for a time engaged on construction work on the C. P.R., and followed the construction from Rat Portage (Kenora) to the Rockies. After completion of the line he was locomotive man on the paymaster's train, before divisional points were established, and continued as locomotive man for several years. About 25 years ago he was given a position in the C.P.R. Winnipeg shops, and was superannuated shortly after. He has been a member of his brotherhood for 50 years, and arrangements are being made to present him with a long service medal.

Sir Hormisdas Laporte, one of the directors, Canadian National Rys., who was mentioned recently as a possible member of the Dominion Government, is reported to have stated that he has no intention of re-entering politics.

John Leslie, Comptroller, C.P.R., accompanied by Mrs. Leslie and their son and daughter, toured the C.P.R. system and several of its subsidiary lines in the west, during September.

J. McGowan, who died in the Old People's Home, Vancouver, B.C., Aug. 31, aged 93, was employed on the first C.P. R. train which ran through to the Pacific coast, and continued in that service for some years. He was a Crimean veteran.

Sir Wm. Mackenzie left Toronto, Sept. 17, for England, expecting to return in November.

A. D. MacTier, Vice President, Eastern Lines, C.P.R., was one of the guests at the directors' luncheon at the Sherbrooke, Que., annual exhibition, Sept. 1.

Sir Donald Mann has returned to Toronto from England.

Walter Maughan, Assistant General Passenger Agent, C.P.R., Montreal, spoke for the railways, at the Canadian National Exhibition directors' luncheon, in Toronto, Sept. 8.

F. H. Moore, Assistant Master Mechanic, Canadian National Rys., Moncton, N.B., acted as Assistant Master Mechanic, Island Division, at Charlottetown, P.E.I., during the absence in September, of P. McQuaid, on holidays.

T. W. Paterson, Lieutenant-Governor of British Columbia from 1909 to 1914, died Aug. 29 at St. Joseph's Hospital, Victoria, where he was being treated for gastro-enteritis, stated to be due to drinking chlorinated water, the immediate cause of death being a clot of blood on the brain. He was born at Darvel, Ayrshire, Scotland, Dec. 6, 1852, and was brought to Canada as a child, his family settling in Ontario. He was educated in Oxford County, Ont., and entered service with Larkin, Carroll & Co., contractors, St. Catharines, Ont., who had a contract for building a section of the C. P.R. along the north shore of Lake Superior. He was also associated with a contract on the Welland Canal, and later became a partner in the firm of Larkin, Connolly & Paterson, and took a C.P.R. contract in British Columbia. He built a portion of the Esquimalt & Nanaimo Ry. and also the Shuswap & Okanagan Ry. The Victoria & Sidney Ry. was also built under his direction, and was opened for traffic under his superintendence.

F. R. Perry, General Agent, Passenger Department (Rail), C.P.R., was elected President, American Association of Travelling Passenger Agents, at its convention, at Salt Lake City, Utah, Sept. 15. The 1922 convention will be held at a point to be chosen in the Canadian Rocky Mountains district.

Hon. J. D. Reid, M.P. or Grenville, who had been Minister of Railways and Canals since Oct. 12, 1917, was not included in the reorganized Dominion cabinet announced by Premier Meighen on Sept. 21 and has been appointed a senator.

Joseph A. Richardson, formerly District Passenger Agent, Wabash Rd., Toronto, died there Sept. 19, after a long illness. He was born near Millbrooke, Ont., in 1844, and entered railway service with the G.T.R., afterwards transferring to the Union Pacific Rd., and later to the Wabash Rd. He was District Passenger Agent at Toronto for over 30 years, and retired during the war, when the Canadian offices of U.S. railways were closed on the taking over of the railways by the U.S. Railroad Administration. The funeral took place at Millbrooke, Ont., Sept. 21.

W. D. Robb, Vice President, Transportation, Construction and Maintenance, G. T.R., spent a portion of his recent holidays, in touring the G.T.R. and Grand Trunk Pacific Ry. systems, and during a portion of the trip was accompanied by Jas. McNaughton, Vice President, Baldwin Locomotive Works, Philadelphia, Pa.

D. W. Steeper, who has been appointed acting Superintendent, Edson Division, Grand Trunk Pacific Ry. (Canadian National Rys.), Edson, Alta., was, from Aug. 1908 to Nov. 1910, Trainmaster, G.T.P.R., Westfort, Ont.; Nov. 1910 to Sept. 1015, Trainmaster, G.T.P.R., Graham, Ont.; Sept. 1915 to Apr. 1917, conductor, National Transcontinental Ry., Graham, Ont.; Apr. to July 1917, acting Assistant Superintendent, District 3, Transcontinental Division, Canadian Government Rys., Fort William, Ont.; July 1917 to Dec. 1919, Assistant Superintendent, District 3, Transcontinental Division, Canadian Government Rys., Graham, Ont.; Jan. to Feb. 1920, Assistant Superintendent, District 2, Central District, Canadian National Rys., Sioux Lookout, Ont.; Feb. to Apr. 1920, acting Superintendent, Division 4, Central District, C.N.R., Winnipeg; Apr. 1920 to Sept. 15, 1921, Assistant Superintendent, Division 2, Central District, C.N.R., Sioux Lookout, Ont.

John Alex. Stewart, LL.B., of Perth, Ont., M.P. for Lanark, Ont., who has been appointed Minister of Railways and Canals to succeed Dr. J. D. Reid, was born at Renfrew, Ont., and is a barrister and solicitor. For some 15 years he was High Chief Ranger, Canadian Order of Foresters, was Mayor of Perth from

1900 to 1904, and was first elected to the House of Commons at a bye election May 3, 1918. During the Dominion Parliament's last session he took a prominent part in the examination of witnesses before the special committee on Canadian National Rys. and Canadian Government Merchant Marine.

Mrs. R. B. Van Horne, wife of the late Sir Wm. Van Horne's only son, has been left an annuity of $5,000 a year, and a life interest in $20,000, which at her death is to be divided among her children, under the will of her late father, Dr. W. A. Molson, of Montreal, whoseestate totaled $644,981.

Mrs. A. E. Warren, wife of the General Manager, Western Lines, Canadian National Rys., is convalescing from a serious illness, during a portion of which she was in Winnipeg General Hospital.

The Railway Wages Question in Canada and the United States.

The relationship between the Pennsylvania Rd. and its employes was fully discussed in Canadian Railway and Marine World for September on pg. 473. It will be remembered that the Pennsylvania had entered into agreements with its employes, through representatives elected by the employes at meetings called by the company, and that the U.S. Railroad Labor Board declared these elections null and void, and ordered new elections held, the labor organizations concerned to be recognized by the company The Pennsylvania immediately challenged the Labor Board's authority in this respect. It states that the Board had no authority, or power, in law, to ever extend the national agreements, and especially, after terminating them, to decide on a further extension. So far as the Pennsylvania is concerned, it states that the national agreements are completely terminated and of no force and effect. It points out in addition that the Board was authority for the statement: "There is no quesion of the closed or open shop involved in this dispute, and no other real matter of principle." If this is right, says the Pennsylvania management, and it does not admit that it is, and if the question is merely one of procedure, then the Board has no right or power to set up its judgment against that of the carrier. Dissatisfaction by certain employes, with matters of mere procedure, should not be tortured into a "dispute" within the purview of secs. 301 and 307 of the Transportation Act. The Pennsylvania also denies the power of the Board to prescribe an election, or any other method, by which the carrier may ascertain who are the authorized representatives of its employes, and states that it has been its policy, since the termination of federal control, to establish with its own employes a harmonious and contented relationship, ever bearing in mind that honest, efficient and economical operation of its lines can be secured only by close and unrestricted co-operation by the management and the employes. Out of 176,000 employes, contracts have been entered into between the company and the elected representatives of 149,918 employes, and the railway claims that if it complied with the Labor Board's decision these contracts would be rendered null and void, to the great and irreparable injury of the railway and its employes. Formal application has been made to the Labor Board for a withdrawal of its orders and the road offers to have counsel present at any time the Board desires to hold a hearing on the case.

Elisha Lee, Vice President of the Pennsylvania, is reported to have said in speaking of this matter:—"The Labor Board's order, in all likelihood, would compel us to conduct our conferences with strangers, with labor union general officers who were not our employes and who might not even be railroad men. It would defeat the very fundamental purpose of employe representation, which is based upon the principle of face-to-face discussion between management and men. Our differences with the Labor Board arise out of the fact that while Congress plainly created it as a board of mediation, to act in disputes which railroad managers and railroad employes were unable to settle between themselves, the Board has gone far beyond that scope and assumed very largely the role of an administrative or managerial body with respect to the labor affairs of the railroads. This, we contend, under the Transportation Act, it has no right to do, and that is the gist of our differences with the Board."

Some progress has been made by the Labor Board in deciding the controversy between the U.S. railways and their shop employes, in connection with the making of rules to supplant the national agreements. In a majority decision, the Board decided upon new rules to replace rules 7, 9, 10, 12, 14 and 15 of the shop crafts national agreement. The new rule provides that time and one half shall be paid for Sunday, and overtime work except that which is absolutely essential, but that straight time shall be paid to me who are regularly assigned to work on Sundays and holidays. Rule 7 has been changed so that instead of receiving a guaranty of one hour's pay for 40 minutes, or less, continuous overtime service, with the right to go to meals after one hour's work, the shop employe will be paid time and one half on an actual minute basis, with a minimum of one hour, and he can be held for two hours before going to meals. The time then taken for meals will not terminate the employe's continuous service and must be paid for up to 30 mins. Instead of receiving five hours pay for 3 hours and 20 mins. service, or less, when called to return to work the employe is to be paid a minmum of 4 hours for 2 hours and 40 mins. or less work. This four hours pay must also be paid to employes called but not used. Rule 9 gave the employe who worked through his lunch period, one hour's pay and the chance to get his lunch later without loss of time. The new ruling gives him straight time, and the opportunity of getting his lunch later without loss of time up to 30 mins. Rule 10 has been changed so that when an employe is sent out on the road to a job, he gets straight time for all time waiting or travelling, his time beginning when he leaves his home station. If away several days, he is now guaranteed 8 hours pay for each calendar day. Among the other changes may be noted that in rule 15, relative to the determination of a monthly rate for employes on road work and paid on a monthly basis, which is to the effect that, instead of arriving at the monthly rate by dividing 3156 hours (which includes 59 Sundays and holidays at time and one half) by 12, their monthly rate is to be determined by dividing 2920 hours, or 365 eight hour days, by 12. This was a majority decision. A dissenting opinion was given by A. O. Wharton, a labor representative on the Board, this being the first time that the Board has had a dissenting opinion presented. He claimed that the practice of paying extra compensation for overtime work had been established in American industry for 40 years, and he submitted a statement showing the practice of 2544 industrial firms in this connection, and claiming that 869 of these firms pay double time for overtime, 2270 pay time and one half, and only 49 pay straight time.

In connection with the ballots sent out to the members of the five large brotherhoods, it is of interest to note that the ballot prepared by the Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, Order of Railway Conductors, and the Switchmen's Union was prepared jointly, and stated that "It is to be understood the men will be permitted to withdraw from the service of their respective companies unless satisfactory settlement can be reached under the laws of the organization." The Brotherhood of Railroad Trainmen apparently did not like the wording of the ballot decided upon by the other organizations, and a statement accompanying their individual ballot said in part: "All members and others are hereby notified that if the membership vote is in lawful necessary majority to leave the service, rather than continue service under the reduced wages now in effect, they will on any or all lines, with the sanction of the general grievance committee, be given necessary authority by the president of the grand lodge. The president of the grand lodge will not undertake to prevent the wishes of the men as expressed in their ballot from being adhered to." A press report stated that the brotherhood chiefs were to convene in Chicago on Sept. 22 to consider the situation, and presumably to determine what action will be taken upon the ballots being returned and the vote recorded. No information as to the result of the balloting is to hand at the time of writing (Sept. 24). The shop crafts are highly dissatisfied with the Labor Board's decision in the national agreements case, referred to above, and officers of the federated shop crafts, after a three day conference at Chicago, issued a letter to the membership, in which the men are warned not to become involved in any unauthorized strikes, but to conserve their resources, and be ready to follow any lead which may be given by the responsible officers of the crafts.

Another interesting case before the Labor Board is in connection with the action of the New York Central in transferring employes engaged in the construction and maintenance of telegraph lines along its right of way to the Western Union Telegraph Co.'s pay roll. The labor representatives claim this is merely a means used by the railway to avoid paying the rates of wages laid down as just by the Labor Board. The railway claims this action was taken because its

contract with the telegraph company enabled the latter to refuse to honor the bills presented to it by the carrier, on the ground that the wages paid by the carrier were unreasonable, so a new arrangement was entered into. The case was heard before the Board on Sept. 13, but no decision has as yet been announced.

In Canada, wage matters are still the topic of much discussion and negotiation. In connection with the board of arbitration demanded by the Canadian Brotherhood of Railway Employes, the developments to date are that two boards have been constituted to deal with the organization's complaints, one to deal with the dispute as between it and the Grand Trunk Ry., and the other to deal with the dispute as between it and the Canadian National Rys. The board to hear the dispute between the Grand Trunk and the organization was granted under the Industrial Disputes Investigation Act, and is composed of J. M. Godfrey, K.C., of Toronto, chairman; H. H. Vaughan, Montreal, for the Grand Trunk, and Peter Marcovitch, K.C., Montreal, for the employes. The first session of the Board was to have been held in Montreal on Sept. 8, but it was postponed, and no information is available as to when the board will get down to work. In the dispute between the C.B.R.E. and the Canadian National Rys., a board was granted the employes under the terms of the Act Respecting Conciliation and Labor, composed of H. P. Hill, M.L.A., for Ottawa West, chairman; Geo. D. Kelley, of Ottawa, representing the company, and ex mayor Harold Fisher of Ottawa, representing the C.B.R.E. This body held a meeting at which representatives of the company and of the men were present, when the situation was thoroughly discussed. Any views that the members of the board may have had to the effect that the Canadian National management was unwilling to discuss the matter were dispelled by the management stating that it was willing to discuss wage schedules and working rules and conditions fully. In view of this, it was felt that some progress might be made as between the company and the organization without the board's intervention, so conferences between representatives of the C.B.R.E. and the company began on September 20, with a view to seeing if a settlement of all points in dispute could be arrived at, but such had not been accomplished up to Sept. 24. Under the Act Respecting Conciliation and Labor, the board of conciliation appointed is apparently supposed, in the first place, to attempt to bring the two parties to the dispute together, and pave the way for an amicable settlement, but in the event of not being able to accomplish this, the board of conciliation assumes the duties of a board of arbitration, provided the membership is agreeable to all concerned. If, therefore, the negotiations in progress do not result in a settlement being arrived at, it is altogether likely that the dispute will be referred to arbitration with the same arbitrators.

In connection with the joint application of the Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, Order of Railway Conductors, Brotherhood of Railroad Trainmen and Order of Railroad Telegraphers for a board of arbitration, it will be remembered that the Railway Association of Canada stated that it was not empowered to select a member for such a board, on behalf of the Canadian railways. After considerable correspondence between the Labor Department and the Railway Association had been exchanged in this connection, the Department conceded the point to the Railway Association, and on Sept. 12 appointed Isaac Pitblado, K.C., of Winnipeg, to act for the railway companies. This appointment was made only after further conference between the managements of the railway companies and the general chairmen and other representatives of the organizations concerned had failed to bring about an agreement. While the companies expressed a willingness to discuss wages and working conditions, they would not consider the withdrawal of the wage reduction which became effective July 16. The organizations considered this refusal as a barrier to the carrying on of further negotiations, as between themselves and the railways, before submission of the matter to a board of arbitration, with the result that the board was constituted with Mr. Pitblado representing the employes, and Mr. Justice Maclennan of Montreal as chairman. The first sitting of the board was scheduled for Sept. 28.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry.—J. Callahan, Deputy Minister of Railways for Alberta, returned to Edmonton, Alta., Sept. 3, from a trip of inspection over the line. It is reported that large quantities of ballast are being put on from Carbondale Jct., to the present end of track, near the Clearwater River. The route from this point into McMurray, has been relocated, and grading has been in progress for some time. It is expected that track laying will be started Oct. 1, and that the line will be completed by Oct. 31. (Aug., pg. 419.)

Burrard Inlet Tunnel & Bridge Co.—The annual meeting of the shareholders, who are representatives of the cities of Vancouver and North Vancouver and adjoining municipalities, was held in North Vancouver, Sept. 14, when directors were elected as follows:—E. H. Bridgeman, President; G. W. Vance, Vice President; E. E. Woodhouse, J. G. MacNaught, B. E. Townsley, P. Ward, and J. Leitch. A finance committee and a construction committee were appointed. The directors' report stated that while no construction had been done, consideration had been given to what might be done, and the British Columbia Government had been interviewed. It was suggested that the company take immediate steps to obtain estimates for a low level steel bridge with pile approaches, immediately north of the C.P.R. right of way, with as narrow an opening for ships as the Dominion Government would approve of. A committee was appointed to interview the Vancouver Harbor Board on the matter. (April, pg. 198.)

Central Canada Ry.—J. A. McGregor, General Manager, Edmonton, Dunvegan & British Columbia Ry., who also has charge of the C.C.R., returned to Edmonton, Alta., recently, after an inspection trip over the lines. He is reported to have stated that excellent progress was being made with the extension of the line northwesterly from the Peace River crossing, although some two weeks had been lost owing to unfavorable conditions. W. A. Dutton, Winnipeg, Man., has the grading contract. (Aug., pg. 419.)

Eastern Maine Ry.—An unconfirmed Fredericton, N.B., press dispatch says that this projected line is to be built in 1922 and that it will give the Canadian National Rys. connection with the Maine coast. The scheme is for Canadian interests to build from the St. John and Quebec Ry. at Pokiok, N.B., to the New Brunswick-Maine boundary and for United States interests to build thence to connect up with the Maine Central Ry. at Danforth.

Edmonton, Dunvegan & British Columbia Ry.—W. R. MacInnes, Vice President of Traffic, C.P.R., and other officials, made an inspection trip recently over the line, which is under C.P.R. management, and had a 125 mile motor trip through the Grand Prairie district, beyond the railway terminus. The question of the extension of the line from Grande Prairie, Alta., was discussed and it is said that the C.P.R. Co. is ready to build an extension provided the Alberta Government provides the money, as it is doing for the Central Canada Ry. extension.

The agreement for running rights over a portion of the Canadian National Rys. lines in Edmonton has been arranged, and it is reported that the E.D. & B.C. Ry. trains will be running into the C.P.R. station Oct. 1. Work was reported to have been started on Sept. 7 on a short piece of line to connect the C.N.R. with the C.P.R., and arrangements were said to have been made for laying the connecting switches. (Aug., pg. 419.)

Esquimalt & Nanaimo Ry.—An additional gang is reported to have been put on the piling for the substructure of the Johnston St. bridge, Victoria, B.C., and the last caisson has been sunk in place. The putting in of the concrete has been started, and it is expected to have it completed early in November. The substructure work is being done under the City Engineer, F. M. Preston. The Strauss bascule span superstructure is being manufactured by the Canadian Bridge Co., Walkerville, Ont., and will be erected as soon as the substructure is completed. (Aug., pg. 419.)

Grand Trunk Ry—The G.T.R. Victoria Bridge, Montreal, was closed to vehicular traffic between 11 p.m. and 6 a.m., from Aug. 22 to Sept. 10, to allow a sheet of asphalt to be laid on the highway portion for protection against fire.

The company is reported to be replacing all wooden bridges in Hamilton, Ont., east of James St., with permanent structures of concrete and steel. One of them is under construction at the Macnab St. cutting on Stuart St., and preparations are going on for putting in a steel superstructure at the crossing of Hughson St.

A press report states that the company is spending about $40,000 in replacing old wooden culverts on the London, Huron & Bruce Ry., with cement tile cul-

verts. (Aug., pg. 419.)

Kettle Valley Ry.—A recent press report stated that tenders were being invited for grading on the line from the southern end of Dog Lake, as far south as the experimental station on the soldier settlement area in the vicinity of Okanagan Falls. Another report stated that engineers had located a route for the continuation of the line to the International Boundary, a little north of Orville, Wash., a station on the Great Northern Ry.'s Spokane-Marcus-Penticton-Vancouver line, to which reference is made on another page of this issue.

The track has not yet been laid on the approximately two miles of line from Penticton to the north end of Dog Lake. The wharves at the north and south ends of the lake are reported to have been completed and the steamboat York is ready on the lake to run between the two sections of the line as soon as the northern section is completed. (Aug., pg. 419.)

Luscar Collieries Ry.—A recent press report stated that it was expected to have the five mile railway from Luscar siding on the Grand Trunk Pacific Ry. Mountain Park Branch, to the Luscar collieries, completed by Oct. 15. Development work at the mines is being pushed and it is expected to have 10,000 tons of coal ready for shipment when the railway is completed. (Aug., pg. 419.)

Reid Newfoundland Ry. — The Newfoundland Legislature has passed an act respecting the construction of the branch line from near Dunville on the St. John's-Placentia line, to Argentia. The act declares that the construction of the line and the payment for it out of the public funds, and everything done in connection with the taking of the right of way and payment for the same are ratified and confirmed. This piece of line, which is not yet completed, is intended to provide a more convenient winter port for trade with Canada, than Port aux Basques, to which point traffic is held up nearly every winter by snow blockades in the Topsails district.

Minto to Chipman.—The New Brunswick Government is reported to have decided to engage an independent engineer to locate a line, about six miles long, from Minto, in the Grand Lake coal mining district, to Chipman on the National Transcontinental Ry. The N.B. Government owns the New Brunswick Coal & Ry. line extending from Norton on the Intercolonial Ry. to Chipman, 58 miles., which is operated by the C.P.R. in conjunction with the Fredericton & Grand Lake Coal & Ry. Co.'s line from Fredericton via Minto to Chipman.

Northern Light Railways Co.—A press report states that the company has sold bonds sufficient to build 15 miles of narrow gauge railway in northern Ontario mining districts. It is stated that construction will be started at Swastika, on the Timiskaming & Northern Ontario Ry., and will be pushed easterly to Larder Lake, and westerly to Fort Batchewan. This mileage would cover the Kirkland Lake mining district. We have reason to believe that the bonds have not been sold. (June, pg. 305.)

Pacific Great Eastern Ry.—As stated briefly in Canadian Railway and Marine World for August, track was laid into Quesnel, B.C., July 22. It was expected that track laying would have reached there July 1, but the completion of the bridge across the Quesnel River was delayed. This extension gives the line a total length of about 375 miles from Squamish. Track was laid on 36 miles, from Deep Creek to Australian Creek, in 1920, and on 9 miles from Australian Creek to Quesnel this year. Track laying from Quesnel was pushed on immediately and it was reported that rails had been laid to the Cottonwood River, 16 miles from Quesnel, on Aug. 23, about a week earlier than was anticipated. At this point a large steel bridge is under construction, the contract for the superstructure having been given the Dominion Bridge Co. The remaining mileage between the Cottonwood River and Prince George is reported to be ready for track laying, and it is expected to start work at an early date, working from Prince George.

A party of members of the Legislative Assembly, led by the Premier, who is also Minister of Railways, left Vancouver, Aug. 25, by steamboat, for Squamish, the railway's coast terminus, and made a four day inspection of the line, to the end of track, 365 miles. Referring to the trip on returning to Victoria, the Premier said it had been shown that the Government was justified in changing the route of the line from that originally laid down, as a more secure roadbed had been provided at several points, and the line taken into Quesnel, instead of passing it at a distance of two or three miles. Track laying from Prince George to the Cottonwood River, 63 miles, would be gone on with as soon as possible. It is hoped to lay 20 miles this year, and to complete the line next spring. Funds have been provided by the issue of $1,000,000 of 20-year 6% bonds which were sold through Toronto bond houses at 93.59 in August.

D. Whiteside, M.L.A. for New Westminster, who was one of the party on the trip, is reported to have engaged G. Kent, an engineer, to advise him as to the possibilities of a plan which he proposes to present to the Legislative Assembly next year. He suggests that the line from Squamish to Clinton, 167.7 miles, be abandoned, and that the rails be taken up and used for a line from Clinton to connect with the Canadian National Rys., and the C.P.R. at Ashcroft, the route of which was described in Canadian Railway and Marine World for May, 1920, pg. 243. The abandoned right of way from Squamish to Clinton could be utilized as a motor road, and he claims it would be the most magnificent tourist road in the country. (Aug., pg. 420.)

Quebec Central Ry.—A press report states that the branch line of 19.5 miles from Scotts Jct., to a junction with the Canadian National Rys., a short distance east of the Quebec Bridge, has been completed, and will be opened for traffic Oct. 2. Arrangements are reported to have been made for the operation of trains from the junction, over the C.N.R. and the Quebec bridge into Quebec. The contractors for the extension were J. T. and J. F. Davis, of Quebec. A description of it was given in Canadian Railway and Marine World for May, pg. 242. (Aug., pg. 420.)

St. John & Quebec Ry.—The directors who have charge of this line for the New Brunswick Government, are reported to have been asked by the Canadian National Rys., which operate the line to provide about $80,000 to build section houses and sidings, and to make improvements on the road bed. About half of this proposed expenditure is stated to be to raise the roadbed at McGauley's crossing, near Fredericton. The C.N. Rys. management claims that the St. J. & Q. Ry. should bear this cost, and the latter contends that it is a maintenance work, which is to be paid for by the lessee. The matter is reported to have been discussed at a conference of C.N.R. officials with the directors on Sept. 8. In the event of an agreement not being reached the matter will, according to the terms of the lease. be submitted to the Board of Railway Commissioners for settlement. (June, pg. 306.)

Timiskaming & Northern Ontario Ry. It is reported that the clearing of a right of way for an extension of the railway north from Cochrane is under consideration.

The Toronto, Hamilton & Buffalo Ry. is carried across the Grand River at Brantford by a bridge, built in 1893, and partially rebuilt in 1902. The substructure consists of stone abutment at the east end, and two cylindrical piers built in 1893, and one concrete abutment and one concrete pier at the west end built in 1902. All the foundations are carried down to sold rock. The superstructure consists of three truss spans belonging to the 1893 bridge, and one plate girder span at the west end, erected in 1902. The three truss spans are to be replaced by three through plate girders of the same length. The length of all the spans is 102 ft. The contract for removing the present truss spans and erecting the new spans has been let to the Hamilton Bridge Works Co. It is expected that the work will be completed by Oct. 15.

Western Dominion Ry.—The Dominion Parliament has extended for one year the time within which the company may commence its projected railway from the International Boundary in Range 23, west 4th meridian, via Cardston and Pincher Creek to Lundbreck, on the C. P.R. Crowsnest line, thence to Calgary and Edmonton, Alta., and Fort St. John, B.C., with branch lines into the southern Alberta coal fields. Twenty-five miles of line are to be completed within a year, and a further 25 miles each year thereafter, until the whole of the railway is built. (Mar., pg. 143.)

Pouring Hub Liners.—In the article describing the pouring of hub liners on driving wheel hubs, in Canadian Railway and Marine World for August, it was stated that "the babbitt is melted in a Rockwell tilting furnace," thus indicating that the hub liners are of babbitt metal. The material used for them is brass.

C.P.R. Rail Order.—We are officially advised that the C.P.R. has ordered 250,000 gross tons, 100 lb., C.P.R. section, open hearth steel rails, from Algoma Steel Corporation, for shipment during September and October, and that the bulk of this tonnage will be shipped east from Sault Ste. Marie, Ont.

Live Stock Transportation Officers.—The Dominion Agriculture Department's Live Stock Branch has appointed two special transportation officers, to assist shippers of live stock in obtaining the best and quickest service possible, viz., L. L. Cook, Agriculture Department, Ottawa, for eastern Canada; and S. H. Gandier, Union Stock Yards, St. Boniface, Man., for western Canada.

The Canadian Electric Railway Association's next annual meeting will be held in Quebec, Que., June 1 and 2, 1922.

Farewells in England to F. C. Salter.

F. C. Salter, formerly European Traffic Manager, G.T.R. and Canadian Express Co., whose positions have been abolished, consequent on the appointment of Wm. Phillips, heretofore European Manager, Canadian National Rys., as European Manager, Canadian National-Grand Trunk Rys. and Canadian National Express Co., was entertained at luncheon at the Great Eastern Hotel, London, at the end of August by members of the staffs of the G.T.R., Canadian Express Co. and Canadian National Rys.

Sir Alfred Smithers, ex Chairman of the Board, G.T.R., who presided, said that it gave him very great pleasure to be there for the special purpose of welcoming Mr. Salter and wishing him all the good luck that he deserved in his new occupation on the other side, and also because, as he understood, a great many Canadian National men were there and a great many Grand Trunk representatives. He was not going to say anything or indulge in any speculation about the railway position in Canada. He had every hope that all the railways under Government control would be able to show successful results in the face of the very keen competition they would undoubtedly meet with. His only hope was that their efforts would be successful, and that Canada would enjoy the benefit of a first class railway system. The G.T.R. had had great difficulties to contend with in Canada. He would not go into any details, but would say that those difficulties would have immensely increased had it not been for the marvellous loyalty of their staff in Canada, the United States and England. The G. T.R. was first commenced in 1851, and the British spirit which went into the line on that occasion had been with it ever since, and although the officers today of the Grand Trunk Railway were largely Canadian or American, he believed there still remained that British spirit which carried them through very great difficulties. He must mention one name which ought not to be forgotten, that of Wm. Wainwright. He missed his old friend Mr. Wainwright more than he could say. Mr. Wainwright won the respect of all with whom he came in contact. Amongst others he would like to mention was W. D. Robb, whose friendship he had enjoyed since 1895, when he first went to Canada, a man of whom it was said that his religion was the G.T. R. Their Treasurer, Frank Scott, also deserved the highest praise for loyalty. In England they had H. H. Norman (Secretary), who died recently after completing 50 years service. H. Deer, the present Secretary, who, he was sorry to say, was not there that day, had put in over 45 years continued service. Amid all the misfortunes and all the trials which the G.T.R. had had, one saving factor had been the loyalty of its staff. There had been no better example of that loyalty than that shown by Mr. Salter. He had been there ever since 1904, and they had been through periods of unexampled tension together. It was a source of great pleasure to him to make the presentation, and he was sure that he was only voicing their wishes when he said that they wished Mr. Salter health, long life, and that he would succeed in the duties he was going to undertake. He then presented Mr. Salter a handsome cabinet of silver cutlery, bearing the inscription: "Presented as a mark of esteem and appreciation to Fred. C. Salter, Esq., by Sir Alfred Smithers, on behalf of all the employes of the traffic organizations of the G.T.R. system and associated members of the Canadian National Rys.

Mr. Salter, in reply, said that he had been through some very pleasant moments and some very sad moments. The severing of this connection after 17 years was one of the saddest. He wished to thank Sir Alfred for his generous words, and also those present for the generous way in which they had received that expression. Sir Alfred had put him rather in the position of Dr. Johnson, who was called before His Majesty after writing his famous dictionary. As he was leaving the palace, his face wreathed in smiles, he met Boswell, who asked him, "What did you say to His Majesty?" Johnson replied, "Who am I to bandy words with my monarch?" The spirit of affection was the greatest gift that one man could give to another. He was leaving these shores and they might never hear his voice again. All he asked of them was that they should remember Fred Salter. He knew he was leaving to his successor, Mr. Phillips, a loyal, intelligent and conscientious staff who would render to him that support and loyalty characteristic of the G.T.R.

Mr. Phillips also spoke briefly.

Mr. Salter was entertained at another luncheon, at the Elysee Restaurant, Coventry St., London, on Sept. 12, by officers of various transportation companies doing business with Canada, including the C.P.R., Canadian National Rys., Cunard and White Star Lines, American Express Co., and Thos. Cook & Son. Sir George MacLaren Brown, European General Manager, C.P.R., who presided, spoke of the harmonious relations which had existed between Mr. Salter and himself. Sir Alfred Smithers was unable to attend, owing to an emergency meeting of G.T.R. shareholders.

A London cablegram of Sept. 12 stated that Mr. Salter would sail for Canada on Sept. 27, on the s.s. Megantic.

Freight and Passenger Traffic Notes.

The Canadian National Rys. and Canadian Pacific Ry. autumn and winter time tables go into effect on Oct. 2.

The Canadian National, Canadian Pacific and Grand Trunk Railways put into effect Sept. 15 a reduced price list for meals on trains.

The Pacific Great Eastern Ry. has cut off four trains daily between North Vancouver to Altamont, B.C., two each way, owing to lack of passengers.

Over 4,000 head of live cattle were shipped through Montreal for the British markets during August, making a total of over 15,000 shipped during the season.

The C.P.R. ceased running the Great Lakes Special between Winnipeg, Man., and Fort William, Ont., Sept. 13, when the last train for the season left Winnipeg.

The British Columbia Government is reported to have passed orders in council Sept. 15, reducing by 15% the freight rates on potatoes in carload lots, and on saw logs on the Pacific Great Eastern Ry.

The Canadian National Rys. have announced a number of changes in the times of operation of a number of trains, together with some cancellations of a more or less local character, commencing Oct. 2.

Owing to a stenographic error it was stated in Canadian Railway and Marine World for August that British Columbia expects to ship 500,000 car loads of apples this year. Obviously the figures should have been 5,000.

The C.P.R. on Sept. 15 started running three trains a week in each direction on Mondays, Wednesdays and Fridays, between Estevan and Neptune, Sask., instead of the twice a week service operated previously.

The C.P.R. Trans-Canada Limited trains left Montreal and Vancouver, Sept. 10, on the last trip for the season. The transcontinental service is now supplied 10.15 p.m. for Vancouver and intermediate points; a Toronto section connecting at Sudbury, Ont.

The G.T.R. has been authorized by the Board of Railway Commissioners to close its station at Hawkesbury, Ont., and to use the Canadian National Rys. station there from Oct. 2. G.T.R. trains will operate into and from the Canadian National Rys. station at Rockland, Ont., and on the same date the connecting link between the C.N.R. and the G.T.R. at Brighton, Ont., will be completed and trains will be operated into and out of the G.T.R. station.

For handling the Okanagan Valley, B. C., fruit trade, the C.P.R. has added three new barges on Okanagan Lake, and is employing two tugs on the Penticton-Okanagan Landing run, and one on the Kelowna-Okanagan Landing run. The icing capacity at Okanagan Landing has been double. The loaded cars are shipped from Penticton to Calgary and other points. Up to the end of August 32 full cars had been shipped out this season, and in the early parts of September four cars a day were sent east.

The Alberta & Great Waterways Ry. put a new timetable in force recently. The important change is that sleeping and dining car service is operated from Edmonton, Alta., to the end of track, on the train leaving Edmonton 9.30 a.m. on Fridays, and reaching the end of track at 12.35 p.m. on Saturdays; returning at 8 a.m. on Sundays, and reaching Edmonton at 7.30 a.m. on Tuesdays. There are also trains leaving Edmonton for Lac la Biche on Mondays and Wednesdays, at 7.30 a.m., returning from Lac la Biche at 7.30 a.m. on Tuesdays and Thursdays.

The C.P.R. has put on two extra late Saturday night trains between Montreal and Toronto, and Toronto and Montreal, respectively. The westbound train leaves Montreal at 11.45 p.m. Saturday, arriving at Toronto, Yonge St. station, 9.15 a.m. Sunday. The eastbound train leaves Toronto union station at 11.59 p.m. Saturday, reaching Montreal 9.10 a.m. Sunday. The only traffic stops for either train are at Peterborough, but divisional stops are made at Smiths Falls and Havelock. This change gives two daily night trains between Montreal and Toronto both ways, the other westbound trains being no. 23 leaving Montreal 9.15 p.m. daily except Saturday, via Peterborough, and no. 21 leaving Montreal at 10 p.m. daily via Belleville. The eastbound trains are no. 24, leaving Toronto, Yonge Street, 9.45 p.m. daily except Saturday, and no. 22, leaving Toronto union station daily 10.50 p.m.

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PRINCIPAL CONTENTS.

Appointments, Transportation 525
Birthdays of Transportation Men 517
Board of Railway Commissioners,—
Freight Rates Decision 531, 535
Orders by, Summaries of 518
Traffic Orders 514
Canadian National Railways, Construction, Etc. 538
Canadian Pacific Ry., Construction, Etc..... 540
Earnings and Expenses 533
Electric Railway Department .....543 to 552
Answers to Questions 550
British Columbia Electric Ry. Franchise.... 546
Change in Rule of the Road 552
Finance, Meetings, Etc. 546
Freight and Passenger Rates 548
London St. Ry. Position 547
Projects, Construction, Etc. 548
Statistics for 1920 549
Toronto Ry., Property Arbitration 547
Sale of Subsidiary Companies..... 549
Toronto Transportation Commission,—
Wages, Working Conditions, Etc. 543
Express Companies, Among the 541
Freight and Passenger Traffic Notes 530
Grand Trunk Ry., Arbitration Award 579
Henry Ford's Railway 532
Mainly About Railway People 526
Marconi Wireless Telegraph Co. 542
Marine Department .....553 to 565
Belle Isle Strait, Proposal to Dam 565
Canadian Government Merchant Marine, Shipbuilding, Operation, Etc. 555
Canal Statistics for 1920 559
Sault Ste. Marie Canals Traffic 562
Shipbuilding, General 553
Ships Registered 560
Welland Ship Canal Contracts 562
World's Mercantile Shipping 564
Wreck Commissioners' Enquiries and Judgments 558
Railway Development 528
Railway Earnings 540
Railway Operating Statistics 523
Railway Rolling Stock Orders and Deliveries 534
Railway Situation, Sir Joseph Flavell's Review 511
Railway Wages Question in Canada and U.S. 527
Railways, Canadian, Position of 516
Railways, United States, Financial Position.. 534
Rate, Freight, Reduction 522

The Board of Railway Commissioners' Decision on Freight Rates.

The Board of Railway Commissioners' decision to leave railway rates as they are for the time being cannot fail to give satisfaction to those who are acquainted with conditions in the railway industry, and more particularly to those who appreciate the relation of railway transportation to the whole industrial structure of the country. Viewing the subject from any angle, it may be readily demonstrated, by a process of simple reasoning, that a general percentage rate reduction on Canadian railways is not desirable at this time. While improvement in the financial status of the railways is gradually taking place, that improvement has not yet progressed to an extent sufficient to allow a lower scale of rates to be introduced without results disastrous to the railway industry, and, incidentally, to the country.

In any consideration of railway rates in Canada, the Canadian Pacific operating results are commonly made the basis of the justness and reasonableness of freight and passenger rates. This is as it hould be. It is apparently recognized that the C.P.R., outstandingly representative of the privately owned public utility, is entitled to such rates that it may have, after efficient and economical operation of its property, sufficient net earnings to provide for the payment of a just and reasonable return to the investors in the enterprise. This, also, is as it should be. We go further, and say that the public interest would be better served if, in addition to paying the dividend on a capitalization so greatly below the value of the facilities employed in the public service, some annual surplus remained. Canada is a country in which we look for future growth and development; this inevitably requires continual addition to transportation facilities, and these continual additions are secured more economically if obtained by the expenditure of surplus earnings, than by the expenditure of money calling for increased capitalization. If new facilities calling for the expenditure of comparatively large sums are to be obtained, the cost of new capital, ultimately paid by the people, wil be influenced in great degree by the earnings, and consequent standing of the securities, of the railway.

Regarding the C.P.R. performance to date this year, it is evident that, while conditions have shown a slight degree of improvement over last year, in so far as net earnings are concerned, this improvement has been secured largely at the expense of deferring work, particularly maintenance, that must be done ultimately. In the recent proceedings before the Board of Railway Commissioners, the company estimated that, from present indications, the year's operation would result in a deficit, with rates as they are, while the Chief Commissioner adopted a more optimistic view and made an analysis to show that the company would have, at present rates, a surplus of sufficient size to permit o fa 10% reduction of freight rates now. Our contention is, that where maintenance and all other expenditures have been cut to a minimum for months past, and where present rates are such that one estimate of future earnings results in a predicted surplus, and the other in a predicted deficit, any reduction in rates would violate the principle of allowing the company sufficient earnings to maintain its property in good physical condition, and in a position of undoubted financial strength, and, in the final analysis, the public welfare would suffer.

The majority judgment, against a decrease in rates, was based on a possible decision against the railways in the matter of wages. It is easily understood that a reduction of rates would be out of the question if the former wage scales were put back into effect; but, as above noted, the C.P.R. looked for a deficit even on the reduced scale of wages. Irrespective of reduced wages, therefore, the above argument holds. A 10% reduction in passenger rates, coupled with numerous rate reductions already made by the railways themselves, have amply compensated for the wage decreases, and an attempt to base a general reduction of rates, on top of the individual reductions already made, on the wage decrease, would be an entirely unwarranted action. It must be realized that during the whole of 1920 the railways occupied a most unfavorable financial position; the 12% wage reduction is but a step toward removing them from that position, and toward restoring them to a normal basis, and an attempt to counteract that step, by a reduction in unit revenues would, if successful, merely have the effect of retarding the restoration.

Although traffic conditions require that rate scales in Canada and the United States be on substantially the same basis, both domestic and export rates in Canada, on a ton for ton, and mile for mile, comparison, are lower than they are in the U.S. Canadian railways pay the same wages, and as much, if not more, for their materials. The recent wage reduction was not seized upon in the U. S. as an excuse for a general rate reduction; the benefits were allowed to go to the railways, to assist them in improving their financial position. In Canada, we have had a 5% general reduction in freight rates and a 20% reduction in passenger rates since Sept. 1920; in the U.S. there has been no general reduction. Does it seem reasonable to suppose that Canadian railways are able to stand a further reduction, while the U.S. railways, operating under substantially similar conditions, have suffered no reduction?

We have spoken of numerous individual rate reductions already made by the railways. These are referred to more particularly on another page of this issue. It is our firm belief that such reductions, mare after study and conference, by traffic experts who are thoroughly acquainted with the situation, will do more to promote trade and industry than a straight percentage reduction, applied indiscriminately to all commodities. But a demand for a general percentage reduction in addition to these individual reductions, seems, and is, entirely unreasonable.

Canadian Railway and Marine World is thoroughly cognizant of the fact that it is in the best interests of all concerned that Canadian railways derive their revenues from the greatest possible volume of traffic, carried at the lowest possible rates consistent with first class maintenance, fair wages and a fair return to capital. While it does appear to us that the present sleeping car and parlor car charges might be reduced, with just as good results to the railways as they are now obtaining, we cannot agree

with the idea that present freight rates are acting as a discouragement to business revival. When the rates were increased, the cost of living, despite the assertions of many, decreased, showing just what effect on commodity costs the charge for transportation has. We are assured by responsible traffic men that in many cases during past months traffic would not have moved if it had been carried for nothing. Many instances come to our attention where rates have been decreased, in order to secure greater traffic, but the expected increase in traffic has not materialized. While recognizing fully the desirability of transportation charges which are as low as possible, we cannot stand idly by and see the financial standing of the transportation industry imperilled because of the general existance of a most fallacious theory.

After all, a general reduction of rail rates at this time would only be another case of robbing Peter to pay Paul, only Peter would stand a chance of being robbed of more than Paul would get. The people of this country must pay a certain sum for the transportation of themselves and their goods, and the only thing that could decrease the sum would be an increase in the efficiency with which transportation is conducted, if that were possible. If railway maintenance is allowed to run down, because of an improper relationship as between rates and expenses, the efficiency of conducting transportation is necessarily decreased, and in the end the people will pay more to make up that maintenance. If they pay less directly in rates at present, they will in future pay higher rates than they would otherwise be called on to pay, to enable the railways to get new capital for extensions and improvements. If they do not pay enough to yield a fair return to capital now, they will pay a great deal more in the future, to attract new capital. Further, the less direct revenue the National roads earn, while in their present position, the more will the people haveto pay in taxes to make up for their losses, and the more unjust the situation will become, in that the people who get the transportation will not pay for all of it; and all the other people of the country will be called upon to pay for some of it. Conditions in the transportation industry are such that a genera percentage rate reduction would be of no benefit to the Canadian people at this time. On the contrary, and in the final analysis, it would be disadvantageous to the people as a whole.

Henry Ford's Railway.

The Detroit, Toledo & Ironton Rd., which with branches has a little over 400 miles of line and runs from Detroit, Mich., and Toledo, Ohio, in a general southerly direction to Ironton, in the extreme south of Ohio, has been brought from obscurity to a position of prominence by its acquisition by Henry Ford, the automobile manufacturer, who became President of the road on March 4. Before he obtained control, the property had never justified its existence economically, and its history had been marked principally by continuous operating deficits. In February the operating deficit was slightly over $100,000. In April, the net operating revenue was in excess of $300,000, and in May and June the returns were even more favorable. The daily press has been full of sensational accounts of the manner in which the new management has removed inefficiencies, which, it is alleged, are common to all railways on the North Amercian continent, and the net result of these stories is that the public has been led to believe that railway executives are not enforcing economies that should be enforced, that as a class they do not know their business, and that it has remained for an outsider to show them how to conduct the industry. It is a fact that humanity is easily influenced by the sensational, and it is most unfortunate that public suspicion should be aroused against the railway industry at this time, when the railways are beginning to obtain some relief from the almost impossible conditions with which they have been faced for the last few years.

As a matter of actual fact, the new wage scales based on a minimum of $6 a day did not become effective on the D. T. & I. till July 1, and the rate reductions were not put into effect on the road till some time later, so that the vastly improved showing made by the property up to the end of June, the last month for which figures are available at the time of writing, could not have been caused in any degree by these changes, as is alleged. The reason for the remarkable improvement in the D.T. & I. results is found in the fact that the new management represents one of the largest manufacturers in the U.S., and that the position of the new owner, as a manufacturer and shipper, has enabled it to do things with the D.T. & I. that could not be done under other circumstances.

The average monthly ton mileage of the D.T. & I. for the last four months of 1920 was 49,000,000. The average monthly freight earnings were $490,000, or 1c. a ton mile. In January and February of this year its traffic fell off badly. In April, however, the revenue ton mileage had increased again to 31,600,000, yielding a revenue of $674,692, or at the rate of 2.13c. a ton mile. In May. 41,090,000 ton miles were handled, yielding a revenue of $721,562, or 1.76c. per ton mile; in June, 38,589,000 ton miles were handled, the revenue being $686,355, or 1.78c. a ton mile.

In the latter part of 1920, the D.T. & I. handled a lot of low class freight, taking a low rate, and on joint business it took just about such divisions of the through rate as its strong traffic connections saw fit to allow it. Its traffic in January and February decreased by a large percentage, in common with that of all other railways; but while the traffic of other railways remained small, that of the D. T. & I. in April, May, and June, picked up again. The point worthy of note is that the new traffic was not the usual low grade, low rate traffic, which has not picked up again, but that the new traffic is high grade, high rate traffic, as the above figures show, consisting largely of trucks and automobiles from the Ford factories at Detroit, and manufactured parts and materials to the factories at Detroit. It is also worthy of note that the new management is in a position to demand and get better divisions of through rates, for the simple reason that the bulk of the traffic being moved over the D.T. & I. belongs to the owner of the railway. The rate per ton mile of revenue freight moved being about double that received by the road before its acquisition by Mr. Ford, it is no wonder that its operating results should improve. If all other railways had been in a position to furnish a large new high rate traffic for themselves, when their ordinary traffic fell off, the chances are they would be in a position to raise wages and lower rates also, but things are made still more unfavorable for the other railways concerned, in that they have lost the traffic which they previously handled, and which is now handled by the shipper himself.

The Ford Company's freight bills come to about $20,000,000 a year. The D.T. & I. will earn about $7,000,000 of this, while the remainder will go to other railways. Is it not worth while for the Ford interests to start a movement for a 20% rate reduction on all railways, and give the movement encouragement by placing the reduction in effect on the D. T. & I.? It is certainly worth while for a man to sacrifice a dollar, as a railway man, if it will bring him back five dollars as a shipper.

After all, it is contrary to good plain common sense to believe that anyone can step into the railway industry and show the ablest men in that industry, and who have spent their lives in building up efficiency in it, how to do their work. That the wages paid by a railway can be raised, and the rates lowered, without some other great cause operating, is impossible. The cause, in this case, is that the D.T. & I. is being operated as an adjunct to the Ford factories, with their 70,000 cars of freight annually, rather than as a common carrier. The success of the new owner of the D.T. & I. in the quantity production of automobiles has been remarkable, but the fact remains that the D.T. & I. performance has advanced no argument against the way the transportation industry is being conducted. While no one will dispute the fact that the Ford factories are operated with efficiency, as all factories should be operated, the fact also remains that neither the employes of the D.T. & I. nor of the Ford factories could be made a preferred class as to wages, if the public were not charged a price involving large profits for the product of those factories, any more than could the employes of that other. great new industry, motion pictures, be paid salaries altogether out of proportion to their ability, unless the public were taxed sufficient to so pay them. If the Canadian and U.S. people paid no more for the other necessities and luxuries of life, in proportion to service rendered, than they do for railway transportation, they would be a much wealthier people than they are today.

Railway Employes Wages Situation.— Owing to a printer's error, and an oversight in proofreading, a sentence in the article on this subject in Canadian Railway and Marine World for September, on pg. 477, read as follows:—"In the latter part of 1920, practically all of the United States roads operated at a loss; so far in 1921 they have earned only about 20% on their capitalization." It should have read 2% instead of 20%. It may be added that the Transportation Act was designed to allow U.S. railways to earn 5½%, or, at the Interstate Commerce Commission's discretion, 6%, on their investment, but 2% is the average return earned by them so far this year.

Canadian Pacific Railway Earnings and Expenses for July.

The C.P.R. gross earnings for July, $15,772,929, were the largest for any month this year. The working expenses were $13,718,613, and operating ratio was 86.97%. The net earnings were $2,054,-316. Compared with July 1920, the gross was $1,602,831 less, but the expenses were $2,037,661 less, while the net for July this year was $434,830 greater, showing a large improvement in the July results this year, compared with those for July 1920.

The fact of the July gross showing an increase over any other month so far this year is an encouraging sign. The best month previous to July was March, when the gross was $14,705,726, or $1,067,203 less than in July. A good increase in traffic handled is thus evident. Consideration of the fact that passenger fares were reduced on July 1 to the level at which they were prior to the rate judgment of Sept. 1920, further indicates that traffic was moving in greater volume than for some months past. However, when it is noted that the gross in July 1920 was $17,375,760, and that this was earned on rates which, on the whole, were much lower than those now prevailing, the extent to which traffic has fallen off is at once evident.

The recent wage decreases are reflected only in part by the July figures, as they did not take effect until the beginning of the second wage period of the month, i.e., July 16. The reduction has been generally spoken of as averaging 12%, but it is doubtful whether it was as large as that. At all events, the fact of the wage reduction applying during the latter part of the month did not serve to decrease the operating ratio for July, as compared with that of June, which was but 78.53. While passenger earnings are only about one fourth of the total earnings, the fact remains that the 10% reduction in fares represents a large decrease in revenue, with no corresponding decrease in expenses, and it is probable that the wage reduction has been more nearly counterbalanced by this cut in rates than is commonly supposed. Although the passenger rate decreases applied during all of July, and the wage decrease only during the latter part of the month, the results would indicate that no sweeping freight rate reductions are possible at this time. The improvement over the situation of 1920 is not yet sufficiently pronounced to warrant anyone looking for substantial decreases in the cost of transportation service, if the railways are to be maintained on a proper financial basis.

The gross earnings for the first seven months of this year were $99,828,600, and the net earnings $15,004,487. The gross for the first seven months of 1920 was $109,433,347, but the net was only $13,047,672. These figures indicate that a good deal of improvement had been effected to the end of July this year, as compared with the corresponding period last year. The net for the first seven months of this year, however, is smaller than for the corresponding months of any year, with the exception of 1920, back to 1910. The fact of the C.P.R. 1921 earnings to the end of July being $10,000,000 smaller than those for the first seven months of 1920, despite the increased rates, indicates accurately the extent to which the world-wide business depression has affected Canada. On the other hand, however, the fact of the July gross earnings being much greater than those of June, and any preceding month in 1921, despite a reduction in passenger fares, may be taken as indicating that traffic conditions, and consequently economic conditions generally, are tending toward improvement.

The High Cost of Publishing.

In an effort to reduce production costs by getting lower prices on paper supplies, publishers who are members of the Canadian National Newspapers and Periodicals Association asked recently for a conference with paper manufacturers, which was held in Toronto on Sept. 8, when the situation was fully discussed. It was shown that some publishers are actually paying more for paper than in 1920, that the ruling price on book paper is 100% higher than in 1914, and that in some cases even more than 100% increase is being paid. Unfortunately, no relief was promised by the paper manufacturers. This does not, of course, refer to the grade of paper used by daily and weekly newspapers, which is materially lower in price now than in 1920.

Publishers of agricultural, business, educational, religious and technical newspapers and magazines in the United States, all of them in direct competition with Canadian publishers, are today buying their paper at from 25to 40% less than the prices paid for paper used in Canadian Railway and Marine World. These U.S. publications are all admitted to Canada free of customs duty, a fact which was impressed on the Dominion Prime Minister at the Canadian National Exhibition directors' luncheon in Toronto on Sept. 2, by Acton Burrows, President, Canadian National Newspaper and Periodicals Association, and Proprietor, Canadian Railway and Marine World, who, in responding to the toast of the press, said in part:— "The Association which I have the honor to imperfectly represent, the Canadian National Newspapers and Periodicals Association, embraces the agricultural, the business, the educational, the religious, and the technical newspapers, and the magazines. These are actually national publication, their circulations in the great majority of cases extending from the Atlantic to the Pacific. I can confidently say that they are performing a great national work, and that they will compare favorably with those of any other country, even with those of the great country to the south of us, with its far larger and more intensive population. In this connection I should like to impress on the Prime Minister the fact that United States publishers are allowed to send their publications — their finished products—into Canada, absolutely free of duty, while we have to pay heavy duty on anything we require to import, and which we require to use in the production of our papers."

In addition to the high cost of paper, there has been no reduction in wages of printers, pressmen, binders, etc. On the other hand, the Typographical Union, which is controlled from Indianapolis, demanded as from June 1 a decrease from 48 working hours a week to 44, and an increase in pay from $35.20 a week to $44. The principal national newspaper and periodical publishers, and job printers, throughout Canada, refused these extortionate demands and their men went on strike and a large number of them are still out. But the publications are being brought out, though in most cases at considerably increased cost. Even with a victory for the employers, which is undoubtedly assured, there will be no reduction of wages until well on into next year at the earliest and the old rates will continue to be paid.

A Ministerial Blunder.—The Mayor of St. Catharines telegraphed the Minister of Railways recently that the Niagara, St. Catharines & Toronto Ry. employes were threatening a strike, owing to the management not having acted on a board of conciliation award, and asked that the Minister take steps to prevent a strike occurring. The Minister replied that the telegram was the first he had heard of the question, and that he was taking the question up with the management at Toronto. This is but another instance of how Dr. Reid fails to carry out the Government's oft repeated declaration that the Canadian National Rys. management is free from political interference. His reply should have been that the matter referred to was one to be dealt with by the C.N.R. management and that St. Catharines' mayor should communicate with the management. Such a telegram as Dr. Reid sent in this case is simply an encouragement to the public to keep on attempting to secure political interference and so long as Ministers of Railways continue to pursue such a course so long will the management's difficulties be increased.

A Liberal Leader's Railway Policy.—Hon. R. Lemieux, M.P. for Gaspe and Maisonneuve, Que., who was Postmaster General in the Laurier Government, in speaking at a meeting held in Montreal, Sept. 22, in connection with the 25th anniversary of his membership in the House of Commons, said: "I have on many occasions expressed my personal opinion on the railway problem. It was a fatal error for Canada, after the experience of Great Britain and the United States, to have taken over the Canadian Northern and the Grand Trunk. The proposition of Lord Shaughnessy appears to me to be the one solution possible, subject to revision in terms. Some one will cry of monopoly, but between two evils we must choose the lesser. I prefer monopoly to bankruptcy. The Board of Railway Commissioners has powers which are absolute in the matter of tariffs and was created to protect the public." It is significant that the leader of the Dominion Opposition, Hon. W. L. Mackenzie King, and many other prominent Liberal politicians were present.

Another Unloading Scheme.—A financial paper urges that the Dominion Government take over from the New Brunswick Government the St. John & Quebec Ry., which was promoted to provide direct connection between St. John and the National Transcontinental Ry., and has been completed from Westfield, on the C.P.R., near St. John, through Fredericton to Centerville, N.B., and is being operated by the Canadian National Rys. for 60% of the revenue. The 40% going to the N.B. Government is not sufficient to pay interest on the total expenditure of over $8,000,000 on the line, hence the desire to get rid of it. Is it not time that the unloading of non-paying railways on the Dominion should cease? Every one that is taken over adds to the Canadian National Rys. management's difficulties.

The United States Railways' Financial Position.

Canadian Railway and Marine World for September, on pg. 468 reviewed the progress made in the effort to restore the credit of U.S. railways, up to the point where bills providing for the funding of the debts of the railways to the Government were introduced in the House of representatives and the Senate. On Aug. 22 the bill was passed in the House, by 214 to 120. A recess in the Senate, commencing in the latter part of August, the Senate bill was left until the recess is over, so that the railways will be compelled to wait still longer for the financial assistance to be provided. During the discussion in the Senate, a letter from W. G. McAdoo, formerly Director General of Railroads, was read, in which he pointed out that out of a total indebtedness of the railways to the Government of $1,144,000,000, the sum of $381,000,000, which the Government had spent in furnishing the railways with additional equipment, had already been funded, leaving $763,000,000 still owed by the railways. His contention is that the U.S. Government is not bound, as stated by President Harding in his message to Congress, to fund these debts owed by the railways; all it is legally and morally bound to do is to fund "the remaining indebtedness of the carriers to the Government after the accounts have been balanced," i.e., after there has been set off, against the amount which the railways owe the Government, the amount which the Government owes the railways. While, apparently, Mr. McAdoo does not directly attack the proposed legislation, he nevertheless points out that it is not based on a question of "legal and moral obligation," as the Government would have it appear, but that it is purely a matter of policy, for which the Government is responsible, and should be recognized as such. A good deal of opposition has developed in the Senate toward the proposed legislation, but indications are that it will pass there as in the House, and that the War Finance Corporation will be authorized to accept the securities of the railways for the amounts owed the Government, while the Railroad Administration will pay the roads the sums owed them by the Government, from moneys on hand, and from sums derived from the sale of the railways' securities.

In connection with the funding of $381,000,000, which the Government spent for locomotives and cars for the railways, during the period of federal control, as above noted, is may be pointed out that the securities, or equipment certificates, issued by the various railways bear interest at 6%, mature serially from 1928 to 1935, and are held by the Railroad Administration. These securities to the extent of $7,500,000 have been sold recently to investors through Kuhn, Loeb & Co., and it is expected that the remainder of them will be disposed of gradually as market conditions improve.

In July, the 202 class 1 U.S. railways earned a net operating income of $69,-485,000, an increase of over $17,000,000 over June. To get 6% on their valuation, as determined by the Interstate Commerce Commission, they should have earned a net operating income of $93,-267,000. The income earned represents an annual return of 4½%. As compared with July 1920, operating revenues decreased 12.5%, but as operating expenses decreased 29.4%, a deficit of $11,878,000 for July 1920 was replaced in July 1921 by the net operating income noted above. A large part of this good showing is owing to the decrease in wages which took effect July 1, but a large part is also due to economies in maintenance of way and of equipment. For the 11 months since Sept. 1, 1920, when the guarantee period ended, U.S. railways have earned a net operating income of $483,000,000, representing an annual return of 2.6% on the investment. To ear nthe 6%, decided upon as just by the Government in framing the Transportation Act, they should have earned $570,000,000 more than they did in the 11 months period.

A determination as to when the hearings concerning the general railway situation, before the Senate Committee of enquiry, will not be arrived at till after the close of the Congressional recess. The testimony of the railway executives before this committee was reviewed fully in previous issues of Canadian Railway and Marine World. Shippers and the representatives of labor organizations have yet to present their testimony.

It is interesting to note that the gradual improvement which has been taking place in the financial position of U.S. railways has served to prevent railway securities from participating fully in the general downward tendency in the stock market which has prevailed since the autumn of 1919. During the past few weeks, while industrial shares have been experiencing a continuation of their declines, railway shares on the whole have advanced a few points. The progress made in the funding legislation undoubtedly has also had something to do with this.

Health Train in Quebec.—The C.P.R. equipped a "health train" recently, which made a tour of the Province of Quebec. The movement was started by the Child Welfare Association, and the Red Cross Society of Montreal, and has for its object the instruction of parents in the right way of bringing up children. A. D. MacTier, Vice President, Eastern Lines, C.P.R., represented the company at the starting out of the train, which was run over the C.P.R., the Canadian National Rys. and the G.T.R.

L. E. Ayer, General Agent, Traffic Department, Canadian National-Grand Trunk Rys., Kansas City, Mo., has written Canadian Railway and Marine World as follows:—"I am enclosing cheque for renewal subscription to your valued paper, which I could hardly afford to be without. I look forward to its receipt with pleasure, as the articles and personals are of great interest to a representative of Canadian lines."

Canadian National Railways Divisions in New Brunswick.—A Fredericton paper stated recently that a new division was about to be created in New Brunswick, and that its headquarters would be at Fredericton. We are advised that there is no foundation for the report, and that the matter has not been considered in any way.

C.P.R. Hotel Rates. — A Vancouver press dispatch credits C. E. E. Ussher, Passenger Traffic Manager, C.P.R., with stating there recently that food prices in all C.P.R. hotel dining rooms will be reduced 16% on October 1.

Railway Rolling Stock Orders and Deliveries.

The C.P.R., between Aug. 14 and Sept. 20, received 4 vans from its Angus shops, Montreal, and 275 steel frame box cars from National Steel Car Corporation.

It is expected that the first shipment of the order for 500 oil tank cars, building for the Russian Soviet Government, by Canadian Car & Foundry Co., will be made during October. It is stated that complete shipment will be made at intervals, in four Canadian Government Merchant Marine ships, from Montreal, to Novorossisk, a Russian Black Sea port, and that this will be the first shipment of Canadian goods to Russia, since the conclusion of the war.

A Fort William, Ont., press dispatch of Sept. 14 stated that the city clerk had received a telegram from Dr. R. J. Manion, M.P. for Fort William and Rainy River, who was then in Ottawa, stating that "The Fort William Car & Foundry Co." was to receive an order for repairing 1,500 Government cars there. There is no "Fort William Car & Foundry Co.," but Canadian Car & Foundry Co. has a plant there. We were officially advised Sept. 22 that no order has been placed for repairing cars. As far as we can ascertain it is possible that orders may be given for repairing, in fact largely rebuilding, a considerable number of not only Grand Trunk Pacific Ry. cars, but also Canadian National Rys. ones, and should this be done it is possible that plants in eastern Canada as well as the one at Fort William, will receive orders.

The G.T.R. has, we are officially advised, ordered 600 flat cars, 100,000 lb. capacity, from the National Steel Car Corporation. We understand that these are a part of an order for 1,000 given last year, and of which, 400 have been delivered as mentioned in previous issues. They are to be built with side and center sills of the fish belly type, the former of ⅜ in. plate, and the latter of 5/16 in. plate, 28 in. deep, with cast steel striking plate, drop forged body center plate, and cast steel truck bolsters of U.S. Railroad Administration design; end sills of 15.3 channels, 10 in. The truck bolsters are arranged for the Barber lateral motion device. Following are the chief details:—

Length over floor	40 ft. 5 in.
Width over floor	9 ft.
Height from rail to top of floor	4 ft. 2½ in.
Draft gear	Miner friction A-224-S
Couplers	A.R.A. class D
Air brakes	Westinghouse KC-812
Trucks, type	Arch bar
Journals	5½ x 10 in.
Side bearings	Miner roller

News privileges on Timiskaming & Northern Ontario Ry.—Tenders will be received, to Oct. 3, for the privilege of selling, on T. & N.O.R. trains, newspapers, books, periodicals, publications, nuts, fruits, confections, cigars, stationery, fancy goods, and other articles usually sold on trains.

Brockville Stations. — The Canadian National Rys. station at Brockville, Ont., has been closed and C.N.R. trains are operating to and from the G.T.R. station.

The Moncton Tramways, Electricity & Gas Co. has made an agreement with the Moncton, N.B., City Council for the sale to the city of the lighting plant, originally bought from the city. The ratepayers were to vote on the bylaw on Sept. 29.

The Board of Railway Commissioners Decides not to Reduce Freight Rates and Sleeping and Parlor Car Fares.

Following several conferences at Ottawa, between the Board of Railway Commissioners and railway officials, the Board, early in September, considered the question of reductions in freight rates, and sleeping and parlor car fares, the result being a division of opinion, Chief Commissioner Carvell and Deputy Chief Commissioner Nantel favoring reductions, while Assistant Chief Commissioner McLean and Commissioners Boyce and Rutherford held that reduction should not be made until the employes' wages question has been settled. The Chief Commissioner prepared a judgment dated Sept. 13, which Mr. Nantel concurred in, and the Assistant Commissioner prepared another judgment bearing the same date, which Messrs. Boyce and Rutherford concurred in. On Sept. 14 a statement was issued from the Board's offices which said:—"As a result of the divided opinion of the Board of Railway Commissioners there will be no reduction in freight and sleeping car rates, etc., at least for the present." A summary of the Chief Commissioner's proposed reductions was then given, and the statement concluded as follows:—"Assistant Chief Commissioner McLean and Commissioners Boyce and Rutherford have filed a judgment refusing the rate reduction, on the ground that the wages of railway employes are now the subject of investigation."

The two judgments are given in full as follows:—

Chief Commissioner Carvell's Judgment.

Under sec. 325 of the Railway Act, 1919, subsec (1),—"The Board may disallow any tariff or any portion thereof which it considers to be unjust or unreasonable, or contrary to any of the provisions of this act, and may require the company, within a prescribed time, to substitute a tariff, satisfactory to the Board, in lieu thereof, or may prescribe other tolls in lieu of the tolls so disallowed."

About a month ago, the Board of its own motion, instituted an investigation to decide whether or not a change should be made in the freight, Pullman and sleeping car rates as now existing in Canada, and requested the railway companies of Canada under its jurisdiction to meet the Board at Ottawa on Aug. 30, for the purpose of discussing the whole situation. The proceedings were informal, in the nature of a conference, because we felt that, if a reduction in rates was justified, then no greater delay should be allowed than was absolutely necessary and also that we would probably have a better opportunity of discussing the whole situation than we would at a public hearing. At the conference, the Canadian Pacific, Grand Trunk, Canadian National, New York Central, Michigan Central, and Temiscouata Railways were specially represented by their officials, and, in most cases, solicitors, and all other railways under our jurisdiction were represented by the Railway Association of Canada. Continuous conferences have taken place almost daily down to the present time. Statements were furnished by some of the railways, principally by the C.P.R. I think I am safe in saying that they all deprecated any serious reduction in rates, but contended that, if a reduction were to be made, it should be on special commodities which, in their judgment, would be of particular benefit in expediting commercial transactions in Canada, rather than percentage decrease covering traffic of all kinds. They all agreed, however, that there should be a reduction in sleeping, Pullman, and parlor car rates, practically admitting that the present rates were so high as to prevent a certain amount of traffic. There were some suggestions that the reduction in the rates governing this particular class of traffic should be graduated according to distance, giving a greater percentage reduction on long distance traffic than on the shorter, and with this view, on general principles, I am inclined to be in accord, but no details have been furnished us up the present time.

By the Rate Judgment of Aug. 1920, a flat increase of 40% in Eastern Canada and 35% in Western Canada was given on all freight traffic, with a few exceptions more particularly referred to hereafter, up to the end of Dec. 1920, and thereafter of 35% in Eastern Canada and 30% in the West and a 50% increase in sleeping car, Pullman, and parlor car fares. It was strongly contended by the representatives of the Grand Trunk and Canadian National roads that their finances were such that a rate reduction of any kind excepting that in sleeping car rates, etc., would be a gross injustice to them because, with the Canadian National in particular, their operating expenses far exceed their revenues, and a reduction in rates would only aggravate the difficulties under which they were laboring.

The C.P.R. contended that any reduction in rates would probably endanger their chances of earning dividends for this year. The decision of this Board in the Aug. 1920 case was referred to, in which it was contended that on account of the strong financial position which the C.P.R. has occupied in the business life of Canada for many years past, any rate arrangement should be such as to leave them in a position to earn its dividend of 7%. I agreed with that proposition then, and reiterate it here, and, therefore, in arriving at a conclusion at the present time, I am doing so entirely on an examination of the C.P.R. traffic and financial requirements. That company filed with us a very comprehensive analysis of all kinds of traffic for the first seven months of this year, January to July inclusive, and an estimate of receipts and expenditures for the remaining five months. During the discussions they were able to produce the gross receipts for August, but the amounts credited to each particular kind of traffic had not been segregated, and therefore we have not the benefit of this information so far as that month is concerned, neither have we any statement of their expenditures. In the statement filed, they estimated a small deficit. In doing so, they pointed out many important reductions which have been made during the past eight months, and particularly within the last two or three months, which are very considerable, and will, to that extent, affect their net at the end of the financial year. Perhaps the two most important reductions are grain from Fort William and lake ports, both to the seaboard and for domestic consumption in Eastern Canada, and live stock. In the case of grain for export, the reduction amounts to 3c. per 100 lb. from Fort William, and 5c. per 100 lb. from Bay ports. They propose to increase the 3c. reduction from Fort William by 7½c., or a total of 10½c. per 100 lb., and to reduce the rate on grain for domestic consumption from Fort William by 4½c. per 100 lb. and the rate on grain between stations in Eastern Canada by 2½c. per 100 lb. This, they estimate, will amount to a reduction in revenue of $1,169,000. In the case of live stock, the reduction amounts to about 25% of the existing rates. This last reduction was made with the entire concurrence of the Board, in July last, owing to the serious condition in which that important industry found itself by reason of existing economic conditions, and will, according to the company's estimate, amount to $220,000 from the date of reduction. They propose a reduction in the rate on hay of 25%, which will amount to $143,000, this due to the shortage in the hay crop in Ontario and Quebec and, to some extent, in the Maritime Provinces. They have made reductions in the rate on lumber from the Pacific coast to eastern points amounting to $95,982. They have made reductions in the rates on smelter products to United States points, effective Sept. 22, and to Canadian points, effective Aug. 18 last, which they estimate will produce a reduction in revenue of $46,985. They propose a reduction in the rate on dressed meats and packing house products from western packing house plants to eastern destinations, but do not state either the percentage of reduction or the estimated loss of revenue therefrom. They have made reductions in wool and hides from western to eastern points which they estimate will amount to about $9,000. In addition to these specific cases, a number of substantial reductions have been made between various points and on various commodities, but, as we have not been furnished with details of quantities, I am unable to give any estimate of what the result will be in their revenues. By another computation, they estimate that, with the reductions already in effect and those contemplated, the total reduction in freight rates for the remainder of the year will be $2,800,000. These are all very important, and are all taken into consideration in arriving at their estimate of their net for the whole year, which, as I said before, they estimate will produce a slight deficit after providing for fixed charges, pensions, income tax, and dividends.

The rates granted the railway companies of Canada a year ago were very severe, and I am not at all surprised that they were a great shock to the people generally, who were compelled to patronize the railways and who, of course, would have to pay the extra rates, and yet, after a year's experience, and a very close study of the traffic returns from month to month, I am satisfied they were entirely justified, and nothing less would have complied with the requirements of the law, which says that we should give to the transportation companies "just and reasonable rates." In fact, the final results to the

C.P.R. for the last year, even under these very high rates, only gave them a surplus of $450,000, after paying their dividends. At that time, the Chicago wage award had gone into effect in the U.S., and the executives of the different railways in Canada felt that they were compelled to give the same increases here as had been granted in that country, which, in the case of the C.P.R., were estimated at an increase of about $21,000,000 annually, something over $7,000,000 being required to meet these wages back to May 1, 1920, because the increased wages went into effect on that date in the U.S.

As I felt that in order to avert a catastrophe to the railway companies of Canada a year ago we were compelled to give the increase above referred to, when the same board in the U.S. some months ago ordered a reduction in the wages of the employes of the U.S. railways which amounted to about 12½%, I naturally felt that the Canadian railways should at least make a like reduction, and we are informed they have already put these reductions into effect, dating, in the case of the C.P.R., from July last, and all the roads are now paying their men on this reduced basis. Also, as it is admitted by the railways that their materials are costing them at least 25% less than a year ago, I had a very strong impression that the public was entitled to a substantial reduction in freight rates. It could not be exactly the same amount, because our passenger rates, which were increased 20% up to Dec. 31, 1920, then 10% until July 1, are now back to where they were prior to the Rate Judgment, and there were no increases on a number of commodities hereinafter referred to. My object, therefore, in inviting the railway companies to a conference was to ascertain what would be a reasonablee reduction in freight, sleeping, and parlor car rates, in order to corespond with the reduction in operating expenses.

I was also very strongly in this opinion by an examination of the C.P.R. traffic returns for the first seven months of this year, in which they show net earnings, practically $2,000,000 greater than for the corresponding months of 1920. An examination also shows that, during January and February, only a very slight improvement took place in their operations, but beginning with March, the C.P.R. have applied their well known efficient business methods to the operation of their road. Their net, month by month, has shown a satisfactory increase. In March, it amounted to $2,450,000, in April to $2,646,000, in May to $3,293,000; in June to $3,104,000, and in July to $2,054,000, the reduction during July being acounted for by a large increase in maintainance and equipment charges in geting ready for the fall business. The August net is not available, but we know that the gross is $16,647,000 or an increase over the July gross of about $900,000, and I think it fair to assume that their net will show a very satisfactory increase, the result of these economies as above stated being to show a net of nearly $2,000,000 over the same period for 1920. I am satisfied, not only from the statements of the company's officials, but also from a careful analysis of their monthly statements, that this great saving has been accomplished without in any way reducing the high standard of their right of way, equipment, and system in general. It is certainly, considering the great decrease in general business, a wonderful tribute to the business sagacity and ability of this organization.

The problem before us is what will be the results of the last four months of the company's fiscal year. Of course, it can only be an estimate, but the company should be in a position to estimate results more accurately than I could do, and I, naturally, in arriving at a conclusion, felt that I must scrutinize very closely these estimates and see whether or not in my opinion they are justifiable. On the whole, I think they are fairly accurate, but I am compelled to disagree with them on a few very important items. In the first place, they state that, during the last four months of 1920, their revenue from the transportation of grain and grain products from the point of origin to the head of the lakes was $20,762,000, and they estimate that, during the like period of this year, it will fall to $13,387,000, a drop of $7,374,000, or a decrease of 34%. They point out, in justification of this estimate, that, on account of crop conditions in Western Canada, the northern portions of the country, which are served more largely by the C.N.R. lines than by the C.P.R., will produce the greater portion of the grain, and naturally the C.N.R. will transport a greater proportion than last year. They also contend that the average haul will be about 20% less than last year in mileage, and, of course, the rate will be 5% less than in 1920, but, with the C.P.R.'s well-known business ability, with their efficient operating staffs, excellent roadbeds, and adequate equipment, I cannot agree that there will be a reduction of anything like 34% in their revenue, especially when they admit that the grain crop will be 4% greater than it was last year. How much less is their estimate than the actual result will be, of course, I am unable to state, because, after all, it is only an estimate, but I will be very much surprised if their revenue from this commodity is not $2,000,000 greater than their estimate.

Taking the system as a whole, they arrive at their estimate of gross expenses for the last five months of 1921, by applying the percentage of total expenses to total revenue as found in 1920 to a like period in 1921, and in the statement which they furnish us, they took the total receipts for the last five months of 1920, and the total expenses for the same period, and found that the expenditures amounted to 84% of the receipts, and, after estimating the total receipts for the last five months of 1921, they estimated their total expenses on the same basis to be $70,830,000. From this they deducted certain amounts for the decrease in the cost of labor and materials, amounting to $7,302,000, and added $2,800,000, provision for rails and fastenings, and the necessary labor in laying same, making the net estimated expenses for that period $66,328,000, and, by adding this to the actual expenditures for the first seven months of 1921, arrived at their estimated expenditures for the full year, which, when placed against the estimated revenues, showed, as before stated, a small deficit. Their attention was called to the fact that, in Oct., Nov. and Dec. 1920, they had included about $3,400,000 for the retroactive wages of May and June, the result being that a new computation was made based upon an operating ratio of 81.99, or practically 82%, which reduced their estimated deficit by about $1,500,000, thus leaving their deficit around $1,100,000. If they arrived at the estimated expenditures for the last five months of 1921 upon the same operating ratio as that for 1920, it is perfectly clear that they included in that estimate the same percentage of requirements for rails, fastenings, and the laying of the same as was provided for 1920, and I find from an examination of their traffic returns, that, during these five months, they actually expended for these items $5,945,000. I naturally enquired why it was necessary to include an estimated expenditure for these same items during the last five months of this year, in addition to what they had already provided for by $2,800,000. This was called to their attention, and the answer was that it was required to bring up the expenditure for this year to what would be required to keep their track in proper condition, as these items had been very seriously reduced in the first seven months of this year. I find, however, from an examination of their statements, that, during the first seven months of 1920, they expended for these items $5,435,000, and for the same period of 1921, $4,984,000, or a reduction of less than $450,000. Considering the general reduction in business, in my opinion, the amount expended during the first seven months of this year is quite equal to, if not in excess of, the amount expended for like purposes in the first seven months of 1920, and, therefore, I conclude they are not justified in adding $2,800,000 to their estimated expenditures for the last five months of this year. Applying this item alone to their estimated deficit of $1,100,000, I find they would have a surplus of $1,673,000.

Then again, I find they estimated for the present year that they will require $2,381,498 for income tax, but $2,300,000 was included in their expenditures for Nov. and Dec. 1920, for income tax, and, as they have estimated for 1921 the same ratio of expenditures to revenue as actually obtained in 1920, they have already included in their estimated expenses for this year 82% of $2,300,000, or $1,886,000, and I am unable to see that they are justified in doing this a second time as they have done. Therefore, instead of adding $2,381,498, they would have been entitled to add only $495,498, which would bring their surplus to over $3,500,000. I cannot, however, agree that the expenditures for the last five months of this year will be in the same ratio to earnings as they were in 1920. I find from their returns that, during Jan. and Feb. 1921, their operating ratio was just about the same as it was in 1920, but, from that time down to the end of July last, being the last month for which we have accurate returns, a very substantial improvement has taken place in their operating ratios, as will be seen by the following table:—

	1920	1921	Decrease
Jan.	94.63	94.13	0.50%
Feb.	93.56	91.93	1.53%
March	86.52	81.95	4.57%
April	84.29	79.18	5.11%
May	79.35	74.18	5.17%
June	84.37	77.90	6.47%
July	91.43	87.12	4.31%

This shows an average reduction for the five months, March to July inclusive, of over 5%, due entirely to more economical management, for which the company is entitled to the very greatest credit imaginable. I cannot bring myself to believe that, for the remainder of the year, they will discontinue this

excellent business management, and bring their operating ratio back on a parity with what it was for the last five months of 1920. In other words, there must be a continuation of this reduction in their operating ratio, which, at the end of the year, should show an improvement at least as great as that for the first seven months, which amounted to $2,000,000, because, while the period is shorter, the traffic is very much greater. If this estimate is anywhere nearly correct, it would give the company a surplus of well over $4,000,000. I am not satisfied with their estimate of the reduction in revenue under the item of all other kinds of traffic, which includes everything excepting grain and grain products, hay, lumber, anthracite coal, bituminous coal, ores, live stock, and dressed meats. They estimate a reduction of about 21%, because that was the average reduction on this traffic for the first seven months of this year, but I find that for July this reduction only amounted to 13%, and, therefore, while I cannot say to what extent this estimated revenue is smaller than it should be, yet I see no reason why the full 21% should be deducted, and think these items will yield more revenue than they anticipate, but, as the question is largely problematical, I make no venture as to the actual amount. There is one other small item in which their estimates are clearly wrong, although I can quite understand how it happened, that is, the rates for the carrying of mail. A new agreement was made with the Government, effective March 1, 1921, by which their receipts from this source are practically doubled, and, in arriving at the estimate for the last five months, they took the average for the first seven and applied it to the last five. I find, however, that, if we take the average, March to July inclusive, and apply it to the last five months of this year, their revenues will be $200,000 more than their estimate.

I, therefore, think that, instead of showing a deficit of $1,100,000, they will have a substantial surplus, after meeting all dividend requirements, and, of course, fixed charges, pensions, and income tax. If I am correct in this estimate, then there should be a reduction in rates, because the public is entitled to every cent of reduction in rates which is possible under existing circumstances. A year ago, this Board gave the railway companies a percentage increase in rates on all traffic excepting a few items hereinafter referred to, such as sand, gravel, crushed stone, etc., and, as they were given, at least by me, under the firm conviction of absolute necessity, with the hope that sometime in the near future rates might be brought back to the same basis as existed in Aug. 1920, I can never be privy to allowing these rates to remain on their present basis, subject to a few special reductions which the railway companies would like to make for any reason which to them may seem proper. It is not my comprehension of the duties of the Board of Railway Commissioners under the Railway Act. As they have already made very considerable reductions, which I have particularly referred to, I think they could stand a 10% reduction on the remainder of their freight traffic and still pay their dividends.

I, therefore, think an order should issue instructing all steam railway companies in Canada under this Board's jurisdiction to file tariffs, effective Sept. 21, reducing the fares on their sleeping, Pullman, and parlor cars by 25%, not 25% from existing rates, but, going back to 1920, when they were given an increase of 50%, it should now be figured upon an increase as of that date of 25%. This, I am sure, will produce more money at the end of the year to the railway companies than they could possibly earn under present rates, because, as before stated, I am satisfied these rates are so high that they are preventing much traffic which otherwise they would obtain. That all freight rates other than those upon which decreases have already been made, and also those hereinafter especially provided for, should be decreased by 10% from the increases given in 1920, which would leave the increase in Western Canada at 20% and in Eastern Canada at 25%. In cases where the reductions already granted have not amounted to 10%, they should be reduced to that point, and, of course, where they exceed 10%, they will remain as at present. There will be no reductions on crushed stone, sand, and gravel, cordwood, slabs, edgings, and saw mill refuse when used exclusively for fuel, and on milk, as no increases were given on these commodities by the 1920 order. There should be no reduction on coal, because the increases on this commodity in no case exceeded 20c. a ton, and were graduated down to 15 and 10c. a ton according to distance. There should be no decrease in the minimum class rate scale as established by order in council 1863 and now in force by an order of this Board, or in the minimum charge per shipment, as these were not increased a year ago. There will be no decrease in commutation or passenger fares, because passenger fares are now back to where they were in 1920, and the commutation fares have been dealt with by a special order of this Board. The decrease hereby ordered shall only be for line hauls, and shall not affect local switching rates, tolls for interswitching, or such incidental services as milling-in-transit, diversions, reconsignments, stop overs, demurrage, weighing, and the like, as they were not dealt with by the 1920 order. In arriving at these decreases, existing spreads between the rates from the various mills in British Columbia shall be maintained, the same as provided for in the order of 1920, and, of course, the export rates will not be affected by this order, as they were the subject of a special order of the Board. In working out the rates under this judgment, fractions will be disposed of as set out in order in council 1863.

Assistant Chief Commissioner McLean's Judgment.

In the present case, as in the Board's judgment in the Rate Application of 1920, the C.P.R.'s position is taken as the test. The Chief Commissioner, in his decision in the 1920 application, expressed the opinion that the rates the judgment sanctioned would "very nearly give the C.P.R. an even balance sheet at the end of the present year (1920), and for the year 1921, according to my estimate, should give them a reasonable surplus . . ." The Chief Commissioner's position in the present case is expressly the same. Under the reduction in wages which the C.P.R. provided for, effective July 16, 1921, it is estimated this represents from July 16 to December 31, a reduction of $4,787,000, while for the period August to December it is $4,300,000. The amount so involved is in either case in excess of the surplus estimated in the Chief Commissioner's judgment in the present matter. While provision was made by the C.P.R. for a reduction in wages, with a corresponding reduction in the pay cheques, this has not up to date so gone into the company's funds as to be available for reduction of operating costs. Whether it will remain with the company, or whether it will finally be paid to the employes will be involved in proceedings before a special tribunal.

Parliament has provided, by legislation, for rate regulative powers to be exercised by a regulative tribunal operating under The Railway Act. It has also provided by distinct and separate legislation for investigatory powers in respect of labor disputes, and for the appointment of special tribunals in connection therewith. On Aug. 4, the engineers, firemen, conductors, trainmen and telegraphers made application to the Labor Department for the appointment, under the Industrial Disputes Investigation Act of 1907, of a board of conciliation and investigation. The Minister of Labor acceded to this application. The board of conciliation and investigation is now in process of constitution. The question of wage reduction is the pivotal one in the present consideration of reduction in operating costs, with its consequent bearing on rates. What is herein involved is a rate reduction based essentially on a wage reduction. Pending the decision of the special tribunal, appointed to investigate as to the wage question involved, I do not feel that I am justified in expressing an opinion on the propriety of a rate reduction based essentially on a wage reduction whose justifiability is at present under investigation.

Canadian Railway and Marine World's Proprietor in Prince Edward Island. The Charlottetown, P.E.I., Guardian, said in a recent issue:—"Acton Burrows, Proprietor of the Canadian Railway and Marine World, Toronto, and President of the Canadian National Newspapers and Periodicals Association, who first visited the Island with his family in 1898, and came frequently afterwards until 1914, when he was at Brackley Beach when the war broke out, and had to leave suddenly, is on the Island again. He was met at Tormentine by Superintendent Grady, of the Canadian National Railways, looked over the terminal there and went thoroughly over the car ferry steamship, Prince Edward Island, from the bridge to the boiler room, with Mr. Grady, Captain Reid and Chief Engineer Sutherland. Coming on to Charlottetown, he spent most of the next day in the railway offices, and looking over the yards and shops, driving out in the afternoon to Seaman's Farm, Brackley Beach, where he is staying and where he gave an afternoon tea, in the garden, on Tuesday, to a number of his friends among the summer colony at the adjacent resorts, Mrs. George A. Gane presiding at the tea table."

G.T.R. First Aid Work.—The competition for the trophy presented by E. J. Chamberlin, formerly President, G.T.R. and G.T. Pacific Ry., was won recently by the Point St. Charles Montreal shops team, the Stratford, Ont., team being second. Thirteen teams competed from Montreal, London, Stratford. Guelph and Lindsay, and were judged by Dr. C. A. Hodgetts, Director General, St. John's Ambulance Association, Canadian branch.

Canadian National Railways Construction, Betterments Etc.

Tie Tenders.—Tenders were received to Sept. 17, for 1,000,000 ties to be manufactured between Oct., 1921, and May, 1922, and delivered between Dec. 1, 1921, and Sept. 30, 1922, on the C.N.R. between Sydney, N.S., and Quebec, Que., including the Halifax & Southwestern Ry. The ties are to be manufactured in accordance with the specification 3856, Mar. 18, 1919. Tenders were asked for quantities of 10,000 and over. Special arrangements, however, will be made to buy ties fully up to specifications manufactured and delivered by actual settlers from their own lands. Tenders were also received, to Sept. 17, under similar terms and conditions for the supply of 1,000,000 ties to be delivered on the C.N.R. between Quebec, Que., and Port Arthur, Ont., and Quebec, Que., and Armstrong, Ont., and for 2,500,000 ties to be delivered on the C.N.R. between Port Arthur, Ont., and Vancouver, B.C., and between Armstrong, Ont., and Prince Rupert, B.C.

Halifax Ocean Terminals.—It is reported that as a result of a conference between S. J. Hungerford, Vice President, and other C.N.R. officials, recently, with Halifax Board of Trade Committee, some paving will be done around the station building from South St., extending over South Hollis St., and the whole of the passenger yard extending up to Barrington St. A contract for this work is reported to have been let to Pickrem & Gorman, who are also said to have a contract for work at the freight shed on Upper Water St. Matters connected with the location of a new car delivery yard, the construction of a roadway and a crossing at Bedford, were also discussed.

Automatic Signalling.—The absolute permissive block signalling with polarized line circuits, heretofore in operation on the Maritime District, from Moncton to Painsec Jct., N.B., 7.23 miles, double track, is being extended this year from Painsec Jct. to Sackville, N.B., 30.85 miles, single track. A similar system is also being installed between Levis and Chaudiere, Que., on the Qubec District, 9.28 miles, part of which is single track and part double. The signalling material, which is being supplied by the General Railway Signal Co. of Canada, Lachine, Que., and is being installed by the railways' forces, is as follows: From Painsec Jct. to Sackville, 55 top of mast, low voltage model 2-A signals, 233 model 10-A wall type relays, 44 model 5-switch circuit controllers, relay housings, cable posts, terminal boxes, etc. From Levis to Chaudiere, 12 top of mast, low voltage model 2-A signals, 30 model 10-A relays, 8 model 5-switch circuit controllers, terminal boxes, etc.

Peditcodiac River Bridge. — The substructure for the new bridge across the Petitcodiac River near Salisbury, N.B., was reported to have been completed on Sept. 13 by the contractors, Gorman & Peckham, Halifax, N.S. The erection of the steel superstructure by the Dominion Bridge Co. is expected to be started very soon. This structure was described in Canadian Railway and Marine World, August, pg. 421.

Luceville Station.—Tenders were received for building a station with dwelling accommodation at Luceville, on the Intercolonial Ry., 8.1 miles west of Mont Joli, Que. The building will be of frame construction, 25 x 114 ft.

Belle River and Metabetchouan River Bridges.—We are officially advised that a contract has been given the Canadian Bridge Co., Walkerville, Ont., for the superstructure for bridges over the Belle and Metabetchouan Rivers, on the Jonquiere Subdivision, Quebec District.

The present bridge across the Metabetchouan River, mile 181 Jonquiere Subdivision, Que., consists of two 207 ft. through truss spans on one masonry pier and two abutments. These spans are being replaced by two 205 ft. center to center, through Pratt truss spans, designed for Coopers E-55 loading, with an impact percentage of live load equal to $\frac{30{,}000}{30{,}000+L2}$ all in accordance with the general specifications for steel railway bridges issued by C.E.S.A., 1920. The present pier and abutments are to be used, the stringer seats are to be removed and the end floor beams to be used on the new abutments. The total weight of the new steel is 1,200,000 lb. The new bridge is to be ready for traffic Nov. 30.

The present bridge across the Belle River, mile 191, Jonquiere Subdivision, consists of two 55 ft. approach girders, and one 153 ft. through truss span. The approach spans are being left in the new bridge, and the center span is being replaced with a 156 ft. center to center through Pratt truss span, designed for the same loading as the Metabetchouan River bridge. There will be no alterations to the present substructure, except the removal of the stringer seats to permit of the use of end floor beams. The substructure consists of 2 masonry piers and 2 masonry V abutments. The weight of the new span is 42,500 lb.

Chaudiere Jct. Ice House. — Tenders will be received up to Oct. 6 by the Chief Engineer at Moncton, N.B., for building an extension to the ice house at Chaudiere Jct., Que.

Coffee River Bridge.—We are officially advised that the work to be done at the Coffee River bridge, mile 41.1, Doucet Subdivision, St. Maurice Division, National Transcontinental Ry., consists of the replacement of a 500 ft. frame trestle, by a bridge of three spans having a total length of 220 ft., with approach fills. This will necessitate the construction of two piers and two buried T abutments carried on pile foundations. The river has but a slight current, and at the present season is approximately 5 ft. deep, but in the spring freshets it is about 15 ft. deep. The bottom is easy clay for 40 ft., at which depth it stiffens to hard clay at a depth of 70 ft. Tenders are only being invited for the substructure at present. The superstructure will consist of one 150 deck plate girder span, and two 60 ft. spans.

Longue Pointe Terminal.—We are officially advised, that a contract has been given the Canadian Bridge Co., Walkerville, Ont., for the steel work for a turntable at the new terminal, Longue Pointe, Montreal.

Shawinigan and St. Norbert River Bridges.—We are officially advised that contracts have been given the Dominion Bridge Co. for the superstructures of bridges over the Shawinigan River, mile 86.7, and over the St. Norbert River, mile 128.8, St. Lawrence Subdivision, Quebec District.

Hervey Jct. Station.—We are officially advised that the station to be built at Hervey Jct., Que., will be of frame construction, on concrete foundation, two stories high, covered with shingles and drop siding. It will be 23 ft. wide by 58½ ft. long. The ground floor will be used for station purposes, and the upper floor as the station agent's dwelling.

Muskoka Subdivision Bridges.—We are officially advised that a contract has been let to the Hamilton Bridge Works Co., Hamilton, Ont., for the superstructure of the bridges to be erected over the Don River at mile 15, and over the Black River at mile 55.9, Muskoka Subdivision.

Orient Bay Stream Diversion.—We are officially advised that a contract has been given the Dominion Construction Co. for the stream diversion work at Orient Bay, Ont, on the Canadian Northern Ry., 106.6 miles east of Port Arthur, Ont. This work was described in Canadian Railway and Marine World for August.

Houses at Parent.—Tenders were received recently for the erection of 10 double dwelling houses at Parent, Que., on the National Transcontinental Ry., 251.6 miles west of Quebec, Que.

Barrute Station.—We are officially advised that the station to be built at Barrute, Que., 408.2 miles west of Quebec, Que., on the National Transcontinental Ry., will be 21 ft. by 65½ ft. on the ground level, with a second story 26 x 26 ft. On the ground level provision is made for a machinery platform 16 x 29 ft. when required. The building will be of frame construction covered with shingles and drop siding, on a concrete foundation. The ground floor will contain a general waiting room, 12 ft. 2 in. x 20 ft. 2 in.; agent's office, baggage room, and freight room, 29 ft. 2 in. x 20 ft. 2 in., all fronting on the platform, with the agent's living room and kitchen in the rear. On the second floor there will be four bedrooms and store room. There will be a cellar under the main part of the building.

Longlac-Nakina cut off. H.T. Morrison, Locating Engineer, is making a preliminary survey for a cut off of about 30 miles between Longlac, Ont., on the Canadian Northern transcontinental line, and Nakina, Ont., on the National Transcontinental main line, the building of which is under consideration by the management. Longlac is 822.6 miles west of Montreal, 100 miles west of Hornepayne, 50.5 miles east of Jellicoe, and 198.4 miles east of Port Arthuh. Nakina is 865.8 miles west of Montreal, and 15.9 miles west of Grant. The building of the cut off would materially shorten the Canadian National Rys. through routes between Montreal and Winnipeg, and Toronto and Winnipeg.

Port Arthur, Duluth & Western Ry.—The Palatine Iron & Steel Co., Port Arthur, Ont., has, we are officially advised, completed the regrading of the old Port Arthur, Duluth & Western Ry., from North Lake, the point to which it is being operated by the Canadian National Rys., for 14 miles, practically to the International Boundary at Gunflint Narrows. When track laying will be completed is uncertain, as there are several bridges to be built. H. Hancock, Fort William, Ont., is the contractor.

Onoway to Whytecourt Branch.—The extension to Whytecourt of the branch

from Onoway, Alta., which has been in operation for some time to Robinson's Crossing, is reported to have been completed, and is expected to be handed over to the operating department at an early date. This branch is projected towards the Grande Prairie district.

Grand Trunk Pacific Ry. Betterments, Etc.—The C.N.R., Western Lines, received tenders recently for the following works on the Grand Trunk Pacific Ry.: Excavation of reservoir and construction of dam at Ethelbert, Man., and at Paswegin, Sask.; building subway for pedestrians under tracks at Dauphin, Man.; constructing sewers at Melville and Watrous, Sask.; building 58 miles of fencing on Amaranth extension, 48 miles on Melfort Northeast Branch, 32 miles on Luck Lake Branch, 44 miles on Jackfish Branch, all in Saskatchewan, and 3 miles at mile 333 on a revision of the Drumheller Subdivision, Alta.; and for construction of a water and sprinkler system in the salmon warehouse at Prince Rupert, B.C.

Western Lines Contracts.—We are officially advised that the following contracts have been given for works on the C.R.N. Western Lines, and on the Grand Trunk Pacific Ry.:—Excavation of reservoir, and construction of dam at Paswegin, Sask., Claydon Co., Winnipeg. Excavation of reservoir, and construction of dam at Ethelbert, Man., Northern Construction Co., Winnipeg. Fencing, Melfort Northeast Branch, 48 fence miles, Kelley & Johnson, Winnipeg. Fencing Luck Lake Branch, 32 fence miles, T. D. Rourk, Regina, Sask. Fencing Jackfish Branch, 44 fence miles, A. J. Gibson, Winnipeg. Construction of sewer, Melville, Sask., Jamieson Construction Co., Edmonton, Alta. Construction of sewer, Watrous, Sask., J. Brodt, Regina, Sask.

Prince George Station.—We are officially advised that the station building, on the Grand Trunk PacificRy. at Prince George, B.C., for which tenders were invited recently, will be 30 x 102 ft. on concrete foundation, with brick walls and stone dressing, and will have the following accommodation on the ground floor: Baggage and express rooms, general waiting room, women's waiting room, ticket and land office, conductors' room, restaurant, kitchen and lavatories. The offices on the first floor will be reached by an entrance on the approach side of the building, and will be subdivided to suit requirements. Quarters for the restaurant staff will be on the first floor, will consist of three bedrooms, store room and lavatories, and will be approached by a staircase from the kitchen. The basement is being only partially excavated, one portion will be reached by a private stairway at the office entrance, and the other from the kitchen. The building is to be steam heated, steam to be supplied from the locomotive house.

Prince Rupert, B.C., Building. — The Grand Trunk Pacific Ry. station at Prince Rupert, B.C., for which tenders were invited recently, will be 100 x 40 ft., of brick, with stone dressings, on concrete foundation. It will be two stories high, and will be flanked on each side by platform accommodation partly covered by a canopy, giving ample space to take care of business under all conditions. The ground floor will contain a passageway, 16 ft. 11 in. wide along the end of the building, with a stairway to the first floor, and giving access to the overhead bridge across the tracks to the town; baggage room with parcels office, express room, and office and boiler room; the ticket office in the passageway, general waiting room, and ladies' waiting room with lavatories. The building will be between the tracks and the dock side, entrances to the ground floor being provided both from the tracks and the dock. It will be steam heated.

We are officially advised that the warehouse to be built at Prince Rupert will be on the new dock on the water front. It will be 150 x 800 ft., of frame construction, with trussed roof, covered with built up rubberoid. (Aug., pg. 419.)

The Retirement of the Interstate Commerce Commission's Chairman.

Chairman E. E. Clark has retired from the U.S. Interstate Commerce Commission, after 15 years service. Before his appointment to the Commission, he was the leader of a railway labor organization, and it is said that his appointment was not approved at the time by either U.S. railway officers or the important shippers and representatives of the leading industrial interests. However that may be, it is certain that no member of the Commission ever held the respect of all connected with the transportation industry to a greater degree than he did in the years preceding his retirement. His sense of justice and fairness won for him a high place among the railway regulative authorities of the day, and his policy of having representatives of the railways and of the shippers get together in an attempt to settle their disputes, without the necessity of expensive and protracted hearings before the Commission, has been proven wise, by long experience. He showed, in thought and action, that he was fully aware of the potential evils of too rigid and excessive regulation of railways, which inevitably results in the destruction of efficiency and initiative, and he was regarded as one of the leaders in that school of thought which recognizes the importance of maintaining transportation agencies in an atmosphere of clean finance and efficient operation, free from that brand of regulation which was so common in the past, and which may be characterized as being thoroughly destructive. His retirement from the Commission means a loss to the entire transportation industry.

Railway Accidents Throughout Canada. The total number of accidents reported to the Board of Railway Commissioners in July and August was 349, resulting in 75 persons being killed and 323 being injured. Of the killed, 1 was a passenger, 22 were employes, and 52 were others. Of the injured, 39 were passengers, 216 were employes, and 68 were others. Under others are included 42 highway crossing accidents, in which 23 were killed, and 43 injured. In 33 of these accidents there was no protection; in 4, there were bells; in 1, a wigwag signal, and 1, a flagman; in 1, gates; and in 2 there was speed restriction. In 23 cases automobiles were concerned; in 6, trucks; in 6, horse vehicles; in 3, bicycles, and in 4, pedestrians.

Combined Coal and Oil Locomotive.— An English railway is reported to be experimenting with a locomotive, in which coal and oil can be used as fuel, at the same time, or either without the other.

French Exhibits Train.

By arrangement between the French Government and the Trade and Commerce Department, a special train of eight cars is touring Canada to promote trade between France and Canada. The campaign opened at Montreal Aug. 29, when the Dominion Premier, and Hon. Mackenzie King were the principal speakers. On the third or the four speakers. On the third of the four days the train was in Montreal, the railway and transportation interests were entertained. The train consists of eight exhibition cars, as follows:—1. "La Pensee Francaise" (The French Thought), which includes some of the finest treasures of French art and literature as well as relics of the wars of France. 2 and 3. Industrial exhibits, including travel, photography, civil engineering, mines and mineral products, mechanics, etc. 4. La Mode," including dresses, silks, laces, etc. 5. Leather industries, chemical products, drugs, perfumes, electrical appliances, brushes, toys. 6. Agricultural, horticultural and alimentary products. 7. Decorative art, bronzes, watches and clocks, jewelry and cutlery. 8. Office car.

The train after leaving Montreal, visited Three Rivers and Quebec and then went on to Toronto for the Canadian National Exhibition and thence to the west. It is expected back in Montreal, Nov. 4. The train is being run over the Canadian National, Canadian Pacific and Grand Trunk Railways.

A suggestion has been made for a train to exhibit Canadian productions in France in 1922.

Hand-holds over Doorways, inside of Baggage, Mail and Express Cars. — The Board of Railway Commissioners has issued the following circular:—A recent investigation held by the Board's Operating Department into a serious accident discloses the fact that hand-holds over the doorways, inside of baggage, mail and express cars, etc., are not at all times secured to the frame of the cars as they should be; nor do they comply with the safety regulations prescribed in general order 102. The attention of railway companies is called to this condition, and they are requested to have their equipment looked over as quickly as possible, and strengthen the means of fastening these hand-holds, where necessary, so that a repetition of the accident referred to above will be guarded against.

Canadian Tank Line Ltd. has been incorporated under the Dominion Companies Act, with authorized capital of $275,000, and office in Toronto, to deal in various merchandise and particularly petroleum and its products. It is authorized to manufacture, lease, buy or deal in tank cars and all kinds of rolling stock, storage tanks, switching tracks and sidings; to act as freighter common carrier and transporter, and other things. The provisional directors are: A. Fasken, J. Aicheson, V. O. Matchett, D. A. McCrimmon, Toronto.

The Commercial Export & Import Co. has been incorporated under the Dominion Companies Act with authorized capital of $100,000 and office at Montreal, to carry on business as importer, exporter, warehouseman, storeman, and common carrier of goods of all kinds. The incorporators named are stenographers or bookkeepers in the office of the Toronto solicitor acting for the real interests which asked for incorporation.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John River Bridge.—We are advised that the Dominion Bridge Co. is making progress with the placing in position of the superstructure of the new bridge across the St. John, N.B. C. E. Fitzsimmons is in charge of the work. This bridge is to replace the existing structure, and in connection with its erection there has been considerable controversy, marine men using the river being desirous of having the level of the bridge raised.

Quebec-Montreal Line.—A considerable portion of the line between Quebec and Montreal has been reballasted with broken stone this year.

Considerable improvements are reported to have been made at 12 highway crossings west of Three Rivers during this year by the construction of a tarvia top to conform with the highway construction. Between St. Martin Jct. and Mile End, in the immediate vicinity of Montreal, four highway crossings have been built up with stone block paving.

Sherbrooke St. Bridge, Montreal. — Work is reported to have been started by the City of Montreal on Sept. 15 on a bridge across the C.P.R. tracks at Hochelaga, which will provide for an extension of Sherbrooke St. through to the end of the Island. The bridge is estimated to cost about $250,000.

Kipawa-Ville Marie-Des Quinze Line.—A contract is reported to have been let to Angus & Taylor, Ltd., North Bay, Ont., for building an extension from near Kipawa, Que., to the Des Quinze River falls, about 60 miles, with a branch of about 8 miles to Ville Marie. This line is being built under the Interprovincial & James Bay Ry. charter in accordance with a special subsidy contract between the Quebec Government and the C.P.R., approved in 1920. The line will be an extension of the C.P.R. branch from Mattawa to Lake Timiskaming, and its extension to Kipawa, to which a 10 mile extension was added some years ago.

Ontario District Improvements. — A press report states that plans for the betterment of lines in the Ontario District for 1922 are already under discussion, and that they include the laying for a further mileage of the main line with 100 lb. rails, beyond the 50 miles that is being put in at the eastern end of the district this year.

Lanigan Northeasterly Branch. — The Board of Railway Commissioners has authorized the opening for traffic of the Lanigan Northeasterly Branch, mile 0 to 49.34. This line starts at Lanigan, mile 348 from Portage la Prairie, Man., on the line to Wetaskiwin, Alta., and proceeds northeasterly, crossing the Canadian National Rys. between Watson and Humboldt, and is intended ultimately to reach Melfort and the Saskatchewan River.

Western Line Work—A press report of Sept. 17 stated that the C.P.R. required about 1,000 additional men to complete the track and other work in hand and contemplated for this year.

The extension of the line to the Drumheller coal fields in Alberta is about completed.

Track laying is reported to have been completed on the 6.5 mile extension of the Russell line, to Cracknell, Sask.

Track laying is reported to have been started westerly of Altawan, on the Saskatchewan-Albert boundary on the last mile of the Weyburn-Sterling line. (Aug., pg. 426.)

Railway Earnings.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local which have been acquired by the Dominion Govlines in the Maritime Provinces and in Quebec, ernment.

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
May	7,794,147	8,305,850
June	7,885,548	7,776,539
July	8,837,354	9,063,674
August	8,881,530	9,582,6989
	$68,003,274	$64,211,487

Approximate gross earnings for three weeks ended Sept. 21, $7,085,209, against $6,603,924 for same period 1920.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$3,527,304	$4,347,728	$ 820,423	$ 508,178
Feb.	3,526,658	4,367,491	840,833	1,205,925
Mar.	3,595,144	4,538,904	943,761	1,235,265
Apr.	3,363,072	3,915,995	552,923	115,191
May	2,914,973	3,728,949	813,976	618,809
June	2,859,986	3,811,205	951,309	608,456
	$19,787,047	$24,710,272	$4,923,225	$4,355,524
Incr.	915,025	1,482,726	567,701	.....

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January	$5,094,100	$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
April	4,978,500	4,732,623
May	4,742,200	4,863,500
June	4,606,800	4,427,600
July	5,506,900	5,168,500
August	5,708,500	5,899,700
	$41,597,200	$37,679,623

Approximate gross earnings for three weeks ended Sept. 21, $4,743,200, against $4,156,300 for same period 1920.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available, to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$5,851,220	$ 7,538,786	$1,687,566	$1,672,283
Feb.	5,575,782	6,861,337	1,285,555	1,839,756
Mar.	5,812,790	6,746,912	934,122	1,280,887
Apr.	4,994,027	6,327,739	1,333,712	911,321
May	4,427,994	5,742,052	1,314,058	1,041,273
June	4,295,811	5,536,771	1,240,890	1,084,815
	$30,957,694	$38,753,597	$7,795,903	$7,830,335
Incr.	3,522,120	3,487,688	.....	.....
Decr.	.....	.....	34,432	.....

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,405,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
July	15,772,929	12,718,613	2,054,316	434,839
	$99,828,641	$84,124,119	$15,004,482	$1,936,810
Incr.	.....	.....	1,956,810	.....
Decr.	$9,604,746	$11,561,556	.....	.....

Approximate gross earnings for August, $16,647,000, and ofr three weeks ended Sept. 21, $13,265,000, against $17,575,000 and $12,854,000 respectively, for same periods 1920.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920. as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit 1921	1920
Jan.	$6.187,539	$6,886,930	$699,391*	$624,310*
Feb.	5,468,732	5,439,039	29,693	690,857*
Mar.	6,271,921	5,584,721	687,200	398,859
Apr.	5,659,813	5,241,107	418,706	651,789
May	5,957,779	5,596,194	361,585	605,310
June	6,672,766	5,919,063	753,702	456,747
	$36,218,550	$34,667,054	$1,551,495	$797,538
Incr.	2,235,375	1,481,318	753,957	.....

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$1,441,225	$1,813,982	$ 372,757	$ 737,357
Feb.	1,013,712	1,872,946	859,234	670,817
Mar.	1,007,499	1,664,227	656,728	655,560
Apr.	908,147	1,645,916	737,769	596,625
May	965,763	1,373,613	407,850	985,655
June	1,109,053	1,488,366	379,313	1,516,152
	$6,445,399	$9,859,050	$3,413,651	$5,162,166
Incr.	806,189	.....	.....	.....
Decr.	.....	$942,326	$1,748,515	.....

Railway Finance, Meetings, Etc.

Canadian National Rys.-G.T.R. Co.—Dillon, Read & Co., and other New York bankers, offered, on Sept. 16, an issue of $25,000,000 of 15-year non-callable sinking fund gold debenture bonds of the Grand Trunk Ry. Co. of Canada, at 95¼ and interest from Sept. 1, to yield 6½%. The issue is reported to have been oversubscribed. This issue is a direct obligation of the G.T.R. Co. of Canada, and both principal and interest are guaranteed by the Dominion of Canada. The bonds are dated Sept. 1, and are due Sept. 1, 1935, principal and interest being payable in gold at the Bank of Montreal, New York. A sinking fund of $500,000 a year, accruing from Sept. 1, 1921, will be available in equal half yearly amounts for the redemption of the bonds in the market at not exceeding par and interest.

Central Vermont Ry.—The Interstate Commerce Commission is reported to have approved the granting of a loan to the C.V.R. of $65,000 for three years to retire certain equipment notes.

The company has applied to the Interstate Commerce Commission for authority to issue $147,000 of refunding 5% gold mortgage bonds dated May 1, 1920, to reimburse its treasury for expenditures from income in payment of a similar amount of certain equipment gold notes.

Cumberland Ry. & Coal Co.—The National Trust Co. received to Sept. 20 proposals for the sale of this company's first mortgage bonds, maturing Oct. 1, 1940, to be paid for out of $22,197.72 standing to the company's credit in the sinking fund, under the terms of the trust deed of Oct. 1, 1910.

Moncton & Buctouche Ry. Co.—A meeting of shareholders was held at Buctouche, N.B., recently to ratify a resolution passed by the directors to convey and transfer to the Minister of Railways for Canada, representing the King, all the company's property and assets, and for other purposes.

H. C. Creighton, Claim Agent, Eastern District, Canadian National Express Co., St. John, N.B., writes: "I have been a constant reader of Canadian Railway and Marine World for many years, and look for it regularly."

Among the Express Companies.

The Interstate Commerce Commission has decided, in the case of the Glacifer Co. vs. American Railway Express Co., that defendant's practice of assessing charges on 5 gall. shipments of ice cream, in tubes packed with ice, on an estimated, or billing, weight of 115 lb., while contemporaneously assessing the charges on the same quantity of ice cream, in a dry refrigerating container, on actual weight, was unduly prejudicial to the complainant, and that the undue prejudice must be removed.

Canadian National Express Co.

The Canadian National Ex. Co. has closed the summer office at Alberta Beach, Alta.

W.G. Burrell, heretofore Supply Agent, Canadian Express Co., has ben appointed Supply Agent, Canadian National Express Co. Office, Montreal.

Wm. Phillips, European Manager, Canadian National-Grand Trunk Rys., and Canadian Government Merchant Marine Ltd., has, as forshadowed in Canadian Railway & Marine World for September, also been appointed European Manager, Canadian National Express Co. Office, 17 Cockspur St., London, S.W. Eng.

E. J. Wearing, heretofore General Agent, G.T.R., and Canadian Ex. Co., Liverpool, Eng., has as foreshadowed in Canadian Railway and Marine World for September, been appointed European Express Agent, Canadian National Express Co. Office, 20 Water Street, Liverpool, Eng.

R. J. McEwan, heretofore District Agent, Freight and Passenger Departments, Canadian National Rys., Glasgow, Scotland, who, as stated in Canadian Railway and Marine World for September, has been appointed District Agent, Canadian National-Grand Trunk Rys. at Manchester, Eng., has also been appointed District Agent, Canadian National Express Co. there.

J. M. Walker, formerly General Agent, Grand Trunk Ry., and Canadian Express Co., Glasgow, Scotland, who, as stated in Canadian Railway and Marine World for September, has been appointed District Agent, Canadian National-Grand Trunk Rys. has also been appointed District Agent, Canadian National Express Co. Office, 75 Union St., Glasgow, Scotland.

Walter Edwin Norman, whose appointment as General Superintendent, Central District, Canadian National Ex. Co., Toronto, was announced in our last issue, was born at Picton, Ont., May 26, 1871, and entered Canadian Ex. Co.'s service in May 1888, since when he has been, to June 1899, train messenger, Montreal, Toronto and other points; June 1899 to May 1908, agent, Brockville, Ont.; May 1908 to Dec. 1, 1912, route agent, Toronto; Dec. 2, 1912 to Dec. 31, 1917, Assistant to Superintendent, Toronto; Jan. 1 to Oct. 31, 1918, Assistant Superintendent, Toronto; Nov. 1, 1918 to Aug. 31, 1921, Superintendent, Toronto.

E. J. Wearing, who has been appointed European Express Agent, Canadian National Ex. Co., Liverpool, Eng., was born at Birkenhead, Eng., Nov. 12, 1872, and entered G.T.R. service, Jan. 1, 1888, serving in all departments of the company's office at Liverpool, and visited Canada in the latter part of 1911, covering the chief points from Montreal to Prince Rupert, Vancouver and Victoria, to become personally acquainted with the handling of freight, passenger and express traffic. Early in 1916, he was appointed General Agent, G.T.R., Central Vermont Ry. and Canadian Ex. Co., at Liverpool, which position he held at the date of his present appointment.

Herbert Cogswell Creighton, whose appointment as Claim Agent, Eastern District, Canadian National Ex. Co., St. John, N.B., was announced in our last issue, was born at Halifax, N.S., Aug. 27, 1858, and entered express service Dec. 27, 1876, since when he has been, to Apr. 30, 1878, clerk, Intercolonial Ex. Co., Halifax, N.S.; May 1, 1878 to March 31, 1879, acting agent, same company, Halifax, N.S.; Apr. 1, 1879 to May 31, 1889, agent, same company, Halifax, N. S.; June 1 to Dec. 31, 1889, agent, Canadian Ex. Co., Halifax, N.S.; Jan. 1, 1890 to Apr. 30, 1898, Assistant Superintendent, same company, St. John, N.B.; May 1, 1898 to Aug. 31, 1921, Superintendent, same company, St. John, N.B.

Robert Henry Jones, whose appointment as Superintendent, Toronto Division, Central District, Canadian National Ex. Co., Toronto, was announced in our last issue, was born at St. Thomas, Ont., and entered transportation service in May, 1900, since when he has been, to May 9, 1906, telegraph operator and relieving agent, G.T.R., at various points on the Southern and Northern Divisions; May 10, 1906 to Feb. 14, 1909, agent, Canadian Ex. Co., Bracebridge, Ont.; Feb. 15, 1909 to March 20, 1910, agent, same company, Guelph, Ont.; March 21, 1910 to Dec. 15, 1918, route agent, same company, Toronto; Dec. 16, 1918 to Dec. 31, 1919, Assistant to Superintendent, same company, Toronto; Jan. 1, 1920, to Aug. 31, 1921, Assistant Superintendent, same company, Toronto.

Forest Norman Wiggins, whose appointment as General Superintendent, Eastern District, Canadian National Ex. Co., Moncton, N.B., was announced in our last issue, was born at Oxford Mills, Ont., Oct. 9, 1886, and entered express service June 15, 1901, since when he has been, to May 15, 1904, clerk, Canadian Ex. Co., Parry Sound, Ont.; May 16, 1904, to June 20, 1906, relieving messenger and relieving agent, same company, at various points in northern and western Ontario; June 20, 1906 to May 15, 1907, chief clerk, same company, North Bay, Ont.; May 16 to Aug. 24, 1907, chief clerk, same company, Parry Sound, Ont.; Sept. 1, 1907 to Aug. 31, 1911, correspondent, Canadian Northern Ex. Co., Winnipeg; Sept. 1, 1911 to Aug. 31, 1920, Superintendent, same company, Toronto; Sept. 1, 1920 to Aug. 31, 1921, Superintendent, Canadian National Ex. Co., Toronto.

Zarah Mortimer Middleton, whose appointment as Superintendent, Edmonton Division, Western District, Canadian National Ex. Co., Edmonton, Alta., was announced in our last issue, was born at Sweets Corners, Leeds County, Ont., June 16, 1876, and entered express service Oct. 8, 1894, since when he has been, to 1897, clerk, American Ex. Co., DeKalb, Ill.; 1897 to 1899, on hand clerk, same company, Omaha, Neb.; 1899 to 1901, night agent and money clerk, same company, Milwaukee, Wis.; 1901, one month, agent, same company, Petoskey, Mich.; 1901 to 1902, agent, same company, Joliet, Ill.; 1902 to 1905, claim agent, Superintendent's office, same company, Detroit, Mich.; 1905 to 1907, route agent, same company, Bay City, Mich.; 1907 to 1909, assistant agent, same company, Dallas, Tex.; 1909 to 1911, chief clerk, Claims Department, same company, Chicago, Ill.; Aug. 1911 to Nov. 1915, chief clerk to Superintendent, Canadian Northern Ex. Co., Winnipeg, Man.; 1915 to Sept. 1921, General Agent, Canadian Northern Ex. Co., latterly Canadian National Ex. Co., Vancouver, B.C.

Dominion Express Company

The Dominion Ex. Co's employes at St. John, N.B. held their annual field day at Lorneville, Aug. 20 in conjunction with some C.P.R. employes. A baseball game between the C.P.R. and the Dominion Ex. Co. was won by the latter team by 6 to 2, the C.P.R. team winning the tug-of-war.

George W. Liddle, agent, Dominion Ex. Co.. Parkdale, Toronto, died there, Sept. 22, after a long illness, aged 64. He was born at Brooklands, near Whitby, Ont., and had been in the company's service for about 37 years, for several years at North Bay, Ont., and for the past 15 years, at Toronto. The funeral, which was conducted under Masonic rites, took place at Toronto, Sept. 24.

Railways, etc., Operated Over by Express Companies.

The Canadian National Ex. Co. operates exclusively over the following railway and steamship lines comprised in the Canadian National Rys., viz, Canadian Northern Ry. System, Cape Breton Ry., Grand Trunk Pacific Ry., Grand Trunk Pacific Coast Steamships., Halifax and Southwestern Ry., National Transcontinental Ry., St. John and Quebec Ry., St. Martins Ry. It also operates exclusively over the following steam railways, Central Vermont Ry. (in Canada), Grand Trunk Ry. (in Canada), Inverness Ry. and Collieries Ltd., Quebec, Montreal & Southern Ry., Sydney and Louisburg Ry., and exclusively over the following electric railways, Chatham, Wallaceburg & Lake Erie Ry., Montreal and Southern Counties Ry., Windsor, Essex and Lake Shore Rapid Ry., Winnipeg, Selkirk and Lake Winnipeg Ry. The Canadian National Ex. Co. also operates, but not exclusively on the following lines, comprised in the Canadian National Rys., viz., Intercolonial Ry., Prince Edward Island Ry. and Salisbury and Albert Ry., also over the following railways, but not exclusively, Atlantic, Quebec & Western Ry., Cumberland Railway & Coal Co., Maritime Coal, Ry. & Power Co., Quebec Oriental Ry., and Timiskaming and Northern Ontario Ry.

The Dominion Ex. Co. operates exclusively over the folowing steam railways:—Canadian Pacific, Dominion Atlantic, Esquimalt & Nanaimo, Fredericton and Grand Lake Coal & Ry. Co., Kettle Valley, New Brunswick Coal & Ry. Pere Marquette (in Canada), Quebec Central, Temiscouata, Wellington Colliery, and also exclusively over the folowing electric railways, British Columbia (through traffic only), Grand River, Hamilton & Dundas, Lake Erie and Northern. The Dominion Ex. Co. also operates, but not exclusively, on the following steam railways:—Atlantic, Quebec & Western (through traffic only), Cana-

dian National east of Montreal and south of St. Lawrence River, Caraquet & Gulf Shore, Cumberland Ry. & Coal Co., Maritime Coal, Ry. & Power Co., Quebec Oriental (through traffic only), Timiskaming & Northern Ontario and also on the London & Port Stanley electric, (through traffic only).

The arrangements under which the Dominion Ex. Co. operates over Canadian National Rys. lines east of Montreal and south of the St. Lawrence River, is said to be terminable at short notice, and it is reported that such notice may be given in the near future.

Telegraph, Telephone and Cable Matters.

The Naval Service Department, which has charge of the Dominion Radiotelegraph Service, has announced that of 25 candidates examined during August, 14 were awarded certificates of proficiency in radiotelegraphy.

The Marconi Wireless Telegraph Co. is reported to have issued a circular to its emplayes at Glace Bay, N.S., and other points, announcing a reduction in wages, of approximately 20%. It is stated that the employes are asking for the appointment of a board of conciliation.

J. D. Gaines, Superintendent, Commercial Cable Co.'s station at Shanghai, China, who died at Tatamagouche, N.S., recently, where he was spending a holiday, was, from 1884 to 1902, in the company's service at Canso, N.S. In 1902 he was transferred to Honolulu, and in 1909 to Shanghai.

Canadian National Telegraphs have opened offices at Loggieville, N.B., St. Adelaide de Pabos, Que., Muir and Mulvihill, Man., and Kamloops, B.C., and have closed offices at Britannia Mills and Lac a Beauce, Que., Elgin, Kabina, Minnaki Inn, Pass Lake and Vienna, Ont., and Narcisse and Poplar Field, Man.

A Vancouver, B.C., report states that a telegraphic achievement was performed there recently, when Lord Northcliffe's speech before the Canadian Club was cabled to London, Eng., in the remarkably short time of 45 minutes. It is quite possible that a record was achieved, but the report does not state what the length of the speech was.

Regarding the proposed erection of a radiotelegraph station at Fort Norman, Northwest Territories, A. H. Morse, Managing Director, Marconi Wireless Telegraph Co., is reported to have stated that everything being ready, the company applied to the Government for licenses to proceed with the installations, but that they had not yet been granted, and if granted now, it would be too late to go on with the work this year.

The Naval Service Department is reported to have announced recently that radiotelegraph messages had been exchanged between the Government station at Barrington, N.S., and the new radiotelegraph station at Leafield, Eng., approximately 3,000 miles apart. The Leafield station, the first of a series being built throughout the British Empire, communicates on Poulsen arcs of 250 kw. capacity.

The Swedish State Railways are reported to be experimenting with a locomotive in which reciprocating engines are replaced by a steam turbine, and a special arrangement for saving fuel..

Marconi Wireless Telegraph Co. of Canada.

Following are extracts from the report for the calendar year 1920, issued over the signature of Hon. Frederic Nicholls, President:—Pursuant to an agreement dated Oct. 1, 1920, 800,000 of the new shares have been issued to the Canadian General Electric Co., in consideration of its having assigned to your company the exclusive rights to all Canadian and Newfoundland patents owned or controlled by it. As a consequence of this transaction your company has secured the C.G.E. Co.'s co-operation, which has already been beneficial. The C.G.E. Co. also undertakes to subscribe for a further 200,000 shares at par, as additional working capital is required.

A very considerable proportion of your company's activities consists of the operation and maintenance of some 30 coast wireless stations, under contracts made in 1911 and 1912 with the Dominion Government. As was pointed out in our last annual report, your company has had to respond to the general demand for higher wages. The effect was an increased cost of nearly $80,000 in respect of the operation and maintenance of the coast stations in 1920, the wages being in accordance with a schedule recommended by a board of conciliation appointed by the Minister of Labor in the fall of 1919.

A. E. Dyment, President, Canadian General Electric Co., and Vice President of your company, accompanied by A. H. Morse, Managing Director, made a trip to England this summer to make an adjustment and settlement with the British Marconi Co. of some matters which were in dispute, and also to advise with them with regard to the future development of this company. I am glad to say that satisfactory arrangements were concluded, and your officials are in accord with the views of the British company's officials regarding the development in Canada of wireless telegraphic communication. Mr. Dyment reports the greatest enthusiasm on the part of the British company's leading officials with regard to the development of wireless telegraphy.

Your company's trans-Atlantic telegraphic service continues to give satisfaction and your directors are pleased to report that, as a result of improvements which are now being effected, the efficiency of the service will shortly be materially increased. The business in amateur wireless apparatus, which is carried on by your subsidiary, Scientific Experimenter, Ltd., continues to grow.

Towards the end of the period under review your company placed in operation in Nova Scotia, a transmitting station of the latest type, for the purpose of radiating Canadian news to subscribing ships in the North Atlantic. This station is giving entire satisfaction and its operation is profitable. Your company gave a demonstration of wireless telephony at St. John's, Nfld., in 1920, on the visit of the Imperial Press delegates to Canada. The demonstration, which involved considerable expense, was an unqualified success, and your directors feel sure that you will consider it to have been worth while, having regard to the effect which it must have upon your company's prestige and future prosperity.

Your attention is directed to the fact that your board is now under full Canadian control and your directors, relying on the continued zealous support and efficient co-operation of their officers and staff, look forward to a radical improvement in the company's affairs in the near future.

The statements show that the profits from operation for the year, after deducting all expenses of operations and management, but before providing for depreciation and government taxes, were $69,906.38. From this was deducted $55,449.41 reserve for depreciation of buildings, plant and equipment and power and ship stations, leaving a balance of profits of $14,456.97 to which was added the surplus balance at Dec. 31, 1919 of $395,918.30, making a balance at Dec. 31, 1920, subject to Government taxes, of $410,375.27.

Australian Underground Railway. — Construction of the underground government rapid transit line through the business district of Sydney, New South Wales, is to be resumed, work having been stopped in 1918 on account of war conditions. The estimated cost is about $12,000,000 at present rate of exchange. Plans have not been completed for the cantilever bridge of 1,600 ft. span which is to cross the harbor and connect two sections of the city. The cost of the bridge is estimated at $20,000,000.

Automatic Train Stopper.—A London, Eng., press cablegram says that an Australian, R. A. Angus, has demonstrated an invention to prevent railway colisions, by running a low voltage current into the rails, and by means of special contacts linking the locomotive electrically with the signal boxes, which it is claimed will automatically stop the locomotive when necessary, the apparatus blowing the whistle, closing the throttle and applying the brakes.

FOR SALE

H.M.S. "CHARYBDIS"—late 2nd Class Cruiser converted to Merchant use.

As and where she lies at Bermuda Dockyard.

Without guarantee in her present condition.

Length, 320 feet.
Breadth, 49 feet 6 ins.
Depth in hold, 25 feet 6 ins.
Register gross tonnage, 2,730.
Steel hull sheathed with teak and coppered.

Phosphor bronze stern post, rudder and propeller brackets.

Two anchors and cable.

Has refrigerating machinery with insulating space 34,440 cubic feet. Deadweight capacity, 1,460 tons. Bunker capacity, 566 tons. Tenders will be considered inclusive or exclusive of refrigerating machinery.

Main Engines.—Twin screw, triple expansion inverted vertical type of 7,000 I.H.P. Fitted with main and auxiliary surface condensers of gun metal with brass and usual auxiliary machinery.

Boilers.—Originally fitted with eight; six in number, return tube marine type now on board, and one on wharf.

Propellers (with 2 spare blades) are of gun metal. Offers will be received by the Captain in Charge, H.M. Dockyard, Bermuda, until noon on Saturday, 31st December, 1921, and forms of tender can be obtained from the Commander-in-Charge, H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,
Deputy Minister of the Naval Service.

Ottawa, September 23, 1921.

Unauthorized publication of this advertisement will not be paid for.

Electric Railway Department

Electric Railway Employes' Wages, Working Conditions, Etc.

Hull Electric Co.—A press report states that negotiations have been carried on for some time between the management and its employes in regard to wages. The company desire to put in operation a reduction of 7c. an hour, equal to 15%. It was stated recently that the employes were considering making an application to the Labor Department for a board of conciliation.

Montreal Tramways Co.—As stated in Canadian Railway and Marine World for September, the Labor Department, on the application of the company's employes, authorized the formation of a board of conciliation, the men appointing A. Brossard, K.C., to represent them, and the Department appointing A. P. Frigon, to represent the company, which declined to have anything to do with the matter. The board was completed, Aug. 27, by the appointment of Judge Bazin, of the Montreal Court of Special Sessions, by the Department, the other members having reported their failure to agree on the third arbitrator. The board met Aug. 30, when L. J. Bourbonniere, financial secretary of the men's union, claimed that the company having reduced wages by 12½% dating from Aug. 16, had infringed one of the provisions of the act, viz., that conditions shall remain unchanged until the decision of the conciliation board is made known. The proceedings were adjourned to Sept. 6, when it was suggested that an endeavor be made to get the company's representatives to meet the union representatives in the presence of the arbitrators. The management refused to negotiate any further, stating that the 12½% reduction was decided upon after conferences with the men and was 7½% less than the reduction first proposed. The company would not take any part in the board's proceedings, but would send any of its officers, whom the board desired to examine, as witnesses. The board concluded its sittings Sept. 13.

New Brunswick Power Co.—A press report states that all the union men formerly in the company's employ, who declined to accept the cut in wages and the new working conditions put in force by the company, are now employed; many of them having gone into the jitney business. A suggestion has been made that the company and the men get together and endeavor to come to an arrangement, the present situation, according to a reported statement by the Mayor, being a losing one not only for the company but for the men.

United States Wage Reductions.—The Electric Railway Journal states that the average wage reduction made all over the U.S. affecting 4,500,000 electric railway employes is 15.9%. Of the 109 public utilities companies reducing wages, the majority have been between 10% and 20%, although some of them have reached as high as 40%. The iron and steel workers have received a second and in some cases a third reduction, since the beginning of the year, and in the building trades there has been a continued voluntary action on the part of workers to accept lower rates of pay in the hope of increasing building activities.

Manitoba Power Co.'s Hydro Electric Development on Winnipeg River.

The Manitoba Power Co. was incorporated under the Dominion Companies Act, several years ago, to develop, transmit and distribute electricity and carry on business as an electric light, heat and power company in all its branches. The Manitoba Legislature gave the company legislative authority by an act assented to Mar. 24, 1911. The company was, in its early days, taken over by interests connected with the Winnipeg Electric Ry. Co., but beyond carrying on investigation work on the Winnipeg River, as to flow of water, and the preparation of plans for development, nothing was done. The company is now proceeding to begin actual work with an organization of which Sir Augustus Nanton, President, Winnipeg Electric Ry., is President, and A. W. McLimont, Vice President, Winnipeg Electric Ry., is Vice President. The company is taking over the Winnipeg River Power Co.'s power development plant, for this purpose, and to provide funds for the new development, has arranged with Montreal and Toronto bond houses for selling an issue of bonds.

The Winnipeg River Power Co. has its plant at the Great Falls of the Winnipeg River. In connection with this plant there are 13.5 miles of standard gauge railway running from Lac du Bonnet on the C.P.R. The new plant will be built to utilize the Great Falls, and the plans provide for a plant capable of developing 168,000 h.p. The plans for the new plant are being prepared by F. H. Martin, engineer for the company, L. J. Hert, New York, being consulting engineer.

It is reported that some 200 men are already engaged in construction work at the falls. It is proposed to build the plant in six units of 28,000 h.p. each. The estimated cost of the entire plant is put at $10,000,000, and it is expected that the six units will be completed in 1928.

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

Infraction of Rules by Niagara, St. Catharines & Toronto Railway Employes.

Some months ago a collision occurred on the Niagara, St. Catharines & Toronto Ry. near Merritton, which resulted in the injury of a number of passengers. Following an investigation into the circumstances, the management dismissed those of its employes who were found to be directly responsible for the collision, and dismissed or disciplined a number of other employes who were alleged to have been guilty of disregarding regulations governing the operation of trains. The local union took the matter up, and demanded the reinstatement of the dismissed men, and the removal of the penalties on the diciplined men, a demand which the company refused. The employes persisted in their demands and ultimately a board of conciliation was authorized by the Labor Department. This board consisted of D. Dick Jr., chairman; G. D. Kelley, K.C., Ottawa, representing the company, and Jos. Gibbons, Toronto, representing the employes. The board met at Welland, May 17 and 18. Subsequently a report signed by D. Dick Jr. and Jos. Gibbons, and dated Aug. 8, was received by the Department, in which the following recommendations were made:—Dismissal of Conductor Bauer to be confirmed. Motorman Lampman to be reinstated with one months wages as compensation for loss of time. Dismissal of Conductor Phillips found to be justified. Conductor Bowman to be paid for time lost while under suspension. Conductor Varley's loss of seniority found to have been justified. Motorman Sparrow and Conductor Terreyberry, to be reinstated and paid for all lost time in excess of 30 days. N. E. Smith to be restored to full seniority rights. The cases of conductor Wilson and conductor Hannah were withdrawn by the union, and a communication was put in on behalf of F. Richardson, S. Pratt, N. Marne and F. Mitchell admitting their breach of rule.

G. D. Kelley submitted a minority report, dated Sept. 2, in which he disagreed with the finding as to conductor Bowman, favored the restoration of conductor Varley to his former place on the seniority list, and agreed with the majority report (though giving his own reasons for doing so) as far as the Wilson and Hannah cases. He then proceeded to discuss what took place between the adjournment of May 18 and his return from a holiday on Aug. 2, when he found that a meeting of the board had been called for July 27 by telegram dated July 26, at which the Sparrow-Terreyberry cases were taken up. In dissenting from the majority finding in these cases he stated it was not justified, and recommended that their dismissal be sustained.

The Labor Department in issuing these reports made a statement taking exception to portions of Mr. Kelley's report.

The men subsequently threatened to go out on strike if the majority report was not acted upon. The management does not appear to be desirous of doing anything further in the matter, as it contends that to do anything else would be prejudicial to the travelling public's safety.

Toronto Transportation Commission Matters.

As foreshadowed in Canadian Railway and Marine World for September, the Toronto Ry. was handed over on Sept. 1 at 1 a.m. to the Toronto Transportation Commission, acting for the city, and the service was continued without any interruption.

Staff.—Previous to the transfer the Commission's official staff consisted of H. H. Couzens, General Manager; I. S. Fairty, Solicitor; A. T. Spencer, Engineer of Way; W. E. P. Duncan, Engineer of Structures; A. E. Gibson, Concrete Construction Department; and C. S. Parker, Secretary to General Manager; together with H. P. L. Hillman, acting Comptroller, who is also Comptroller, Toronto Hydro Electric System. The following appointments of heads of Departments have been made since:—

D. W. Harvey, heretofore Superintendent and Engineer, Toronto Civic Ry., appointed Assistant Manager.

H. E. Beasley, heretofore Purchasing Agent and Superintendent, Stores Department, Toronto Ry., appointed Purchasing Agent.

J. G. Coulthard, heretofore Chief Clerk, Toronto Civic Ry., appointed Chief Accountant.

W. E. P. Duncan, heretofore Chief Estimator, Carswell Construction Co., Toronto, appointed Engineer of Structures.

J. H. Forrest, heretofore Superintendent, Accident and Claims Department, Toronto Ry., appointed Claims Supervisor.

J. W. Howden, heretofore Superintendent, Timekeeping and Schedules Department, Toronto Ry., appointed Superintendent of Schedules.

J. McCulloch, heretofore Traffic Superintendent, Toronto Ry., appointed Superintendent of Traffic.

W. R. McRae, heretofore Master Mechanic, Toronto Ry., appointed Superintendent of Rolling Stock and Shops.

J. Metcalf, heretofore Traffic Manager, Toronto Civic Ry., appointed Assistant Superintendent of Traffic.

J. F. Nield, heretofore Superintendent, Substations, Toronto Ry., appointed Electrical Engineer.

J. P. Scott, heretofore Cashier, Toronto Ry., appointed Cashier.

A number of other Toronto Civic Ry. and Toronto Ry. officials have also been taken over by the Commission, but their positions have not yet been announced.

R. C. Harris, City Works Commissioner, who was also General Manager, Toronto Civic Ry., has relinquished the latter position. The following Toronto Ry. officials have not entered the Commission's service:—R. J. Fleming, General Manager; J. G. Grace, Secretary-Treasurer; W. H. Moore, Assistant to President; F. L. Hubbard, Assistant to General Manager; J. M. Smith, Comptroller; J. G. Smith, Track Superintendent; O. V. Anderson, Superintendent of Distribution; and L. Smith, Secretary to General Manager. Some of these are remaining with the company, in connection with the arbitration proceedings as to the price to be paid by the city.

Henry Herbert Couzens, A.M.I.E.E., General Manager, Toronto Transportation Commission, was born at Totnes, Devonshire, Eng., Oct. 16, 1877, and was educated at the Independent College (Taunton School), Taunton, Eng. He served subsequently as an articled pupil in both mechanical and electrical engineering, with Allen & Sons, Taunton, and the Taunton Corporation Electrical Works respectively, and in 1898 was appointed Assistant Engineer, Bristol Corporation Electrical Department, Bristol, Eng., and held that position until 1901, when he was appointed Deputy City Electrical Engineer, Bristol. He resigned in 1909 on his appointment as Manager and Engineer, West Ham (London, Eng.) Corporation Electric Supply, and in 1912 was appointed to a similar position with the Hampstead Borough (London, Eng.) Council, and continued for a year as Consulting Engineer for West Ham. He resigned that position at the end of 1912, on his appointment as General Manager, Toronto Hydro Electric System, and took up the duties of the latter position early in 1913. In 1920 he was given an indefinite leave of absence to become General Manager, Toronto Transportation Commission, and the expectation is that he will be General Manager of both.

H. H. Couzens, A.M.I.E.E.,
General Manager, Toronto Transportation Commission.

D. W. Harvey,
Assistant Manager, Toronto Transportation Commission.

D. W. Harvey, B.A.Sc., C.E., heretofore Superintendent and Engineer, Toronto Civic Ry., who has been appointed Assistant Manager, Toronto Transportation Commission, was born in London, Ont., Feb. 24, 1887, and, after graduating at Toronto University, was with the Ontario Power Co. and subsequently with the Toronto Structural Steel Co. At the starting of the Toronto Civic Ry., in 1911, he was given charge of construction, and in 1912 the operation and maintenance were also placed under him.

New Cars.—Out of the 210 new cars ordered, viz., 100 motor cars and 60 trailers from Canadian Car & Foundry Co., and 50 motor cars from Canadian Brill Co., about 50 have been delivered by Canadian Car & Foundry Co., and it is expected to start operating them on the Broadview, Coxwell and Danforth lines on Oct. 2.

Car Houses.—The Commission has let a contract to Wells & Gray for the erection of an addition to the Toronto Civic Ry. car house, Danforth and Coxwell Avenues, at an estimated cost of $235,000. The extension will consist of three concrete car houses, with provision for offices and stores, and the contract includes alterations to the existing buildings, the plumbing and heating, and the provision of rolling steel doors. The existing car house accommodates 39 cars, and with the extension will accommodate 203.

Another contract has been let to Jackson, Lewis Co., for the extension of the St. Clair car houses, at the north end of a property bounded by Benson Ave. on the north, Christie St. on the west, and Wychwood Ave. on the east, with an area of 3¾ acres. Another acre in the southwest corner has been bought, which squares off the site and provides accommodation for the additional cars which will operate from this division. The present car houses consist of two buildings, one built in 1913, the other in 1916, each being 200 x 40 ft., with three tracks in each unit, housing altogeth 18 cars. With the additions to the buildings and yards, 50 cars will be accommodated inside and 107 outside. The extensions to the present buildings consist of two sheds to the south, 230 x 44½ ft., each containing three tracks at 13 ft. centers. On the north another section will be built, 326 x 44½ ft., containing offices, trainmen's recreation rooms, lavatories, locker rooms, stores, boiler room and a two track repair bay. All the new buildings will be of reinforced concrete, with brick and tile walls. Concrete trusses concrete columns, leaving curtain walls will span across each bay, supported on with no superimposed loads. The heating will be a hot air plenum system. The boiler room will be equipped with a low pressure, steam boiler with forced draft

and stoker feed. Two fans will circulate the air, which will pass through the vento heaters, then along the main concrete ducts, running under the pits. Secondary tile pipes will run the length of the buildings, carrying the air along under the pits. The repair section to the north will have a wood block floor, and one repair track will be equipped with hoisting machinery to raise the cars from the trucks. Wheel grinders will be installed and other smaller equipment for carrying out minor repairs. The whole group of buildings, both old and new, will be sprinklered throughout, and a 40,000 gall. tank will be erected to supplement the city pressure. The storage sheds proper will be open both ends, and each track bay will be equipped with rolling steel doors raised and lowered by individual motors. It is expected to have the new buidings completed by December. The approximate cost is $220,000.

Toronto Transportation Commission's Motor Car, Exterior.

Track Construction, Betterments, Etc. The Commission has about 2,000 men laying new lines, changing old ones, installing new intersections and making other betterments on various parts of the system.

The Dundas line from Keele St. is the first to be completely overhauled for the operation of the new cars, it being one of the lines with a wide devil strip. For the operation of this line a loop has been built from Teraulay St., by the back of the City Hall, then north to Louisa St., and on to Teraulay St. The new intersections have been installed and the operation of the cars round this loop started Sept. 24, the operation by the Bay, Temperance, Yonge and Queen Street loop being abandoned.

The Coxwell Ave. extension, which is being built, consists of a new double track from Queen St. east to meet the double track at Gerrard Street, with double track Y's at Queen St. and Gerrard St. South, a total distance of approximately 2,400 ft. of double track. The existing single track on Gerrard St. north to Danforth Ave. will be made into a double track, with doubletrack Y's at Gerrard St. north to Danforth Ave., and to connections with the Danforth car house yards, a total distance of approximately 2,900 ft. of single track. The straight track will be laid with 100 lb. A.R.A. type A rail, on ties and tie plates, on a 9 in. concrete base, with crushed stone cushion. The paving will be granite block with cement grout. The special track work will be A.E.R.A. standard 122 lb. girder and 100 lb. girder guard rail. This piece of construction will connect the Toronto Civic Ry. Danforth Ave. and Gerrard St. lines with the Toronto Ry. lines at Queen St., making a new north and south line from Queen St. to Danforth Ave.

An intersection has been installed at the corner of Broadview Ave. and Danforth Ave., to connect the Toronto Ry. tracks with the Toronto Civic Ry. Danforth line.

A large force is changing the line, repairing the pavement and doing other work on the Bathurst St. line, northerly from its connection with the Dundas St. line. A 0.75 mile extension of the Bathurst St. line to St. Clair Ave. is being built, and it is expected that it will be ready for operation in November.

The tracks are being extended on Bloor St. west, from Runnymede Road to Jane St., six blocks, 2,250 ft.

Land has been acquired for the construction of a loop line at the Bloor and Jane Streets terminus.

It is said that an antomatic substation will be built on Eglinton Ave., North Toronto.

Omnibus Service.—A full description of the omnibusses ordered by the Commission is given on another page. A service was started Sept. 20 along Humberside, High Park Ave. and Annette St. to Runnymede Road, transfers being given to and from the electric cars.

Trackless Trolley. — H. H. Couzens, General Manager, has advised the Mount Pleasant Ratepayers' Association of North Toronto, that if the city council will provide a suitable road surface, the Commission will give a trackless trolley service on Mount Pleasant Rd. south of Eglinton Ave., to Merton St., and later on, westerly to Yonge St. This proposition was made as a means of commencing to relieve conditions in North Toronto and pending the provision by the

Toronto Transportation Commission's Motor Car, Interior.

city of a through connection for the district by the extension of a new street through from Sherbourne St., to serve North Rosedale, Moore Park and North Toronto.

Office Buildings.—The Commission has filed plans for the alterations to the Board of Trade Building, corner Yonge and Front Sts., which it has bought, together with two adjoining buildings on Yonge and Front Sts. respectively, and which will be occupied jointly with the Toronto Hydro Electric System. All the buildings are to have additional stories.

Amputation Cases. — The Commission has decided to give free transportation to soldiers who have suffered amputation, and will honor badges issued by the Amputation Association of the Great War, until and unless some better scheme can be devised.

Night Fares.—The Commission placed on sale, early in September, at its offices and car houses, night tickets, in books of 25 for $3, which reduces the cash rate of 15c. to 12c. All tickets must be detached from the books in the conductor's presence.

Postmen's Transportation. — From Sept. 1 postmen have had to pay the same fare on the Commission's railway as other passengers, and the Post Office Department has bought books of 50 tickets for them, at $3 each. For years the Toronto Ry. carried postmen at a ridiculously low bulk rate per year. The Commissioners decided that, as they are operating on a service at cost basis, a continuance of this practice would not be justifiable, and that there is no more reason for carrying postmen at a reduced rate than other Dominion Government employes, or Ontario Government employes.

Private cars will not be provided free on the system in future for any purpose, and if required by anyone will have to be paid for.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	July, 1921	July, 1920
Gross . .	$840,155	$788,402
Expenses . .	636,019	588,073
Net . .	204,136	200,329

Cape Breton Electric Co.—

	July 1921	July 1920	12 mos. to July 31, 1921	12 mos. to July 31, 1920
Gross	$62,128	$54,765	$689,264	$597,464
Expenses and taxes	45,901	48,427	578,122	506,146
Net	16,227	6,338	111,142	91,318
Interest	5,739	5,716	68,882	65,583
Balance	10,488	622	42,260	25,735

Montreal Tramways Co.—The matter of new financing is reported to have been discussed at a meeting of the directors Sept. 14. It is reported that $6,000,000 to $8,000,000 will be required to meet obligations falling due, and to provide for additional capital expenditure during the next year or two, and that the new stock will be issued at par to present holders of stock in the proportion of one share of new stock to four of old.

E. A. Robert, President is reported to have stated that negotiations are in progress with Canadian and U.S. financial houses, in regard to the proper time to put the stock on the market on the most favorable basis.

Quebec Ry., Light, Heat & Power Co. Holders of the company's 5% currency bonds created by deed of Mar. 20, 1912, met recently in Quebec and passed resolutions providing for the acceptance of $2.40 per coupon in lieu of all coupons maturing to July 1, and outstanding; $19.50 in cash for each 500 franc bond with coupons from July 21, 1921, attached, and $77 par value of 5% 30-year income bonds, for outstanding bonds. Bondholders of securities created by deed of Jan. 30, 1911, passed a resolution on the same day accepting $2.40 per coupon for interest to Aug. 1, 1921, $29.50 for each 500 franc bond, and $67 par value of 30-year 5% income bonds, for the surrender of their holdings.

Toronto Civic Railway.—

	Aug. 1921	Aug. 1920
Revenue . .	$45,154.72	$44,342.06
Passengers . .	3,017,070	2,625,583

Toronto Railway.—The total revenue for August, the last month of the company's franchise prior to the taking over of the property by the city, was $564,001.79, the city's percentage being $103,785.08. The amount owing to the city for percentages from June 1920, is $1,670,410.12 with interest from due date. It is stated that of this amount $1,000,000 has been treated as paid into court by the city, on account of the purchase price.

Toronto Ry., Toronto & York Radial Ry., and allied companies:—

	July 1921	July 1920	7 mos. to July 31, 1921	7 mos. to July 31, 1920
Gross	$1,229,483	$1,189,315	$8,877,669	$8,235,063
Expenses	902,626	982,960	6,081,194	5,633,578
Net	326,857	206,355	2,796,475	2,601,485

Winnipeg Electric Ry. Co.—The directors have declared a dividend on the preference stock at 7% a year, for the quarter ended Sept. 30, payable Oct. 1.

Winnipeg Electric Ry. and allied companies:—

	July 1921	July 1920	7 mos. to July 31, 1921	7 mos. to July 31, 1920
Gross	$390,110	$391,709	$3,180,779	$3,036,386
Expenses	296,561	284,954	2,257,267	2,252,881
Net	93,549	106,755	923,512	783,505

Surplus, after allowing for fixed charges, for July, $50,770.85.

City Councillors Disqualified as Railway Commissioners.

The Ontario Legislature last session made the following addition to subsection 1, section 53 of the Municipal Act, R.S. O., 1914, chap. 192, sec. 53, subsec. 1, respecting the disqualification of certain persons as members of councils: "A person other than the head of the council, who is a member of a board or commission appointed, or elected, for the construction, management or control of an electric railway, street railway or steam railway, which is owned by, or leased to, or controlled by a municipal corporation, or by trustees acting for or on behalf of such corporation," and the act further provided that "The amendment made by subsec. 1 shall have effect notwithstanding the provisions of any general or special act, or any bylaw of a municipal corporation."

Two members of the London Railway Commission, managing the London & Port Stanley Ry., Alderman J. C. Wilson and J. Bridge, are affected by this provision, and are reported to have resigned their positions on the Commission.

The Hamilton St. Ry. is reported to have paid off about a dozen of its employes on Sept. 12, it being customary to reduce the staff at this time of year, owing to the contraction of the traffic, and the spare men being let go.

British Columbia Electric Ry. Franchise Proposition Rejected.

The proposed new service at cost franchise for the B.C. Electric Ry. in Vancouver, which was approved tentatively by the city council May 4, and a summary of the main terms of which were given in Canadian Railway and Marine World for June, pg. 320, came before the council again, at the end of August. The proposed franchise, it was suggested, was, if generally approved, to be made the basis of a new franchise covering all the mainland municipalities in which the company operates. Since May, the proposed franchise has been discussed at meetings of the several municipalities, without arousing much favor. As the result of the last discussion by the Vancouver City Council a resolution was passed, with only two dissentients, to give the motion for submitting the proposed agreement to a vote of the ratepayers a six months hoist. The rejection of the proposed franchise was due to a number of factors. The general objection to "giving" anything to the company and the critical attitude of the public towards any assistance given the company was one of the underlying motives. One alderman took the stump against the franchise and criticized the indeterminate feature, although the old franchise was just as perpetual. Another objection was the rate of interest or return which was fixed at 6% for the old capital and 8% for new. It was maintained by this alderman that capital might fall to a fraction of this rate in some future years.

The proposed new agreement was negotiated following the company's application to the Dominion Parliament for an amendment to the act incorporating the Vancouver, Fraser Valley & Southern Ry. Co., one of its subsidiary companies. Under the proposed amendment the whole of the company's lines were to be declared to be works for the general advantage of Canada, and were to be amalgamated under a new title. The general effect of the amendment would have been to place all the company's lines under the Board of Railway Commissioners. As a result of negotiations, the company withdrew the application, and the proposed new agreement was negotiated, a preliminary condition being that the 6c. fare, which had been granted as a temporary measure, should be continued until July 1, 1922. The company is now at liberty to reinstate its application to the Dominion Government for a Dominion charter, thereby bringing it under the Board of Railway Commissioners, a step which the Board of Trade and other public bodies have registered their approval of. In the meantime, before any future action is decided on, the company has the right to charge its present fares until June 30, 1922. Its contention is that it is not possible to raise any new capital while its affairs are unstable. One of the requirements in the near future is more hydro electric development. Already extensions to the light and power and gas systems have been refused owing to the lack of funds.

The Union of British Columbia Municipalities, at a meeting of delegates at Port Alberni, Vancouver Island, Sept. 1, decided to oppose vigorously any application which the company may make for a Dominion charter. The Union also decided to ask the British Columbia Government to take steps to reappoint a public utilities commission.

Arbitration of Value of Toronto Railway Co.'s Property.

The arbitration to fix the amount to be paid by the City of Toronto for the Toronto Ry. Company's properties, which were taken over by the city on Sept. 1, opened in Toronto Sept. 13, before Hume Cronyn, M.P., London, who was selected as chairman by the other two arbitrators, and Sir Thomas White, ex Minister of Finance, for the company, and Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, for the city. The company was represented by Hon. N. W. Rowell, K.C., Wm. Laidlaw, K.C., F. H. Phippen, K.C., and Robt. McKay, K.C. The city was represented by W. N. Tilley, K.C., A. C. McMaster, K.C., G. R. Geary, K.C., City Counsel, C. M. Colquhoun, of the city's legal staff, and I. S. Fairty, Solicitor, Toronto Transportation Commission.

Mr. Rowell, in opening the company's case, presented copies of all legislation and agreements affecting the company, and made a general statement describing the railway and other properties, the traffic, etc., and contended that the property should be valued in the condition it was when the city took it over.

Mr. McKay announced that the company would call 24 expert witnesses, outside of officials and employes, viz., 4 on the general field, 3 on land values, 3 on buildings, 3 on tracks and line, 3 on rolling stock, 3 on electric equipment, 3 on steam plant and batteries, which the city was refusing to purchase, 1 on shop equipment, and 1 on office furniture, and that permission might be asked to call others. Mr. Tilley, for the city, contended that the proposed number of witnesses should be cut down. After considerable discussion the arbitrators decided to limit the number of expert witnesses to 24 for each side.

W. J. Hagenah, of Chicago, a specialist in investigating and valuing public utilities, the first witness called for the company, said he had been engaged to value the property, being given absolute charge, and had taken to Toronto a staff ranging from 12 to 20, which during the last month was increased to 40. The entire railway was measured by steel tape, he made a personal examination of the condition of all the track, and building and structural engineers valued the buildings. A complete investigation was made of overhead work, poles, wiring, cables, conductors, etc., all rolling stock was gone over, also transformer stations and batteries, and repair and machine shops. He considered 45 miles of the lines in excellent condition, 14 miles in better than 50% condition, 12 miles in generally fair condition, and that 19 miles should be taken up and relaid. He described the railway system as a well balanced one, well designed to meet Toronto traffic conditions. He testified in detail as to the condition and cost of rails, intersections, etc., on the various streets, the object of the evidence evidently being to establish what would be the replacement cost of the lines. He claimed that the poor condition of some of the lines was due to imperfections in the concrete bed beneath and between the ties, which was laid by the city, the foundations not being heavy enough and having given away, resulting in the rails sinking, and the paving blocks being displaced. He valued the entire system of tracks, cars, wires, buildings and electric and steam plant at $20,477,612, and estimated that to reproduce the system at present would cost $27,161,649. After Mr. Hagenah's examination in chief had proceeded, almost daily, until Sept. 20, W. N. Tilley, K.C., for the city, asked the arbitrators if the evidence could not be less detailed, and said the city was not going to accept the basis of cost of labor and material averaged over three years, which Mr. Hagenah used in calculating the value of the track, etc. A suggestion was made that Mr. Hagenah's inventory notes, which he used in giving his descriptions, might be filed as evidence. The arbitrators and counsel discussed at some length the matter of reducing the evidence, but reached no conclusion. Mr. McKay, for the company, said he wished to emphasize certain points, but would condense the details as much as possible. After giving considerable more evidence as to track conditions on certain streets, Mr. Hagenah testified as to the value of machinery and tools in the company's shops, explaining that one man had made an inventory and examination, and that the average value was fixed by reference to prices charged during the last three years. Mr. McMaster, for the city, said such evidence was mere heresay, and that people who sold things to the company should be produced. Mr. Tilley, for the city, asked the arbitrators for a ruling as to whether they would accept the three years average price when goods had been bought at certain known prices. Mr. Tilley argued this point at length, Mr. McKay replying for the company, the arguments extending over two days. Chairman Cronyn decided that the arbitrators would listen to the evidence first, and determine the basis of valuation later. Sir Thos. White, arbitrator for the company concurred with the chairman, but Sir Adam Beck, arbitrator for the city, disagreed, saying that he was not able to arrive at any conclusion regarding the value of the properties on the basis of a three years average valuation, and that he thought a great deal of time would be saved, and that the arbitrators would make greater progress, and be better able to determine the value of the properties, if they had the law defined, and also the means that they were to adopt finally in arriving at the value.

Mr. Hagenah continued his evidence on Sept. 23, dealing with the value of conduits, and stating that he had personally examined every one of the 188 man holes. When he proceeded to deal with the value of the company's head office building, Mr. McMaster pointed out that the city had declined to take over the building, the reproduction value of which was claimed to be $116,237, and its present value estimated at 83% of that, or $96,477. Mr. Tilley said the city does not desire to take over everything the company owns, but simply what is necessary for the physical operation of the road. This would also exclude Scarboro Beach Park, and certain other properties. The arbitration was then adjourned till Sept. 27.

The City of Toronto is paying its counsel, W. N. Tilley, $300 a day, and A. C. McMaster, K.C., $250 a day.

The Hull Electric Co. has ordered 2 one-man safety car bodies, 32 ft. long over bumpers, 8¼ ft. wide, to replace single truck car bodies now in use. from Ottawa Car Manufacturing Co.

London Street Railway's Financial Position.

The London, Ont., St. Ry. owes the city $7,500 for paving done by the city in 1919, for the company, to secure payment of which the city council obtained a judgment. As the company failed to pay the amount the council passed a resolution authorizing, subject to the City Solicitor's approval, the seizure of the company's property, the suggestion being to take the railway property just before the opening of the Western Exhibition, and operate the line, until sufficient money had been taken in to satisfy the judgment and the costs of enforcing it. Nothing, however, was done in the matter at that time, but it was reported Sept. 19 that a seizure had been made of money in the company's possession, amounting to about $5,000 in partial satisfaction of the judgment. An alderman is reported to have stated that if the company proves conclusively that the earnings are not sufficient to pay its legitimate expenses, and the cost of the paving necessary to be done, the only wise thing to do is to increase the fares, the income realized by such increase to be used to do the paving.

The seizure of the company's funds has been the subject of negotiations, and it was reported Sept. 21 that an agreement had been reached by which the company would pay $500 a month until the amount of the judgment, with interest and costs, is paid.

Mainly About Electric Railway People.

Sir John Gibson, K.C., President, Dominion Power & Transmission Co., Hamilton, Ont., who is stated to be one of the oldest officers of the Canadian Militia, has been appointed a Major-General.

R. C. Harris, City Work Commissioner, who had charge of the Toronto Civic Rys., was given a cabinet of silver by the employes recently, on his relinquishing charge of the lines to the Toronto Transportation Commission.

A. W. McLimont, Vice President, Winnipeg Electric Ry., visited Montreal, Toronto, and some other eastern points, early in September.

Sir Henry Pellatt, Toronto, a director of the Toronto Ry., and for many years Lieut.-Colonel in command of the Queen's Own Regiment, has been appointed a Major-General.

Percy W. Thomson, General Manager, New Brunswick Power Co., will, a press report says, relinquish the position shortly, only having taken it temporarily. He is also a director. We are officially advised that he has not resigned and will not do so until a suitable successor is found.

Nova Scotia Hydro Electric Development.—The Halifax ity Council passed a resolution Sept. 2 authorizing the negotiation of an agreement with the Nova Scotia Power Commission to buy electric current developed at the St. Margarets Bay plant, for distribution in Halifax. The estimated cost of the distribution plant which will be required to be provided by the city is $1,186,000. The Nova Scotia Tramways & Power Co. offered to undertake the distribution of the current in the city.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—The Board of Railway Commissioners has authorized location plans of the Eagle Place extension along Market St., to Ontario St., along Ontario St. to Port St., and along Port St. to Erie Ave., and of the Terrace Hill-Holmedale extension along St. Paul Ave. from Dundas St. to Burwell St., along Burwell St. rfom St. Paul Ave. to Morell St., and along Morrell St. to West Mill St.; and has authorized the building of the latter extension arcoss the Lake Erie & Northern Ry. on Morrell St., Brantford, Ont. (Aug., pg. 434.)

British Columbia Electric Ry. — The Vancouver City Council was asked recently by a deputation to call upon the company to make an immediate extension of the Broadway West line.

Residents of Broadway west, Vaucouver, are clamoring for an extention of that car line, for one mile, to Alma Road, or in the alternative the paving of the thoroughfare, and provision of a jitney service. The company has refused to make the extension on the grounds that it would not be justified by the population served, and that the company is unable to make any further expenditures while the question of its rates of fares is still in doubt.

W. G. Murrin, Assistant General Manager, is reported to have advised the Vancouver City Council, Sept. 13, that no extensions of the company's electric railway could be made at present, and that there was not sufficient traffic on the Broadway West and the Burnaby Lake lines, extensions of which were asked, to pay present operating expenses. The council passed a resolution that if the management does not change its mind within 30 days, city officials should report on the feasibility of the city putting on motor busses.

Calgary Municipal Ry. — The special intersection work necessary to give connection with the tracks laid over the new Hillhurst bridge is expected to be put in position at an early date, and the cars to be put in operation across the bridge early in October. (Aug., pg.. 434.)

Cape Breton Electric Co.—C. C. Curtis, Manager, is reported to have been inSydney Mines, N.S., recently, to discuss various matters in connection with the company's business. The question of an extension of the line to Florence was one of the matters taken up, but he stated that money could not be found at present for this. (Sept., 1920, pg. 503.)

Cornwall Street Ry., Light & Power Co.—We are officially advised that as a result of the recent vote by Cornwall, Ont., ratepayers, extending the franchise of the Stormont Electric Light & Power Co., which is controlled by the interests owning the Cornwall Street Ry., Light & Power Co., $110,000 is to be expended on the reconstruction of the several properties, power and lighting plant, gas plant and street railway. Of this sum about $45,000 is to be expended on renewing the street railway rails, etc., on the main street, or the street running between the G.T.R. and the C.P.R. stations and the center of the town. (Aug., pg. 434.)

Dominion Power & Transmission Co.—The Hamilton, Ont., ity Council has appointed a committee to confer with the company's officials respecting the removal of the Hamilton St. Ry. tracks from Wilson St.

The relaying of tracks on the York St. line is reported to have been held up owing to a shortage of bricks for paving. (Aug., pg. 434.)

Fort William Municipal Ry. — Fort William, Ont., ratepayers voted recently in favor of expending $30,000 for the extension of the railway to the new Chippewa Park, on the Indian Mission, purchased recently. The City Council is reported to have decided on Aug. 23 to buy a right of way for the line from the Indians. (May, pg. 268.)

Hull Electric Co.—In the fire which swept Aylmer, Que., recently, doing about $750,000 damage, the Hull Electric Co.'s property and equipment was damaged to the amount of $4,000, but the cost of reconstructin the damaged lines is estimated at approximately $8,000. We are officially advised that the company intends laying half a mile of 85 lb. rails on Main St., Aylmer, replacing the present 65 lb. rail. (Aug., 1920, pg. 450.)

Kitchener & Waterloo St. Ry. — A press report states that the Kitchener, Ont., Light Commissioners have decided to postpone building the proposed second track in the northeastern part of the city until a debenture bylaw to provide the funds has been passed by the ratepayers. (June, pg. 322.)

Lake Erie & Northern Ry.—The Board of Railway Commissioners is reported to have directed the company to build an industrial spur in the Holmedale district of Brantford, Ont., by July 19, 1922. (Oct., 1920, pg. 461.)

London & Port Stanley Ry.—A press report states that the remodelling of the station at Port Stanley, Ont., which will include putting in of a concrete foundation and changing the interior, will be started at an early date. (Aug., pg. 434.)

Ontario Hydro Electric Railways—Essex Division.—The Premier of Ontario is reported to have announced Sept. 2, that the Ontario Government will guarantee a bond issue of $900,000 to cover the cost of improvements on the electric railway in Windsor, Ont., and vicinity. Work is reported to have been started, Sept. 19, on the construction of a double track line on East Wyandotte St., and Oullette Ave., and on a loop line from Sandwich St., on Ferry and Pitt Streets, to Ouelette Ave., Windsor. (July, pg. 381.)

Ottawa Electric Ry.—Street car service was resumed recently over the new St. Patrick St. bridge, the smaller cars only being operated over it, the larger Bank-St. Patrick cars being turned back at the end of St. Patrick St.

We are officially advised that the company contemplates the equipment of a transformer room at Nelson St. substation to step down from 12,000 to 2,200 volts. F. D. Burpee is Manager, Ottawa. (Aug., pg. 434.)

Regina Municipal Ry. — The Regina, Sask., City Council is considering the advisability of building some additional loops and extensions. (June, pg. 322.)

The Sherbrooke Ry. & Power Co. is laying 1,050 ft. of double track on Frontenac St., and renewing 850 ft. of track with concrete foundation and steel ties, on Aberdeen St., Sherbrooke, Que. (July, pg. 381.)

Toronto & York Radial Ry.—We are officially advised that the company has built two sidings on its Metropolitan Division, one at Lansing, Ont., for the Bowden Lumber Co., and the second north of Richmond Hill, for the Loyal True Blue Orange Society's Orphanage.

The Windsor, Essex & Lake Shore Rapid Ry. is, we are officially advised, making some track changes in Kingsville, Ont. Orders have been given the Canadian Steel Foundries, Montreal, for the switch and crossing required. (Aug., pg. 434.)

Winnipeg Electric Ry.—A press report states that the company proposes to build only one track on Cornish Ave., between the Cornish baths and the Misericordia Hospital property. It is also stated that when final track arrangements are made, following the completion of the Maryland bridge, instead of two tracks curving on to Cornish Ave. and leading on to Sherbrooke St., one track will diverge on to Maryland St., as far as Wolseley Ave., meeting the Sherbrooke St. track at the intersection. A connecting link will be built from Cornish Ave. round the hospital property to Maryland St., and the onetrack line to Sherbrooke St. will branch into two tracks in front of the eastern portion of the hospital property. (May, pg. 268.)

Winnipeg Electric Ry.—The old tracks on Main St., between Sutherland and Selkirk Aves., are being taken up and replaced by new 85 lb. heavy type standard rails. The ties are being renewed, and special intersections are being put in at Dufferin and Main St., Euclid and Main St., Selkirk and Main St. Work on improving the tracks on Sherbrooke St. and Sargent Ave. is also being proceeded with. (May, pg. 268.)

Electric Railway Freight and Passenger Rates.

Cape Breton Electric Co.—C. C. Curtis, General Manager, told the Sydney, N.S., City Council, Sept. 15, that the issue of special tickets for workmen is being generally discarded.

Montreal Tramways Co.—L. J. Bourbonniere, financial secretary of Montreal Tramway Co.'s employes union, is reported to have stated before a board of conciliation recently that the fares paid on the electric railway in Montreal are sufficiently high to make it unnecessary for the company to reduce wages, and that he thought the company should make an effort to have fares reduced. Chairman St. Cyr, of the Montreal Tramways Commission, is reported to have stated that there will be no increase in the fares authorized to be charged on the company's lines.

The Nipissing Central Ry.'s Standard Passenger Tariff C.R.C. 23 was approved by the Board of Railway Commissioners' order 31,381, on Aug. 12, it having been filed on the basis prsecribed in order 31,317, of July 27.

R. J. Fleming, General Manager, Toronto Ry. Co., the railway of which has been taken over by the City of Toronto, has been appointed by the Toronto City Council as a member of the Toronto Harbor Commission, to succeed the late Lieutenant Governor Lionel H. Clarke.

Proposed Sale of Toronto Ry. Co.'s Subsidiary Companies.

In connection with the holding on Sept. 30 of the oft adjourned Toronto Ry. Co.'s annual meeting the following circular was issued to shareholders, in explanation of the proposed sale of its subsidiary companies to the Hydro Electric Power Commission and the City of Toronto:—"The proposals cover all of the interests which the Toronto Ry. Co. has in its subsidiary companies known as—1. The Toronto Power Co. (and through it the Electrical Development Co. of Ontario, the Toronto & Niagara Power Co., and the Toronto Electric Light Co. 2. The Toronto & York Radial Ry. Co., which owns the radial railways lines running north, east and west from the city, known as the Metropolitan, Scarboro, Mimico, and Schomberg Divisions, respectively.

"The purchase price as at Dec., 1920, is $32,734,000, payable: (a) Through the assumption by the Commission of outstanding liabilities of the various companies, amounting to $22,775,177; (b) by the delivery of $9,958,823 in bonds at par, approximately as follows: 1, $6,971,-295 City of Toronto 6% 20-year bonds; 2, $2,987,528 Hydro Electric Power Commission, guaranteed by the Province of Ontario, 6%, 20-year bonds. The operations of the companies since Dec. 1, 1920, will, if the sale is confirmed, be for account of the Commission, and the bonds receivable by the Toronto Ry. Co. will bear interest from that date.

"Among the liabilities assumed by the Commission is the balance of $13,558,917 now outstanding of an issue of 4½% debenture stock of the Toronto Power Co., due in 1941, and an issue of $4,103,200 of 5% bonds due July 1, 1924, of Toronto Power Co. Both of these issues are guaranteed by the Toronto Ry. Co. Arrangements are being made (subject to the consent of debenture stockholders) to release the properties now under the first mentioned mortgage of $13,558,917, together with the guarantee of the Toronto Ry. Co. and to substitute a bond of the Commission guaranteed by the Province of Ontario. This will leave the railway company's guarantee outstanding only on $4,103,200 of 5% bonds of the Toronto Power Co., due July 1, 1924. The securing of the release of the guarantee above referred to will be a very great advantage, as it should enable the company to distribute all of the funds in its hands after July 1, 1924. In addition to the liabilities to be assumed by the Commission as above set forth, there are still outstanding approximately $3,500,-000 of liabilities of the subsidiary companies, consisting of bank loans, water power rentals, taxes, etc. The net equity, therefore, accruing to the railway company on the sale of the subsidiary companies is approximately $6,458,823 (less discount on bonds to be sold to provide the necessary funds), being substantially in excess, with interest, made by the railway company in acquiring the assets now being sold.

"Shareholders will recall that when, in 1908, it was decided to lease the power generating and transmitting companies' plants, and to purchase certain of their bonds and capital stock, your directors were moved by two objects, the first and chief one being to preserve and ensure a supply of elcetrical power at reasonable rates with which to operate the company's street railway during the remainder of the franchise period, and the other to acquire for the shareholders what then promised to become a very valuable franchise and investment when the company's railway would be taken over by the city. As to the first, their judgment has been amply vindicated, for had it not been for the arrangement then made for a cheap and ample supply of power, the company could not have borne the burden of the operation of its railway to the expiration of the franchise period. As to the second, no more promising investment could have been secured, and had it not been for government competition and the development of the feeling in favor of public ownership, with the accompanying injurious and unjustifiable legislation affecting private companies, your directors confidently believe that they would have been able to advise you to retain and operate their properties. In existing circumstances, however, we believe it to be in your interests to dispose of them to the Hydro Commission on the terms herein set out.

"The arbitration with the city is in progress. Every care is being taken to ensure the presentation of the company's case in the best possible fashion. It is impossible at this time to estimate the amount which will be awarded by the arbitrators, but it must, in any event, be very substantial. This amount will be added to the above mentioned equity of aproximately $6,458,823. From the total amount represented by the equity from the proceeds of the sale of the subsidiary companies and the arbitrators' award will have to be deducted the liabilities of the railway company proper, amounting approximately to $5,450,000, made up of—

Outstanding bonds and interest	$2,325,000
Percentages due the city and interest	1,750,000
Provision for sundry liabilities covering taxes, claims, judgments and arbitration expenses, etc., say	1,375,000
	$5,450,000

"In other words, deducting the above $5,450,000 from the equity of $6,458,823 above referred to, leaves a balance of $1,008,823, after making provision, so far as can be foreseen, for all of the liabilities of the railway company proper and of its subsidiary companies. To this amount will be added the arbitrators' award and the combined amount will represent the capital value of the company's outstanding shares.

"Shortly after the sale to the Commission is consummated and the proceeds of the award are received, it will be possible to make a partial distribution to the shareholders. Owing to the guarantee of the railway company on the $4,103,200 of bonds of the Toronto Power Co., due July 1, 1924, remaining outstanding, an equal amount of cash or bonds forming part of the purchase price must be retained by the railway company until after that date. As soon thereafter as the Commission, which assumes the payment of the said bonds, pays the same, it will be possible to make a final distribution to the shareholders.

"It is to be borne in mind that these proposals require the favorable action of the debenture stockholders of the Toronto Power Co. under the 4½% mortgage due in 1941, and a meeting of such holders is to be called in London shortly for this purpose. Furthermore, they are dependent upon a final agreement being reached among the city, the Hydro Commission and ourselves. Such progress has been made, however, as to justify your directors in submitting the proposals to you in principle for your approval and, so far as can now be foreseen, there should be no hitch in the final consummation of the bargain. Your directors unanimously and without reservation, recommend that the proposed sale be approved."

Electric Railway Statistics for 1920.

The Dominion Bureau of Statistics' Transportation Branch has issued the following preliminary report: Canadian electric railways as a whole showed a net operating revenue of $9,804,762 for the calendar year 1920, against $9,312,884 for 1919. The total operating revenues increased from $40,698,586 in 1919, to $47,047,246, and expenses increased from $31,385,702, to $37,242,483, the greatest increases being in maintenance of equipment, which went from $4,717,614 to $5,701,450, and in operation of cars, which went from $13,806,108 to $17,338,564. After paying taxes, interest, etc., there was a net corporate income of $954,818, against $3,704,066 for 1919, and after making deductions for dividends there was a total deficit of $2,421,286. Thirteen of the 66 railways reporting declared dividends amounting to $3,376,194; 41 of them had deficits amounting to $3,658,911, while the other 25 showed surpluses amounting to $1,237,625.

The total capitalization was $170,826,-404, made up of $91,321,955 of stocks and $79,504,449 of funded debt. The single track increased from 1,687 miles to 1,699 and the second main line amounted to 509 miles.

Passengers carried totalled 804,711,333, an increase over 1919 of 55,376,953, or 7.4%. The passenger receipts were $43,-279,009, an increase of $5,731,553, or 15.3%. The average passenger fare collected per passenger was 5.37c., against 5.01c. for 1919. This included fares from passengers on interurban lines.

The number of employes was 17,341, an increase of 401. The total pay roll was $24,235,932, an increase of $4,024,-356, or 19.9%.

Miles of road	1,669
Capital stock	$91,321,955
Funded debt	79,504,449
Total	$170,826,404
Operating revenues	
From transportation—	
Passengers	$43,279,009
Freight	2,357,778
All other	697,740
Total	46,334,527
Other than transportation	712,719
Grand total	$47,047,246
Operating expenses	
Maintenance of way and structures	$3,847,496
Maintenance of equipment	5,701,450
Traffic	213,453
Conducting transportation	
Superintendence	909,242
Power	4,948,805
Operation of cars	17,338,564
General and miscellaneous	2,301,273
Undistributed accounts	1,982,200
Total	$37,242,483
Net operating revenue	$9,804,762
Taxes	$3,119,632
Interest on funded and floating debt	5,948,552
Other deductions	3,098,552
Other income	3,316,664
Net corporate income	954,818
Dividends declared	3,376,104
Deficit for year	2,421,286
Number of employes	17,341
Total compensation	$24,235,932
Passenger car mileage	111,043,210
Freight, mail and express car mileage	3,438,196
Fare passengers carried	804,711,333
Tons of freight carried	2,691,150

Answers to Questions on Electric Railway Topics.

Answers to questions addressed to the American Electric Railway Association's question box, have been sent by officials of Canadian electric railway companies, as follows:—

Authority for Expenditures. — What methods are used by members to compile Authorities for Expenditures, by Interstate Commerce Commission account numbers?

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—This company is following a system of work orders of A.F.E's consisting of two forms, one of which is known as a maintenance and reconstruction work order, and covers all extraordinary maintenance and repair work where it is necessary to keep a record of the cost of the particular job and obtain a proper authorization before proceeding with the work. The other form, which is known as a construction work order, covers all expenditures on account of construction, additions and betterments to property, no changes being made in the property accounts without the authorization of a construction work order. All estimates and the preparing of work orders is done by the department making the recommendation. The classification of accounts in use was prescribed by the Public Utility Commission and is based on the I.C.C., States of New York and Wisconsin, classifications, each account having a number. Account numbers are shown on the work order or A. F. E., under a general heading, followed by an estimate of the various items coming under the heading and chargeable to that particular account. Each department is supplied with a copy of the classification, and, in preparing estimates, distributions are made and classified according to the various account numbers. For the purpose of making distributions, each account number, as shown on the estimate, is assigned a letter of the alphabet, and in making distributions the work order number and the letter of the account to which the item is properly chargeable is shown. For example, suppose an estimate contained items chargeable to accounts No. 504, Grading; No. 505, Ballast; No. 506, Ties; No. 507, Rails, Rail Fastenings and Joints, the accounts would be shown on the estimate as No. 504a.; No. 505b; No. 506c.; No. 507d; assuming the work order number to be 100, all items chargeable to account No. 504 would be distributed as work order no. 100a.; accounts no. 505 as work order no. 100b; account no. 506 as work order no. 100c, and so on. After receiving the proper approval, all copies of the work orders are sent to the accounting department, where the distribution and the estimates are verified and a work order number assigned. The work order records in the accounting department, in which all distributions are posted on the same basis, not only show the charges to the particular work order, but the estimate as well, so that when the job is finally completed the record shows both the estimate and actual expenditure. The total amount expended on a work order is closed out at the close of each month to the respective accounts in the construction or operating ledger. The system is working out very satisfactorily, there being very little difficulty in getting the distributions made to the proper accounts, providing the estimates are properly distributed.

Power Distribution. — Are any companies using insulated negative return feeders, if so, to what extent and for what relative distances from power station to feed points?

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—We use insulated negative return feeders in connection with negative boosters in one substation district only. The other six substation districts we operate on the 3-wire system. In three of the six 3-wire districts we use no insulated negative return feeders at all, as our railway tracks pass alongside the stations. One other 3-wire station has a long neutral feeder tapping a distant track about three-quarters of a mile distant. The remaining two 3-wire stations are removed one or more city blocks from the nearest tracks, and return current is handled through insulated neutral feeders between rails and station. In the first substation district above mentioned there are 5 negative booster feeders reaching to points distant from the station, the average length being 5,400 ft. The boosters can generate as high as 75 volts, and the feeders vary from 500,000 c.m. to 2/0.

Re-examination of Platform Employes. Are old employes subject to periodic re-examination as trainmen; if so, how frequently, and to what extent?

F. D. Burpee, Manager, Ottawa Electric Ry., Ottawa.—Only when we suspect the employe has become unfit to perform his duties. In the interests of safety, I believe that this should be done at least every five years, but it has not yet been instituted on this system.

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg.—Old employes are not subject to re-examination as trainmen, except in the case of men returning from overseas service. These men are treated the same as new employes and receive the same examination.

Electric Railway Notes.

Toronto Railway employes have provided a bronze tablet, over 5 ft. high, to be placed in the city hall, in memory of 96 of their colleagues who gave their lives in the Great War, for which 964 employes enlisted.

An Ontario Hydro Electric Ry., Essex Division, Tecumseh line car was held up between Windsor and Tecumseh, Ont., Sept. 21, by two armed men, and the conductor and three passenger were relieved of their money.

A press report states that arrangements have been practically completed for starting the operation of motor busses in London, Ont., with a general 5c. fare with transfers, and that it is expected to have 20 busses in operation.

Two London & Port Stanley Ry. conductora, Wm. Watson and Wilfrid Britton, pleaded guilty, on Sept. 16, to taking $4 and $10 respectively, money collected as fares, instead of turning it into the office, and were remanded for sentence.

The St. Thomas, Ont., City Council decided on Sept. 1, to suspend the Sunday operation of cars on the St. Thomas Municipal Ry. on account of the receipts for the last weeks of August being insufficient to meet the cost of operation. It is proposed to renew the Sunday service next spring.

Manon and Hayball, who have been operating a motor bus service between Lambeth and London, Ont., a section of territory served formerly by the London & Lake Erie Ry. & Transportation Co.'s electric railway, now dismantled, are reported to have put on a new bus which will give a 20-minute service between the two points.

C. C. Curtis, General Manager, Cape Breton Electric Co., discussed complaints of insufficient car accommodation with the Sydney, N.S., City Council, Sept. 15. He said that everything possible was being done to relieve congestion at the rush hours, and that any suggestions as to how further to better conditions would be considered.

The St. John, N.B., City Council, as an outcome of the New Brunswick Power Co.'s electric railway employes' strike, has approved of regulations for the operation of motor bus traffic. The busses are being operated by the Union Bus Co., a 10 minute service to West St. John having been started Sept. 3. The company is stated to have 15 jitneys and busses in service, and to be employing 60 men.

In consequence of some demonstrations at Lancaster, N.B., recently, owing to the operations of the New Brunswick Power Co.'s electric railway, whose motormen and conductors have been on strike since July, the company complained that the police were lax in their duty. An investigation was opened by the Lancaster Board of Control, Sept. 13, and after some evidence had been put in the investigation was adjourned to Sept. 27.

Now that a section of the provincial highway on Dundas Road west from Toronto is approaching completion, representatives of Toronto motor bus concerns have been looking over the territory, and are talking about putting on a service. The suggestion is to start from the city boundary, run through Islington to Cooksville and possible through Erindale to Streetsville, giving a round trip fare less than the C.P.R. 10-trip tickets cost, or the Toronto Suburban Ry. rate to Cooksville, where the railway diverges from Dundas Road.

The B.C. Electric Ry., which proposes to begin the operation of one-man cars in Vancouver and Victoria, laid its plans before the provincial authorities recently. Ten one man cars are proposed to augment the rolling stock while the rule of the road is being changed. It is said that Premier Oliver, who was interviewed, is in favor of the new type of car. He was called on later by a delegation from the street railway men's union. The first lines to use one-man cars will probably be either in Victoria, or some of the suburban lines in Vancouver, which now operate on a shuttle service.

Toronto-Niagara Falls Hydro Electric Ry.—The Prime Minister of Ontario stated recently that the Government had not decided what would be the ultimate disposition of the Toronto-St. Catharines-Niagara Falls proposed electric railway line, and added that nothing will be done until the Chippawa power development is completed, the financial burden of the province being already sufficiently great. Whatever the province may do ultimately about the line, no additional financial obligations will be undertaken at present.

Omnibusses for Toronto Transportation Commission.

The Toronto Transportation Commission is introducing motor-bus transportation as an aid in the solution of the city's traffic problems, and has ordered four busses from the Fifth Avenue Coach Co., New York, N.Y., and also one bus from each of two English builders, the Leyland Co., and the Associated Equipment Co., also one bus from Eastern Canada Motor Co., Hull, Que., similar to the first mentioned.

The busses ordered from the Fifth Avenue Coach Co., one of which is illustrated herewith, have the following general dimensions: height, 10 ft. 5 in.; wheel base, 14 ft. 7 in.; gauge, front wheels, 5 ft. 6¾ in.; rear wheel, 6 ft. They are of the 2-deck type with staircase at the rear. The framing is hydraulic pressed channel construction, of heat treated chrome nickel steel, and of ample strength and flexibility to meet the most severe road and service conditions. The weight is carried by semi-elliptical springs. The outside of the car body is of steel finish, red enamelled. The interior of the body is finished in ash. The large window space affords ample natural light. The wood floor is equipped with the transverse corrugations which have been found best suited to cope with conditions of slush, snow, etc. The inside seats for 22 passengers are arranged transversely on both sides of a central aisle, and are upholstered in rattan. Ample accommodation is provided at the front of the car for the operator, and he has an unobstructed view of the road.

The staircase leading to the upper deck is shown clearly in the illustration. The rear platform provides entry both to the staircase, leading to the upper deck, and to the interior of the bus. The upper deck flooring resembles that of the interior; the seating arrangement is similar to that below, but the seats are of wood slat construction. A continuous steel belt surrounds the upper deck, above which is a belt of wire mesh, and at the top, about 3 ft. above the floor, and extending all the way around the deck, with the exception of the opening to the staircase, is a brass hand railing. The upper deck has seating accommodation for 29 passengers, the total seating capacity being thus 51.

The motor is a 4 cylinder special silent sleeve valve type, of 40 h.p., lubricated by means of a force pump. Ignition is from a high tension magneto; the thermo-syphon cooling system is employed, and a special feature is the radiator, so designed that its freezing up would not result in damage. Selective sliding transmission is employed, with four gear changes in forward motion. The drive is of the external gear and plain bevel type. The rear axle is of heat treated forged steel, equipped with steel low level housing, and the front axle is of the I beam type, of heat treated forged steel. The wheels are of the steel disc type, the front ones being equipped with 24 x 5 in. single solid tires, and the rear with 34 x 5 dual solid tires. The service brakes are of the duplex air cooled type, and the bus is also equipped with external contracting cable emergency brakes. Worm and nut steering gear is employed, with the steering wheel located at the left. The gasoline is conveyed to the carburetor by gravity; gasoline tank is of 40 gall. capacity, and is provided with a large demountable strainer and a hand hole for cleaning. The interior is heated by utilizing the hot gases from the motor, these passing through protected radiator coils on their way to the exhaust opening. The interior is provided with artificial illumination by 12 lights, current being supplied by the generator and also by storage batteries.

Motor busses have long been suggested for improving the traffic situation in Toronto, and the Commission has decided to try them thoroughly. The four ordered from New York have been delivered and put in service along Humberside Ave. from Dundas St. west to Quebec Ave., then along Annette St. to Runnymede Road. This route will provide a service to a thickly populated section north of Bloor St., one of the city's chief east and west streets.

An Exception.

"Will the gentlemen please move forward a little?" called the polite conductor of the car as a dozen more passengers tried to scramble in.

"I won't," growled one hard-faced man, who clung to a strap near the door.

"Oh, I didn't ask you," said the conductor.

The Regina, Alta., City Council considered recently, complaints as to the working of the transfer system on the municipal railway. D. W. Houston, Superintendent, reported that if complaints were made at the time of occurrences they could be checked up and remedied, and that rules must be made to govern the large percentage of travellers rather than a few.

Effects of Change in Rule of Road on British Columbia Electric Railway.

By W. G. Murrin, Assistant General Manager, B.C. Electric Railway.

In accordance with the Highway Act Amendment Act 1920, passed by the British Columbia Legislature, the rule of the road was changed from left to right hand operation, to become effective in the eastern portion of the province on July 1, 1920, and in the western portion on Dec. 31, 1921. This change involves the British Columbia Electric Ry. in a $1,000,000 expenditure to change its rolling stock, tracks, and overhead to permit of right hand operation on its 368 miles of city, suburban and interurban tracks.

In order that the magnitude of the work involved in making this change may be understood, I give below brief particulars of what has to be performed and how we propose to do it.

Track.—The following work will have to be performed in order to permit cars and trains to operate right hand with the same efficiency, safety and convenience as they are being operated now:—1. Take up and lay with new material, 44 permanent and 12 temporary crossovers. 2. Take up and lay with new material, 7 permanent and 1 temporary Y layouts. 3. Change electric switches to adjoining tracks at 19 different points. 4. Change position of 8 derails. 5. Change spring switches. 6. Change elevation of certain portions of interurban tracks to permit of safe operation. 7. Change location of stations, shelters, and platforms at 13 points on double tracked interurban lines.

The permanent installations referred to above, indicate that tracks are constructed on paved streets, necessitating pulling up pavement, etc., and relaying them, following track changes being made. Temporary installations mentioned above indicate that tracks are constructed on non-paved streets. The new track material and special work necessary to carry out the above is on order for delivery in December. Its installation, however, cannot be commenced until af-Jan. 1, when it will be proceeded with as speedily as possible. The estimated cost of track alterations is $416,902.67.

The overhead changes in connection with this problem, are by far the lighest item, and are estimated to cost $17,722, which covers cost of making all necessary changes to cross overs, electric switches, Y's, frogs, insulators, curves, etc., to permit of the efficient operation of the systems with right hand movement of traffic. Like the track changes, very little under this heading can be accomplished until after the change over becomes effective.

Rolling stock changes constitute the major work and expense involved in this change over, and I know of no precedent by which we might be guided in carrying them out. There are 269 units to be changed over and made suitable for right hand operation, as follows:—189 single end cars, 73 double end cars, 6 snow sweepers, 1 snow plough. This equipment comprises 20 different types of cars, and each type requires special alterations suitable only to that particular class of car. It will therefore readily be appreciated the difficulties we have to meet in making our rolling stock changes. Work has already commenced in making temporary alterations to Vancouver city cars and we expect by the end of the year to have practically all rolling stock units changed over in a temporary fashion, ready for right hand operation. These changes are being carried out with the least possible inconvenience to the travelling public and work is proceeding along the following lines. Eight to 10 cars at a time of a certain type are being brought into our Prior St. shops, in Vancouver, where temporary alterations to front and rear vestibules are made, as well as installation of temporary steps on right hand side of cars. The right hand openings are then boarded up, and cars put back into service. When the change over is actually about to take place the services on all lines will be considerably reduced for from one to four days, during which time the cars so released will be made suitable for right hand use, by removing the boards from the right hand side openings, above referred to, and tieing up securely the gates or doors, with which all our cars are equipped, on the left hand side. With this completed the cars will then be ready for service. When all units have been so changed it will be necessary to systematically again put all the cars through the shops, two or three at a time, when permanent alterations will be made, such as installation of steps, and gates or doors, to conform with government regulations, installation of mechanism to operate the same, as well as many other details too numerous to mention, but which can only be cared for following the change over taking effect. I estimate it will take approximately 18 months or two years to put all the units through the shops, and permanently equip them for right hand operation, in the same manner as they are at present equipped for left hand operation. $498,-773 is the estimated cost of changing over our rolling stock units, to conform with the change of the rule of the road.

Total Expenditure.—The above mentioned expenditures are summarized as follows:—Track alterations, $416,902.67; overhead work, $17,772; rolling stock, $498,773; total, $933,397.67.

These figures do not include indirect losses in revenue which the company is bound to suffer, from one cause or another, for months following the change becoming effective, nor do they take care of increased accident costs, which will undoubtedly be high. The B.C. Government has agreed to contribute $350,000 towards the total expense.

The Grand River and L.E. and N. Railway Switching Service in Galt.

In connection with the Board of Railway Commissioners' recent order granting the application of the City of Galt, Ont., that the G.R. Ry. and the Lake Erie and Northern Ry., which are under the one management, operate an industrial spur in the southwestern section of the city, we are officially advised that at the earnest solicitation of the Galt city authorities, the Board of Trade and the local manufacturers interested, the G.R. Ry. Co. consented in 1910 to build a spur from its main line on South Water St., across the Grand River, through the west side industrial district, to provide the manufacturers connection with the C.P.R. and the G.T.R. At that time a 10 year franchise was granted in respect of operations on streets to be occupied, terminating with the company's main franchise. It was, however, understood that both franchises would be renewed, as otherwise the company would not have considered the large expenditure involved in bridging the river, buying the right of way, and building the spur. The company's endeavors to secure an extension of the franchise were unsuccessful, owing to the opposition of hydro radial interests, with the result that the right to operate under the city franchise, to serve the west side industrial district expired Feb. 2. In view of the friendly relations that had always existed between the manufacturers and the company, it was felt that the service should not be discontinued abruptly, and accordingly the company continued to switch cars for two months to give the manufacturers an opportunity to take up the question of an unrestricted service. The manufacturers applied for an order directing the two companies to resume switching service without limit as to time. The Galt City Council followed with a similar application, but limiting the time of switching service to one year. The Board of Railway Commissioners granted the application with a reservation to enable the Galt City Council to move to vary or rescind the order.

The Grand River Ry., formerly the Galt, Preston & Hespeler Ry., was operated in Galt, along North and South Water Sts., up to February, when, owing to the termination of the franchise, it was transferred to a private right of way terminating at the C.P.R. freight yard, with a connection with the Lake Erie and Northern Ry. The spur line in question left the L.E. & N. Ry. and proceeded along South Water St. to near Walnut St., where it turned north, crossing the Grand River, and then through industrial plant sites, and public streets, reached the Sturtevant Co. and the Victoria Wheel Works' plants. (Aug., pg. 434.)

Proposed Purchase of Moncton Tramways, Electricity & Gas Co.'s Property.

Moncton, N.B., ratepayers were to vote on Sept. 29 on a bylaw giving authority to the city council to acquire the Moncton Tramways, Electricity & Gas Co.'s property, effects and franchises, as from May 31, for $165,000, with 6% interest from May 31, until the amount is paid, under an agreement date Sept. 9. The agreement also varies the terms of the company's franchise of May 11, 1910, as to the percentage to be paid to the city for the natural gas part of the company's business, which is not being sold. The discussion preceeding the passing of the bylaw by the council dealt with the lighting franchises, in particular, the electric railway franchise not being referred to. A similar agreement was voted on by the ratepayers July 3, 1920, and defeated by 530 to 475.

The Edmonton, Alta., Good Roads Association is reported to have called the attention of the city commissioners to a practice by motormen on the Edmonton Radial Ry. of starting up their cars while their attention is still distracted from the road ahead by making change or selling tickets.

Marine Department

General Shipbuilding Matters Throughout Canada.

Canadian Vickers Ltd., Montreal.—The passenger and cargo steamship North Shore, operated by Clarke Steamship Co., Quebec, which was gutted by fire a short time ago, has been reconstructed by Canadian Vickers Ltd. to designs and specifications by Walter Lambert, naval architect, Montreal, the work being carried on under his supervision. After its completion the owners gave a luncheon on board the ship at Quebec, among the guests being the Minister of Trade and Commerce, Sir George Foster, and Lady Foster, and Premier Taschereau, of Quebec, after which the ship sailed for Gulf points, Sir George and Lady Foster being among the passengers.

Collingwood Shipbuilding Co., Collingwood, Ont.—In consequence of this company having taken a contract from the Marine Department to finish at Toronto, on a cost plus basis, the two steel cargo steamships Canadian Pathfinder and Canadian Engineer, which the Dominion Shipbuilding & Repair Co. was building when it became bankrupt, the City of Toronto assessed the company on $252,000 for business assessment. The company appealed to the city court of revision, and the city countered by claiming that if a business tax could not be imposed an income tax could be. The court reserved judgment on Sept. 19.

Harbour Marine Co., Victoria, B.C.—The action by J. S. Clark, naval architect, against the Harbour Marine Co., Victoria Machinery Depot Co., and C. J. V. Spratt, President of both companies, for salary and commission alleged to be due, in connection with the building of the steamships Canadian Winner and Canadian Traveller, for Canadian Government Merchant Marine, by Harbour Marine Co., was concluded at Victoria, Sept. 15, and judgment given in J. S. Clark's favor on all points, and he was also relieved of any costs in connection with his actions against any of the defendants. The judgment states that the plaintiff is entitled to his claim for $500 a month from Dec. 1918 until the date of the taking over of the second steamship at the Harbour Marine Co.'s yards, and that he is also entitled to 5% of the gross profits made by either of the defendants, arising from the construction of these two ships, pursuant to the contract between the Victoria Machinery Depot Co. and the Dominion Government. The term, "gross profits" is defined as "the difference between the total costs of construction incurred by the defendants in carrying out the said contract, and the total sum paid by the Dominion Government to the defendants under such contracts."

Nova Scotia Steel & Coal Co., New Glasgow, N.S., launched the ocean going steam yacht Sea King, Sept. 17, for Baron Bliss, Nassau, British West Indies. She is being built for exploratory purposes, and has the following dimensions,—length b.p. 137 ft., breadth 42½ ft., depth moulded 28½ ft. Her gross tonnage is 1,866.31, and she has an estimated deadweight carrying capacity of 3,000 tons. She is to be equipped with two 250 h.p. Vickers-Peters semi-Diesel oil engines, and all the auxiliary equipment will be electrically driven, and the same motive power will be used for the anchor. She is being specially built to the owner's design, and has two large bilge keels for steadying purposes. The interior fittings and furnishings will be of elaborate design. The owner's apartments will occupy the center of the upper and lower decks, and will be connected by an elevator. The accommodation for officers and men will be located forward.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—The annual meeting was held at Port Arthur, Sept. 1. The directors for the current year are: Janies Whalen, President; P. G. Chace, Vice President; A. J. McComber, John Brennan, R. D. Hubbert, E. W. Rogers, and James Playfair. A. B. Conmee is Secretary-Treasurer.

Sydney Foundry & Machine Works, Sydney, N.S.—The marine railway which this company has built was completed and ready for operation Aug. 29. It has a lifting capacity of 1,200 d.w. tons, and is a standard railway drydock, 200 ft. long over the keel blocks, 50 ft. wide, and gives 10 ft. of water forward and 16 ft. aft at mean high tide. It is of timber construction on pile foundation, and is operated by two 2⅛ in. chains and a powerful hoisting machine, capable of docking a full load in about 30 minutes. The work was done by Crandall Engineering Co., East Boston, Mass., the machinery and iron work being made by Sydney Foundry & Machine Works.

Transportation & Shipping Co., Sorel, Que., launched the steam barge Jeannon L. recently. Her dimensions are,—length 185 ft., breadth 36 ft., depth 19 ft. She has three masts, equipped with derricks, a donkey engine and boilers, with windlasses and complete equipment for loading and unloading. She is one of a number of ships of the trawler type commenced at this plant by the Leclaire Shipbuilding Co., the former owner. Another one, Napoleon L., which was sent to Montreal, on her maiden trip, for use as a tug there and generally in the Gulf of St. Lawrence and seaboard, has the following dimensions,—length 135 ft., breadth 23½ ft. She is of steel throughout and is equipped with triple expansion engines of 750 h.p. and with wireless telegraphy.

The four wooden steamships, which were built by the National Shipbuilding Corporation, Three Rivers Shipyard Ltd. Division, Three Rivers, Que., for the French Government, and named respectively, Bouxwiller, Bouzonville, Cattenon and Cernay, have been bought by Lachance Ltd., Quebec, Que., which operates at Sorel as the Transportation & Shipping Co. We are officially advised one or two of the ships may be sold again, but, if retained by the present purchasers, the machinery will be removed, and the hulls converted into barges, the work being done at this shipyard.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., launched the s.s. Princess Louise, for the C.P.R. British Columbia Coast Service, on Aug. 29, as mentioned briefly in Canadian Railway and Marine World for September, the christening being performed by Mrs. J. W. Troup, wife of the Manager, C.P.R. British Columbia Coast Service, Victoria, assisted by Mrs. H. W. Brodie, wife of the General Passenger Agent, C.P.R., Vancouver. The former was presented by the builders with a silver tray and coffee urn, and the latter with a silver mallet, which was used to launch the ship.

The dimensions of the hull, particulars of accommodation, etc., were given in our last issue. The main engines were built by the shipbuilders, and were designed for 4,500 i.h.p. They are of the vertical, triple expansion type, with 4 cylinders, balanced on the Yarrow, Schlick & Tweedie system, with high pressure cylinder 28 in. diar., intermediate pressure cylinder 43 in., and 2 low pressure cylinders, each 50 in., all with 39 in. stroke. The high and low pressure cylinders have piston valves, and the intermediate pressure cylinder has the usual D valve, with relief balance rings on the back. All pistons are fitted with Lockwood & Carlisle rings, and the usual Stephenson valve gear is used, with an all round steam reversing gear. The main bearings, crank pins, etc., are of liberal dimensions, and the engines throughout are well fitted for the strenuous service on the coast. The condenser is circular in form, and detached from the frame of the main engine. Weir's patent dual independent air pump, independent feed pumps, and feed heater, are supplied. The circulating pump is independent, and the ballast, bilge, sanitary and fresh water pumps are all of standard make. The crank shaft is of mild steel, in two sections, with four cranks of the built up type, and it is said to be the largest shaft of the type built in British Columbia. The tunnel and tail shafting is also of mild steel, the hub of cast steel, and the propeller consists of 4 bronze blades, 13¾ ft. diar.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders Ltd., and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines Ltd., Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, W. E. Burke, H. W. Cowan and T. R. Enderby, Canada Steamship Lines. Ltd., Montreal; Yvon Dupre, Sincennes McNaughton Line, Ltd., Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transportation Co., Montreal; Hon. L. C. Webster, Webster Steamship Co., Montreal; A. A. Wright, Toronto, and L. L. Henderson, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

The electric lighting system consists of two 65 kw. generators, built in England, each machine being capable of taking care of all the lighting of the ship, as well as the electric freight elevator, search light, elecrtic heaters, etc. Included in the ship's equipment is a rerigerating plant of the CO2 type, capable of taking care of two carloads of frozen meat, as well as a separate room for ship's stores. The refrigerating room is placed 'tween decks aft, and can be conveniently loaded and discharged through the after hatch. The steam steering gear is located directly over the rudder, in the after end of the ship, and is controlled from the bridge by a line of shafting. Chadburn's telegraphs are used, consisting of tell-tale dials on the bridge, and in the engine room. In addition there is a loud speaking telephone between the bridge and the engine room, and a docking telegraph between the bridge and the after end of the ship. Four single ended boilers, built by the Vulcan Iron Works, Vancouver, B.C., are provided, each 16 ft. 2 in. diar. by 12 ft. long. They are placed in pairs with a common stokehold between. Each boiler is fitted with three corrugated furnaces, 52¼ in. external diameter, and the boilers are designed for a working pressure of 180 lb. They are equipped for burning oil fuel on the Dahl system, and have ample grate and heating surface for coal or oil at natural draft, but two large fans are installed for assisting the draft and cooling the stokehold when necessary. While the main engines and boilers were built in Vancouver, all the auxiliary machinery was built in Great Britain. The ship, while about 12 ft. shorter than the company's s.s. Princess Charlotte, has a greater beam, thus providing greater tonnage. There is stateroom accommodation for 300 passengers, the provision for 44 second class passengers being included. The dining room will seat 140 persons at a time, and separate dining and smoking rooms are provided for second class passengers. The main entrance is solid polished walnut, the cabins white enamel, the dining room light oak, and the stairway to the sitting rooms are in polished mahogany. The ship was designed by R. All, B.Sc., formerly of Fairfield Shipbuilding & Engineering Co., Glasgow, Scotland.

D. C. Coleman, Vice President, Western Lines, C.P.R., at a luncheon, following the launching, said in part:—"Speaking to a newspaper on one occasion I said 'The future of Vancouver lies on the ocean.' When we have failed since to agree with some persons about the proper measures to be taken for the development of the port, that sentence has been quoted with a view to our discomfiture. But I still believe it to be true, and if it was an indiscretion, as these critics suggest, to have said it just then, it is an indiscretion of which I am not ashamed. I believe the future holds much in store for this city and for this coast in the way of the growth of seaborne commerce. Some observers say that the future will see a greater increase in shipping on the North Pacific than on any other sea. I hope you will forgive what seems to be boasting when I remind you that for many years the C.P.R. has held for Canada the blue ribbon for supremacy in service on the North Pacific. And while prophecies are often dangerous, and sometimes foolish, I venture to predict that it will be a long time before any other company or any other nation will wrest that ribbon from us. The C.P.R. coast steamship servvice in which the Princess Louise is to be employed, was once described by a none too friendly critic of our company, J. J. Hill, as the finest service of the kind in the world. As to whether or not that was an exaggerated compliment I shall leave you to judge, but I must say that the service owes its efficiency very largely to the ability and the exertions of one man. I refer to J. W. Troup. When he took charge the fleet was practically nothing but a name, and supported by the wise generosity of two successive presidents of the company, he has brought it after years of enthusiastic and capable work to its present condition. Of all the officers of character and efficiency who have devotedly served the company, there is none of whom we are more justly proud. We regarded it as only appropriate that some one very dear to him should have a part in this ceremony, and we, therefore, felt gratified and honored when Mrs. Troup, who is so universally esteemed and admired, consented to act as sponsor for the Princess Louise. The building of a ship of this character at Vancouver is an outstandiing achievement. When it is completed, I think you will agree that it is the first ship built in the Americas which will compare in design and finish with the best products of the great yards in the British Isles. You have every right to be grateful to Mr. Wallace and his associates for this demonstration of what can be done in British Columbia, and on your own behalf and on behalf of the owners, who are more than satisfied with what has been done, I wish to offer the builders our sincere congratulations and our very best thanks."

A. Wallace, in replying for the builders, stated that, it was their ambition to change from the building of freight steamships to the more difficult work of building passenger steamships, and the construction of the Princess Louise was a step in this direction. He hoped that in the future, the company would be called upon to build passenger ships of the type of the Empresses. Several of those present at the luncheon were subsequently the guests of J. W. and Mrs. Troup, at dinner, at the Hotel Vancouver.

Westminster Marine Railway Co., New Westminster, B.C., has been given a contract by the B.C. Public Works Deportment for the hull of a boat for the Fraser River ferry service at Agassiz, for $7,500. The hull is to be of Douglas fir, except where otherwise specified, with two watertight bulkheads. The entrance to the engine room and men's lavatories are to be placed at one end, and the steam heating room and women's lavatories at the other. The principal dimensions will be,—length 60 ft., beam, moulded, 26 ft., depth moulded, 5 ft. The whole of the machinery, shafting and fittings, will be supplied by the Department, and will be fitted by it, or will be done under another contract.

Yarrows Ltd., Victoria, B.C., had the following repair work during August:—Standard Oil Co.'s s.s. Caddo, 6,329 tons, extensive overhaul and repairs; Canadian Government Merchant Marine s.s. Canadian Prospector, 5,450 tons, cleaning, painting and repairs; U.S. Shipping Board's s.s. Keystone State, 8,393 tons, engine room repairs; H.M.C. schooner Naden, 100 tons, cleaning, painting and minor repairs; C.P.R. s.s. Princess Maquinna, 1,777 tons, repairs to bow and bottom damage due to stranding; Producers Rock & Gravel Co., 2 scows.

Owners' Rights in Partially Built Ships, Under Builders' Liquidation Proceedings.

An appeal of the liquidator of Three Rivers Shipyards Ltd., and Molsons Bank, against the Superior Court's judgment of Nov. 6, 1920, wherein the liquidator was ordered to hand over to La Societe Naphthes Transports, Marseilles, France, a partially built oil tank steamship, together with all material on hand and intended for the ship, and the ship's machinery under construction, the latter material only to be handed over on payment of any amount due thereon, and reserving the liquidator's rights with regard to any additional amounts that may become due under the contract, less such amounts as the owners may have to expend for completing the ship, came before the Court of Appeal at Montreal Sept. 16. The portion of the original judgment which gave the owners possession of the unfinished ship was confirmed, but the Court of Appeal held that there was an error in the ruling that the liquidator should deliver materials, and consequently these are left in the liquidator's hands. The bank's interest in the materials is maintained, as they had been assigned to it as security for advances to the builders, under the Bank Act, sec. 88. The owners also appealed from the Superior Court's judgment, which reserved the liquidator's right to recover from the owners such further sums, if any, as might become due under the contract for building the ship, less such sums as the owners might expend in completing the ship, and this appeal was dismissed with costs.

The ship, Capitaine Damiani, was completed by the owners at the Three Rivers yard, and launched June 8.

British Ship Joiners' Strike Ended.—The strike of ship joiners at British shipyards, which has been in progress practically since the conclusion of the war, was settled during August, and it is reported that the men have returned to work, in most, if not all of the yards, on the terms offered by the employers. This strike caused considerable delay to several ships under construction for Canadian as well as other services, and by affecting other of the shipbuilding trades caused considerable loss to British yards, owing to the transfer of finishing and repair work from British to continental shipyards.

Export Steamships Ltd. has been incorporated under the Dominion Companies Act, with $200,000 authorized capital, and office at Montreal, to own and operate ships of all kinds, docks, elevators and general terminal facilities, and to act as forwarder and general carrier. The company is to be a private one, under the provisions of the Companies Act. C. G. Heward, K.C., R. C. Holden Jr., P. P. Hutchison, J. F. R. Wilkes and A. B. Wright, Montreal, are the incorporators.

The Canadian Pacific Ocean Services Ltd., operating the C.P.R. steamships on the Atlantic and Pacific oceans, has had its name changed to Canadian Pacific Steamships Ltd. We are officially advised that there is merely a change of name, and that there has been no change in the articles of association or charter.

The s.s. G. Harrison Smith, 20,000 d. w. tons, was launched by the Bethlehem Shipbuilding Corporation at Sparrows Point, Md., recently, for Imperial Oil Ltd., Toronto.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Change of Name. — The steel cargo steamship for which a contract was given to the Prince Rupert Drydock & Engineering Co., Marine Department contract 43, builder's yard no. 2, approximately 3,890 d.w. tons, and which, owing to that company's bankruptcy, is being completed by Wallace Shipbuilding & Drydock Co., was to be named Canadian English, but it has been decided to call her Canadian Britisher instead.

Launching of Steamship. We have been advised of the launching of the following steel cargo steamship for Canadian Government Merchant Marine, in addition to those mentioned in previous issues.

Aug. 31. S. s. Canadian Transporter, Marine Department contract 62, builder's yard no. 20, aproximately 8,390 d.w. tons, J. Coughlan & Sons, Vancouver, B.C.

Deliveries of Steamships. In addition to the steel cargo steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation:—

Aug. 25, s.s. Canadian Engineer, Marine Department contract 49, builder's yard no. 11, approximately 3,500 d.w. tons. The contract for this ship was given the Dominion Shipbuilding and Repair Co., Toronto, and, after that company became bankrupt, the Collingwood Shipbuilding Co., Collingwood, Ont., was given a contract to complete her at Toronto, on a cost plus basis. She proceeded to Montreal light, and loaded a complete cargo of copper matte for Swansea Wales, sailing Sept 2.

Sept. 1, s.s. Canadian Scottish, Marine Department contract 42, builder's yard no. 1, approximately 8,390 d.w. tons. The contract for this ship was given the Prince Rupert Drydock and Engineering Co., and, after that company became bankrupt, the Wallace Shipbuilding and Drydock Co., North Vancouver, B.C., was given a contract to complete her, at Prince Rupert, B.C., on a cost plus basis. We are advised, Sept. 15, that she was loading with general cargo and lumber, at Vancouver, for Australia and New Zealand.

Officers of Steamships.—The following appointments and changes of masters, chief officers, and chief engineers have been made, in addition to those mentioned in previous issues:—Canadian Carrier, chief engineer, T. Jones. Canadian Challenger, Capt. V. R. N. Porter, formerly Canadian Harvester, chief officer, Capt. R. G. Sprague, formerly master, Canadian Hunter. Canadian Engineer, Capt. R. P. Roberts, chief officer, Capt. H. Makepeace, formerly master, Canadian Recruit. Canadian Farmer, Capt. W. J. Boyd, vice Capt. J. P. Sharpe, transferred to Canadian Voyageur. Canadian Fisher, chief engineer, W. Fotheringham. Canadian Harvester, Capt. E. E. Manning, formerly Canadian Sower, vice Capt. V. R. N. Porter, transferred to Canadian Challenger, chief engineer, T. A. W. Duguid. Canadian Hunter, Capt. R. V. Bennett, formerly Canadian Navigator, vice Capt. R. G. Sprague, transferred to Canadian Challenger as chief officer. Canadian Miner, chief engineer, A. Brown. Canadian Navigator, Capt. W. G. Connechy, vice Capt. R. V. Bennett, transferred to Canadian Hunter. Canadian Recruit, Capt. J. P. Hubley, vice Capt. H. Makepeace, transferred to Canadian Engineer as chief officer. Canadian Scottish, Capt. N. P. Hocking. Canadian Sealer, Capt. A. E. LeBlanc, vice Capt. J. A. Hiltz, on leave of absence. Canadian Sower, Capt. R. A. Gowdey, vice Capt. E. E. Manning, transferred to Canadian Harvester. Canadian Trader, chief engineer, C. P. Cairns. Canadian Transporter, Capt. W. F. Spring, Canadian Trooper, Capt. F. J. Ormrod, vice Capt. R. D. Maxwell, deceased. Canadian Voyageur, Capt. J. P. Sharpe, formerly Canadian Farmer, vice Capt. A. E. Sprosen, on leave of absence, chief engineer, J. G. Phillips.

Montreal Sailings. The following dates have been announced:—

Liverpool service—Canadian Victor, Oct. 14, Canadian Ranger, Oct. 28.

London Service—Canadian Raider, Oct. 8, Canadian Trapper, Oct. 22.

Glasgow Service—Canadian Otter, Oct. 5, Canadian Navigator, Oct. 19, Canadian Runner, Nov. 2.

Cardiff and Swansea Service—Canadian Volunteer, Sept 30, Canadian Carrier Oct. 20.

Australia Service—Canadian Challenger, Oct. 23.

Rio Santos, Montevideo & Buenos Aires Service—Canadian Seigneur, Oct. 27.

Barbados, Trinidad & Demerara Service—Canadian Beaver, Oct. 5; Canadian Logger, Oct. 19.

Nassau, Kingston and Belize—Canadian Fisher, Oct. 18; Canadian Forester, Nov. 8.

Charlottetown and Newfoundland Service—Canadian Sapper, Oct. 6.

Vancouver Sailings. — The following dates have been announced:—

Australia and New Zealand Service—Canadian Scottish, Oct. 15, Auckland, Sydney, Melbourne; Canadian Transporer, Nov. 5, Sydney, Melbourne, Adelaide.

Oriental Service — Canadian Winner, Oct. 2, Yokohama, Takubar.

India Service—Canadian Inventor, Nov. 15, Calcutta, Bombay.

The s.s. Canadian Importer, which, as reported in our last issue, became disabled through a leak, about Aug. 19, about 600 miles off shore, whilst en route from Vancouver to Australia, was towed into Victoria by the tugs Sea Lion and Sea Monarch, Sept. 13. The first report of the trouble was received Aug. 24, by the s.s. Cordova, which proceeded immediately to the point indicated and subsequent reports showed that the engine room was flooded, the machinery, including the radiotelegraph apparatus, disabled, and the ship drifting helplessly, with a considerable list. The master, Capt. C. R. Bissette, declined the assistance of the Cordova, feeling confident that his ship would keep afloat until another of the C.G.M.M. ships could arrive. The Canadian Importer was practically in the regular Australian route, and one of the boats left the ship, with 12 men, to seek assistance. The boat was well furnished with food and water, and equipped with sea anchors and a lug sail. It was picked up later by the tug Sea Lion, about 100 miles off San Francisco, as she was outbound to search for the Canadian Importer. Apart from minor troubles, due to cramped quarters, the men were in good condition, with ample food and water for a further two days. Owing to the wireless equipment being inoperative, no communication could be established, and as the Canadian Importer had drifted considerably from the original course, she could not be found at the first attempt, and it was feared that she had foundered with all hands. A persistent search was, however, kept up by the C.G.M.M. s.s. Canadian Observer, and on Aug. 31 she sighted the beacon which was kept burning on the Canadian Importer, by lumber taken from the cargo. At that time the ship had a list of 33 deg. She was taken in tow by the Canadian Observer Sept. 1, with the s.s. Canadian Winner and the Pacific Salvage Co.'s salvage tug Algerine in attendance. Pumps were placed on the Canadian Importer to control the water taken through the leak. The Algerine left Victoria, Aug. 25, for the spot where the Canadian Importer was last reported, but failed for a time to find the ship, she having drifted from the course, but found a quantity of floating lumber, which had been jettisoned, so that she might relieve the heavy list. This gave rise to the rumor that the ship had foundered. On the arrival of the tugs Sea Lion and Sea Monarch, which had been chartered by the C.G.M.M. in San Francisco, the Canadian Observer was relieved of the tow, but remained in attendance with the s.s. Algerine, until the ship was taken safely to Victoria, B.C. After docking, the Algerine was taken alongside, installed additional steam pumps, and supplied steam to run them and also the winches to discharge the cargo of lumber. After removing the cargo, it was the intention to tow the ship to the Esquimalt graving dock for general survey. At the commencement of the tow, the two tugs made an average of 3 knots an hour only, on account of the heavy sea running, but on nearing the coast, the sea abated, and an average of 8 knots was maintained for the remainder of the tow.

S.s. Canadian Recruit.—The tender of Lachance Ltd., Quebec, for salvaging the s.s. Canadian Recruit, which was sunk by collision with the Dominion Coal Co.'s s.s. Maskinonge, off Stone Pillars, near Quebec, Que., Aug. 18, has been accepted and agreed to by the salvage association, and approved by the underwriters. The salvaging plant was assembled during the early part of September, and operations were expected to commence almost immediately.

The s.s. Canadian Traveller, which passed through the Panama Canal, early in August, carried 2,000 tons of sugar, for Vancouver, B.C., from Port of Spain, Trinidad, which is 1,159 nautical miles from the Atlantic end of the canal, while Vancouver is 4,032 nautical miles from the Pacific end.

Marine Insurance.—In connection with the disasters which have occurred recently to the Canadian Exporter, Canadian Importer and Canadian Recruit, we are advised that these and all other C.G.M.M. ships, are insured up to 80% of their cost.

Collingwood Shipbuilding Co., Collingwood, Ont. See Dominion Shipbuilding and Repair Co.

J. Coughlan & Sons, Vancouver, launched the steel cargo steamship Canadian Transporter, Marine Department contract 62, builder's yard no. 20, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, on Aug. 31, and advised us Sept. 1, that she would probably be delivered to the Marine Department about Sept. 14.

We were advised Sept. 1 that no date had then been fixed for the launching of the steel cargo steamship Canadian Freighter, Marine Department contract 63, builder's yard no. 21, approximately 8,390 d.w. tons, which the company is also building for Canadian Government Merchant Marine.

Dominion Shipbuilding and Repair Co., Toronto. The s.s. Canadian Engineer, Marine Department contract 49, builder's yard number 11, approximately 3,500 d.w. tons, which was completed at Toronto, by Collingwood Shipbuilding Co. subsequent to the Dominion Shipbuilding and Repair Co.'s bankruptcy, underwent her trial trips in Toronto Bay Aug. 25, when a speed of 11¾ knots was maintained on a 6 hour run. This ship is the last of two ordered by the Marine Department to be built by the D. S. and R. Co., both of which were uncompleted at the time of the company's bankruptcy and which have since been completed by the Collingwood Shipbuilding Co. She is of the single screw type, canal size, and built for ocean service. Her dimensions are.— length over all 261 feet., breadth moulded 43 ft., depth moulded 24 ft., loaded draft 21 ft. The boilers were built by John Inglis Co. and the machinery, which was partly built by the D. S. and R. Co., was finished by the John Inglis Co. She was delivered to the Marine Department Aug. 25, was transferred to Canadian Government Merchant Marine, and sailed from Toronto Aug. 27, for Montreal, where she loaded a cargo of copper matte for Swansea, Wales, sailing Sept. 2.

Halifax Shipyards Ltd. advised us Sept. 13, that the steel cargo steamship Canadian Cruiser, Marine Department contract 38, builder's yard no. 3, approximately 10,500 d.w. tons, which is being built for Canadian Government Merchant Marine, the keel having been laid Oct. 2, 1919, and the hull having been launched July 9, 1921, would probably be delivered by Sept. 30. The company also advised that the steel cargo steamship Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, also being built for Canadian Government Merchant Marine, the keel of which was laid Oct. 6, 1919, would probably be launched on Sept. 24.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—The steel cargo steamship Canadian Scottish, Marine Department contract 42, builder's yard no. 1, approximately 8,390 d.w. tons, which this company was building when it became bankrupt, and for the completion of which a contract on a cost plus basis was given Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., was delivered to the Marine Department at Prince Rupert, Sept. 1.

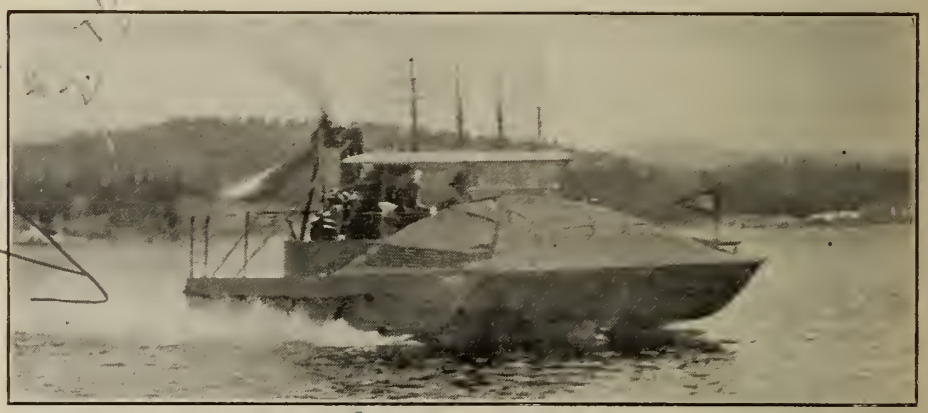
Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—See Prince Rupert Drydock & Engineering Co.

Mission River Breakwater, Fort William.—The Dominion Public Works Department has given a contract for the construction of a rubble mound extension to the Mission River breakwater, Fort William, Ont., to O'Brien & Martin, Ottawa. The extension is to commence 375 ft. southerly from the existing concrete breakwater at the mouth of the river, and to be 1,000 ft. long on the water line, and 26 ft. wide, with a top width of 10 ft. and height of 8 ft. from the datum line.

A Novel Craft, the Hydroglider.

Norman A. Yarrow, a director and General Manager of Yarrows Ltd. shipbuilding and ship repairing plant at Esquimalt, B.C., has recently become the owner of an exceedingly interesting and very clever high speed craft, called a hydroglider. It is said to be the fastest boat in Canada, and is of a special type, which is not duplicated anywhere in the Dominion. The craft, as will be seen from the accompanying illustration, is a very peculiar type, and its general appearance does not in any way indicate speed.

Its chief particulars are as follows:— The hull is made of five separate watertight pontoons, placed one behind the other, with a space between each of 4 in. to let air get underneath the boat. The bottom of the pontoons are perfectly flat. The whole boat is made of wood, American spruce and ash, and the pontoons, which come in contact with the water, are sheathed in brass. The bow resembles that of a scow, and the rudder, which is controlled by a steering wheel similar to that of an automobile, is situated in the bow, amidships. The power plant consists of a 230 h.p. Samson Canton-Unne aeroplane engine of the radial type, placed well aft. It has 9 cylinders, and drives, a two bladed, 10 ft. propeller, working in the air. It is water cooled, with the radiator situated in the water between two of the pontoons. At full speed, 50 miles an hour, the engine revolutions are between 1,300 and 1,400. The fuel tank, which is situated under the turtle deck, has a capacity of over 60 gallons.



The Hydroglider.

It is a very comfortable boat to ride in, with its nice upholstered seats, glass windshield, to protect the passengers from the wind, and an awning over the top to shelter one from the sun, is not unlike an automobile in its arrangement and comfort. When the boat is not in use, it can be run up on a beach, through the medium of four wheels. Owing to its peculiar construction, it is not possible for it to stand on the ground, therefore facilities are provided for short axles and broad tired wheels to be used, which are supplied with the craft, and which can in a few minutes be put on and taken off, afloat. The craft only draws about 8 in. at rest, and at full speed draws approximately 3 in. aft, therefore exceedingly shallow waters can be navigated with complete safety, and at high speed, there being no fear of the propeller getting tangled up in any weeds, or breaking on rocks or flotsam.

The name, hydroglider, infers that it glides on the water, which is the principle of the craft, and, when running at full speed, it skims along the surface of the water, leaving no wash, and therefore high speed can be resorted to on narrow rivers, without fear of damaging small craft or injuring the banks. It is a very interesting sensation when getting up speed to feel the boat climbing on to the top of the water, and due to the fact that it skims along on the surface, small ripples and tide-rips and currents do not affect its speed or course. The boat carries 6 passengers, and a mechanic to start and look after the engine.

There are quite a number of hydrogliders in use. Some were used during the war, and are said to have proved a great success.

T. L. Church Steamship Co. Ltd. has been incorporated under the Dominion Companies Act, with $300,000 authorized capital and office at Montreal, to carry on the business of steamship owner, agent and manager, and to act as common carrier, etc. The incorporators are, R. T. Heneker, K.C., H. N. Chauvin, K.C., H. E. Walker, Montreal, and W. R. Eakin, steamship manager, and A. E. Francis, Westmount, Que. It is understood that this company has been formed to take over and operate the s.s. T. L. Church, built by the Dominion Shipbuilding & Repair Co., Toronto, in 1919, and which has since been operating chiefly between European ports.

The grain transhipment charges at Port Colborne, Ont., which formerly were $4.35 per 1,000 bush., were raised early in the summer to $6, avowedly to meet the cost, and were apportioned $4 to the upper lake ships and $2.50 to the canal ships. The charges were subsequently readjusted, so as to leave the charge on the upper lake ship $4.35 as formerly and to place the difference on the canal ship. Since Sept. 8 the total charge has been reduced to $5.50, of which $4.35 is charged to the upper lake ship and $1.15 to the canal ship. The cost of labor, which is fixed by the Labor Department, a fourth controlling factor, is a large element in the increase.

The U.S. Concrete ship Faith, one of the first concrete ships to cross the ocean, was offered for sale at New Orleans, La., recently, at satisfy libels, but no bid was received. Her construction cost is reported as $750,000, and $50,000 was spent on her boilers recently.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipbldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*8,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 8, 1919	May 8, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Sbipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 18, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,399.30	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	Apr. 9, 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,438	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	Aug. 8, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Aug. 19, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Sbipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	July 9, 1921	.....
39	Dec. 10, 1918	Canadian Constructor	" "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 31, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	May 12, 1921	Sept. 1, 1921
43	Feb. 21, 1919	Canadian Britisher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr. 18, 1920	Aug. 18, 1920
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	Nov. 8, 1919	May 12, 1921	July 18, 1921
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	June 30, 1921	Aug. 25, 1921
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,890	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	Apr. 26, 1921
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	May 6, 1921
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	June 8, 1921	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	Mar. 17, 1921	May 16, 1921
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	8,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	Mar. 24, 1921	May 5, 1921
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., b. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	July 7, 1921	.....
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	May 17, 1921
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	Aug. 31, 1921	.....
63	April 7, 1920	Canadian Freigbter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	.....	.....
					$79,296.80		$72,818,073.19						

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following cacualties:—

Loss of s.s. Canadian Exporter.

Held at Vancouver, B.C., Aug. 11 to 17, before Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Commanders F. W. Evans and J. B. Radcliffe, as nautical assessors, into the stranding and ultimate total loss of Canadian Government Merchant Marine s.s. Canadian Exporter on the shoals at the mouth of the Willapa River, near Astoria, Wash., July 31. After hearing the evidence the court came to the conclusion that the stranding and subsequent loss must be attributed to the master, Capt. Wm. Bradley, and the first mate, Newton Campbell, for the careless and unseamanlike manner in which the ship was navigated after passing Umatilla lightship. Under conditions in which it was clearly apparent that the utmost prudence, vigilance and attention should be shown, the most casual indifference was displayed. In view of the unfavorable atmospheric conditions then prevailing, and the fact of their unfamiliarity with the coast, a too fine course was set, soundings were utterly disregarded, the ship hauled in towards land without her position being verified, and the lookout kept, more especially after daylight, prior to the stranding, appeared most unsatisfactory. The master and first mate were therefore found both in default, and their certificates suspended for six months and four months respectively, as mentioned in our last issue. No possible blame for the disaster could, in the court's opinion, be imputed either to the owners, agents, or to the equipment of the ship, or to the second and third mates, chief and second engineers, or any members of the crew. The judgment was not assented to by Commander Evans, who, though agreeing with the report, and the necessity of suspending both officers' certificates, expressed the opinion that as far as regards the master only, the term of suspension was too severe, and considered that three months would have been sufficient.

Stranding of s.s. Beaverton.

Held at Montreal, Aug. 30, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. C. Lapierre and A. Lefebvre, as nautical assessors, into the tranding of Canada Steamship Lines' s.s. Beaverton, at Sister Island, in the St. Lawrence River, between Kingston, and Prescott, Ont., Aug. 14. The evidence showed that the master was in his room, the weather being sufficiently clear to observe, at a reasonable distance, objects as guidance. The compass not being used, the usual method of steering by lights was followed. There was a pilot on board, appointed by the owners, who had a deal of experience, therefore the master felt justified in seeking a rest, and under the circumstances his absence was beyond criticism, and he left proper orders to be called if needed. The pilot had been over the course often, and he thought he steered the same course as previously, keeping the Whiskey Island light astern, and Sister Island on the starboard bow, as well as the buoy. The ship touched, and he stopped the engines and the master came on deck. A curious combination of things was apparent in the absence of the master, which was excusable, the absence of the mate, who at that very moment had been compelled to leave his post, and the disappearance of the wheelsman from the bridge to help the watchman, otherwise the lookout, to look for a sounding rod, so that the pilot was left alone, steering and watching. Had he required anyone to let go the anchor, or perform some needed essential service, such help was not available. The ship touched while going full speed and supposedly on her course. The pilot—the title is self constituted and recognized by various companies plying these waters—possesses a master's certificate, and was, prior to this trip, master of one of the company's steamships. He was not inscribed on the articles, and consequently in the view of the law he was not a member of the crew, and was therefore considered irresponsible. The fact that he was left in full charge of the ship, without being a member of the crew, cannot be laid against him, but against a system of the company which does not meet with the approval of the court, which called the attention of owners and operators of ships plying these water to that very point some years ago, as to the possible annoyances and dangers which might arise as a result. The court was of opinion that the pilot, with all his experience, had failed to learn that there was a current running steadily at a velocity of 2 to 2½ miles, and he therefore failed in his calculations, to consider the effect of such current on the ship, which in this case had a tendency to bring the ship towards Sister Island, thus showing that his experience as a pilot is more apparent than real. The court therefore found that the master's absence from the bridge was excusable, and his actions subsequent to the grounding in accordance with good judgment, and he was exonerated. The first officer was also exonerated, but the court was not favorably impressed with the fact that he had to absent himself at the very moment the ship was about to enter a narrower channel than had been traversed. The pilot, J. T. M. Barry, not being a member of the crew, nor a licensed pilot, cannot have his certificate dealt with, even if it was expedient, but he was found in default, and alone to blame for the grounding. He was therefore severely reprimanded, and ordered to pay $100 towards defraying the costs of the investigation. The court again renewed its suggestions to have all members forming a ship's crew and participating in the navigation of a ship, duly inscribed on the ship's articles, and also that no officer should leave the bridge without being relieved by some responsible person.

Stranding of s.s. Sarnian.

Held at Toronto, Sept. 9, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. H. W. King and John Williams, as nautical assesors, into- the stranding of Canada Steamship Lines' s.s. Sarnian, on Espanola Island, Lake Huron, Aug. 29. The evidence, which was straightforward and to the point, showed that the Sarnian sailed from Goderich Aug. 28, the weather being hazy, and later becoming foggy, and that a course was set which would have brought her within the sound of the fog signal at Preque Isle. The master, Capt. T. H. Johnston, expected to hear the signal, but, not hearing it, proceeded, altering his course 4 deg. westward, when ships were reported downbound. He was on watch with the second officer at 6 a. m., and the fog lifted between 8 and 9.20, but at the latter time became dense. The ship was kept at full speed, about 11 miles an hour, the whistle was sounded regularly and a lookout was stationed in the bows. He heard the Detour fog whistle on the starboard bow, and altered the course 4 deg. northward, and steered for the sound, keeping it ahead. In the meantime he saw, during the clearing, and heard whistles of two ships, one on the starboard and the other on the port quarter, and as they were apparently on the same course as himself it inspired him with confidence as to his position. Intending to anchor, he signalled slow, but the ship grounded and water was found to have penetrated holds 1 and 2. Assistance was wirelessed for and the ship was released about 24 hours later, seriously damaged. When the ship grounded he sent alarm signals to warn the two ships coming astern and signified the course for alteration of their helms by a two blast whistle. At no time was the speed reduced, nor any attempt made to take soundings. The speed of the ship was not a contributing factor to the grounding, though the maintenance of full speed in dense fog was considered by the court as culpable and in direct violation of any explicit law or rule, but an excuse was found for not using the lead. The real cause of the grounding was due to a current sometimes met, but which cannot be calculated as to direction and velocity, and which threw the Sarnian eastward of her course. The court was of opinion that had the master taken soundings, when he failed to hear the Preque Isle fog signal, he would have established his position. The court therefore found the master was in default for not taking soundings at Presque Isle, but, owing to extenuating circumstances, did not deal with his certificate, but reprimanded him severely and warned him to abide by the Rules of the Road and advised him emphatically as to the necessity for using the lead, and also against a feeling of absolute confidence that because several voyages had been made successfully, succeeding ones must also necessarily be successful.

Stranding of s.s. Mina Brea.

Held at Montreal, Aug. 17, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. R. G. Sprague and P. St.A. Robertson, as nautical assessors, into the two strandings of Imperial Oil Ltd. s.s. Mina Brea on a shoal off Matane, July 30, and about a mile above Sorel, Aug. 1, both in the River St.Lawrence, while in charge of a Montreal pilot. This oil tank steamship usually plies between Halifax and Montreal, and was well found, with the necessary instruments for navigation purposes, with the possible exception of a proper Admiralty or Canadian chart plan of the Gulf of St. Lawrence. Her compasses were fairly correct. In regard to the first stranding, there were extraordinary contradictions in the evidence given by the master and chief officer. The master had plotted a course at Cape Chatte, which would have led him somewhat clear of the Matane shoal. In estab-

lishing his distance from a 4 point bearing, the court was of the opinion that, in such close proximity to land, bearings have to be accurate to obtain dependable results. It was shown that a house was selected as a point of observation, and the court expressed the opinion that the accuracy of such an observation was negligible. The master used a very large black chart and the court was not satisfied that he made a serious effort to obtain an Admiralty chart. Although the weather was a little hazy, all objects were clearly defined. The master came on the bridge about three minutes before the stranding and handed a document to the mate for signature. After doing this he saw that the ship was near to land and gave order hard aport, but the ship struck, with the buoy abaft the starboard beam. Although the master states he was only on the bridge three minutes, the mate and the wheelsman, the latter being a most unsatisfactory witness, stated that the captain was on the bridge for half an hour. While favoring the master's statement, the court was led to think that the ship had already struck when the port helm order was given. No excuse could be found for the chief officer, whose watch it was, in not perceiving a buoy, and this showed that no lookout was kept at all, and his usefulness as an officer was, on this occasion, nil. With respect to the second stranding, the court accepted the theory that it was due to the state of the bottom of the ship, which was extensively damaged, thus impairing the steering. There does not appear to have been any carelessness shown in the latter grounding, but it seems to have been due to a grave error of judgment on the part of the pilot. The court therefore found Capt. T. R. Owen in default for the grounding off Matane and suspended his certificate for two months from Aug. 17, and criticized his action in not accepting the services of a tug. It also found chief officer E. G. Jones in default, and suspended his certificate for six months from Aug. 17. In regard to the second grounding, since the second officer, practically a stranger to the St. Lawrence River, pointed out to the pilot that the ship was nearing land dangerously the court was of opinion that the pilot, Thos. Houde, committed a grave error of judgment, and after hearing all details ,the court did not suspend his license, but fined him $100 to be paid by Sept. 30, with a warning to be more careful in future.

Marine Public Works Contracts Awarded.—The Dominion Public Works Department has awarded the following contracts:—Boswell, B.C., floating wharf, F. P. Armstrong and T. F. Lean, Nelson, B. C., Aug. 23, $7,950; Baileys Brook, N.S., extension to east pier, Denton & Condon, Digby, N.S., Aug. 21, $3,890; Pas, Man., extension to wharf, L. Berry, Brandon, Man., Aug. 29, unit prices; Sandspit, B. C., wharf, McDonald, Watson & Wither, Victoria, B.C., Aug. 27, unit prices; Sept. 2, dredging basin at Government wharf, Belleville, Ont. Frontenac Dredging Co., Belleville, at 75c. a cu. yd.

Slump in Wooden Ships. — The s.s. Eirini, one of the wooden steamships built in Canada during the war for the British Government, under orders from the Imperial Munitions Board, at a reported cost of $500,000, was sold at Cardiff, Wales, recently for £4,325. She made one trip across the Atlantic, and a few minor voyages.

Dominion Canal Statistics for the 1920 Navigation Season.

Following are extracts from a report on canal statistics for 1920, collected through agents of the Railways and Canals Department, and compiled by the Dominion Bureau of Statistics' Transportation Branch:—There was a total decrease of 1,259,883 tons of freight through all the Canadian canals. The decrease in tonnage passing through the Sault Ste. Marie Canal was due to the diversion of traffic to the U.S. side, following the opening, Sept. 8, 1919, of a fourth lock there, making two U.S. locks, which are longer and deeper than the Canadian lock. The total traffic through the Canadian and U.S. canals at Sault Ste. Marie increased over 11,000,000 tons, including increases of 29,700,000 bush. of wheat, and 9,800,000 tons of iron ore. The volume of traffic through the various canals, with increases or decreases, compared with 1919, is as follows:—

	Tons	Increase	Decrease
Sault Ste. Marie	2,477,818	.....	1,660,267
Welland . .	2,276,072	105,293	.....
St. Lawrence	3,067,962	176,343	.....
Chambly . .	325,322	82,361	.....
St. Peter's .	61,373	.....	3,506
Murray . .	136,235	27,985	.....
Ottawa . .	233,329	14,891	.....
Rideau .	97,837	.....	5,702
Trent . .	53,660	707	.....
St. Andrew's	5,775	2,012	.....
Total . .	8,735,383	.....	1,259,883

Following is an analysis of the various commodities, tons, passing through the canals:—

	Agricultural	Animal products	Manufactures	Forest products	Mines products	Total Tons
Sault Ste. Marie	1,045,932	1,636	270,179	53,904	1,106,167	2,477,818
Welland . .	438,389	10	205,214	170,153	1,462,306	2,276,072
St. Lawrence .	480,385	3,803	207,857	531,106	1,844,811	3,067,962
Chambly . .	21,643	323	19,185	204,684	79,487	325,322
St. Peters .	8,297	1,627	7,032	1,053	43,364	61,373
Murray . .	.....	.....	8,515	.....	127,720	136,235
Ottawa . .	2,672	2,469	21,860	105,502	100,826	233,329
Rideau . .	1,642	1,997	16,996	7,922	69,280	97,837
Trent	1,899	176	1,934	49,466	185	53,660
St. Andrews . .	101	.....	130	5,274	270	5,775
Totals . .	2,000,960	12,041	758,902	1,129,064	4,834,416	8,735,383

The following shows the tons of freight, origin, shipping and destination ports and quantities transported in Canadian and U.S. ships:—

	Tons
Origin, Canada	4,094,044
Origin U.S. .	4,641,339
From Canadian to Canadian ports	3,185,817
From Canadian to U.S. ports	955,958
From U.S. to U.S. ports	927,455
From U.S. to Canadian ports	3,666,153
In Canadian ships	6,584,456
In U.S. ships	2,150,927

The distribution of Canadian wheat through the Canadian and U.S. canals at Sault Ste. Marie, from Port Arthur and Fort William, with figures for three previous years, was as follows:—

	1917	1918	1919	1920
To Montreal . .	1,280,170	728,500	563,003	849,151
To Georgian Bay ports	52,453,042	38,774,391	53,793,931	34,494,678
To other Canadian ports	31,369,487	20,638,204	33,090,288	20,743,069
To Buffalo and other U.S. ports	73,471,563	2,158,176	4,127,614	53,880,995
Totals . .	158,574,262	62,299,271	91,574,836	109.967,883

The percentage shipped through the Canadian canal for each year, was, 1917, 38.18%; 1918, 32.08%; 1919, 23%; 1920, 13.36%. It may be assumed that nearly all the wheat shown in the foregoing table as being moved from the head of the lakes to other Canadian ports, means to Port Colborne, for transfer to Montreal.

The freight rates on wheat for 1920, with those for the previous three years, from Port Arthur and Fort William, on the various routes, were as follows:—

	1917	1918	1919	1920
To Montreal				
Per ton per mile	0.205c.	0.309c.	0.292c.	0.316c.
Per bushel . .	8.78c.	11.39c.	10.76c.	11.64c.
Per ton . .	$3.26	$3.80	$3.58	$3.87
To Georgian Bay ports				
Per ton per mile	0.270c.	0.277c.	0.203c.	0.259c.
Per bushel . .	4.25c.	4.32c.	3.15c.	4.17c.
Per ton . .	$1.42	$1.44	$1.05	$1.39
To other Canadian ports				
Per ton per mile	0.185c.	0.205c.	0.150c.	0.180c.
Per bushel . .	4.18c.	4.48c.	3.46c.	4.57c.
Per ton . .	$1.39	$1.49	$1.15	$1.52
To Buffalo, N.Y.				
Per ton per mile	0.196c.	0.158c.	0.143c.	0.223c.
Per bushel	5.00c.	4.11c.	3.73c.	5.70c.
Per ton . .	$1.67	$1.37	$1.24	$1.90

The Marine Department's Views on the Imperial Shipping Board.

An Ottawa press dispatch says that Marine Department officials are of the opinion that provided that its functions remain purely advisory, and that all legislative action rest with the British Government, the suggested Imperial Shipping Board might achieve valuable work, but that it would be entirely unwise to accord such a board any power to regulate Canadian shipping which could, with better advantage, be left to the Canadian authorities. In the event of Canadian interests clashing with those of Great Britain, it might easily happen that the Board would give a decision favorable to Great Britain, but at the expense of Dominion ports. The absolute control by each dominion of its own shipping concerns is not, the Department holds, in any way inconsistent with the best interests of the Empire. It would be entirely unlikely that any of the Dominions would approve of an Imperial body having legislative powers.

The original plan was that the Board, composed of eight members, should have a chairman appointed by the Crown and members named respectively by the Colonial Office, the Indian Office, the Board of Trade, the Dominions of Canada, Australia, South Africa and Newfoundland. The Department agreed that with a permanent paid chairman, as recommended in the Imperial

Shipping Committee's report, the body might be expected to do the most effective work. The Department suggested further that if occasion should arise it would doubtless be of advantage to have the necessary machinery to enquire into ocean freight rates regarded as excessive or discriminatory. For the purpose of an intelligent enquiry, the Imperial Shipping Board might perform a useful public service, not only by enquiring into any complaints as to the matter of freight rates, but, if it deemed advisable, it might investigate the question of how ocean rates may be made a factor in developing trade between Canada and Great Britain, more especially as to merchandise now imported from the United States.

In the remote contingency of a dispute arising between inter-Imperial shipping, it was suggested the Board might with advantage act as conciliator between the parties, its decisions, however, would have to be made effective by confirmation by the governments of the countries concerned.

Sir George Perley, Canadian High Commissioner in London, represented Canada at the Imperial Shipping Committee's sittings.

Atlantic and Pacific Ocean.

The C.P.R. s.s. Victorian is reported to have been chartered by the British Government for service during the winter in carrying civil service employes to and from India.

A shipment of approximately 2,000,000 ft. b.m. of B.C. fir was received at Three Rivers, Que., recently, via the Panama Canal. This is stated to be the first ship to make the trip from Vancouver to a Quebec port, via the canal.

The Latin-America Line, a Norwegian shipping company, as reported to have established a line of steamships between Vancouver and Puget Sound ports, and Central and South American ports, running on a monthly schedule.

A Liverpool, Eng., press report states that it is rumored there that the C.P.R. may divert some of its steamships from that port to Southampton, and that it may establish a continental service from the latter port to Cherbourg, France, similar to that now given by the Cunard Line.

The s.s. Loyalty, formerly the C.P.R. s.s. Empress of India, is at present laid up at Bombay, India, and some uncertainty is felt as to her future. During the war she was sold by the C.P.R. to one of the Indian princes, who equipped her as a hospital ship for the use of the British Government, and on the conclusion of the war she was sold to an Indian steamship company, but is reported to have been unable to obtain a surveyor's certificate.

Furness, Withy & Co. inaugurated a regular monthly steamship service from Vancouver, Portland and Seattle, to United Kingdom and other European ports, during September, and, should conditions warrant, San Francisco may also be included. The first sailing took place with the s.s. Mongolian Prince, from Portland, Ore., Sept. 15, and she will be followed by the s.s. Eastern Prince Oct. 15; s.s. Siberian Prince, Nov. 15, and s.s. El Cordobes Dec. 15. The last mentioned ship has a large refrigerator capacity. Frank Waterhouse & Co. have been appointed agents at Vancouver, B.C., Portland, Ore., and Seattle, Wash.

The C.P.R. s.s. Empress of Canada, now approaching completion for the trans-Pacific service, accomplished a speed of 25.6 knots an hour during her recent trials, which is somewhat higher than any speed ever attained by a trans-Pacific steamship. The present record for speed on the Pacific is held by the company's steamships Empress of Asia and Empres of Russia, which averaged 21 knots. The s.s. Empress of Canada was equipped originally to burn coal, and it is stated that the change which has been made to enable her to use oil as fuel has increased her speed 2 knots an hour.

The C.P.R. is reported to have arranged a series of winter cruises to the West Indies, for which purpose the s.s. Empress of Britain will be taken from the trans-Atlantic service, her place being taken by the s.s. Empress of France. It is stated that two cruises will be made, each lasting 27 days, the first sailing being made from New York, Jan. 21, 1922, and the econd on Feb. 25. Among the ports of call will be Havana, Kingston, Colon (Panama Canal), La Guiara, Caracas, Port of Spain, Barbados, Martinique, St. Thomas, Porto Rico and Nassau.

The Cairn Line s.s. Cairnross, which arrived at Montreal early in September, on her maiden trip from Great Britain, was built at Sunderland, Eng., and on her recent trials over the measured mile attained a speed of 13 knots an hour. Her dimensions are,—length b.p. 425 ft., breadth 55 ft., depth of shelter deck 37¼ ft. Her d.w. capacity is 8,170 tons on 25½ ft. draft. The propelling machinery consists of a signal screw set of the latest type of double reduction geared turbines of the all reaction type, of about 3,100 shaft h.p. She is equipped with boilers, superheaters, shafting and bronze propeller. She is of the 2-deck type with complete shelter deck, built under special survey to Lloyd's highest class. The cargo handling equipment in-

Ships Registered in Canada During June, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Enginse, n.h.p. etc.	Owner or Managing Owner
115154	Alston	Montreal	Sunderland, Eng. 1903	347.0	46.5	27.8	3955	2563	280 Sc.	William Garthwaite, London, Eng.
150294	Arichat	Sydney	Montreal, Que. 1917	84.9	19.3	10.3	144	55	24 Sc.	Thomas H. MacDonald, Sydney, N.S.
136767	Bilbster*	Montreal	Sunderland, Eng. 1915	390.0	52.1	25.0	4556	2829	433½ Sc.	Canada Steamship Lines Ltd., Montreal.
150359	Brignogan(1)	Montreal	Wyandotte, Mich. 1903	247.0	41.2	15.3	1594	892	87 Sc.	George Hall Coal Co. of Canada Ltd., Montreal.
141846	Brumath	Quebec, Que.	Three Rivers, Que. 1919	195.5	40.1	15.3	1141	662	48 Sc.	Jos. Rioux, Ruisseau Arbor, Que.
150248	Calgarolite*	Halifax	Vancouver, Wash. 1921	463.3	60.2	29.1	8764	5511	331 Sc.	Imperial Oil Ltd., Sarnia, Ont.
117396	Cape Corso	Montreal	Port Glasgow, Scotland. 1905	369.7	49.0	25.5	3890	2510	384 Sc.	William Garthwaite, London, Eng.
150293	Jean Mac	Sydney, N.S.	Montreal, Que. 1917	81.8	19.0	10.8	115	32	24 Sc.	T. H. MacDonald, New Glasgow, N.S.
150428	Lady Kindersley	Vancouver, B.C.	Vancouver, B.C. 1920	187.0	36.3	13.2	714	550	18 Sc.	Hudson Bay Co., London, Eng.
110506	Lord Ormonde	Quebec, Que.	Low Walker-on-Tyne, Eng. 1899	360.0	46.2	27.2	3914	2,533	320 Sc.	Lord Ormonde Steamship Co., Montreal.
150502	P.W.D. No. 305	New Westminster	New Westminster, B.C. 1901	146.5	33.0	6.3	449	145	17½ Sc.	Minister of Public Works, Ottawa.
118121	Wisley(2)	Montreal	Sunderland, Eng. 1904	381.4	49.0	25.7	4399	2717	429 Sc.	Canada Steamship Lines Ltd., Montreal.

(1) Formerly Albert M. Marshall. (2) Formerly Wray Castle. *Equipped with wireless.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
150505	F. II	New Westminster	Barge	New Westminster, B.C. 1921	98.8	36.0	8.8	268	268	H. M. Fullerton, New Westminster, B.C.
150362	George A.	Montreal	"	Pierreville, Que. 1921	106.0	23.0	7.6	173	158	Jackson Construction Co., Pierreville, Que.
150360	La Marguerite	"	"	Pierreville, Que. 1921	104.6	23.0	7.5	172	154	C. Lafraniere, Pierreville, Que.
150358	Marquin	"	"	Pierreville, Que. 1921	81.7	22.8	7.0	110	99	Jackson Construction Co., Pierreville, Que.
141630	Nellie Eaton	Parrsboro, N.S.	Schr.	Harrington, Me. 1874	87.0	26.0	7.8	128	107	T. Antle and J. Rector, Parrsboro, N.S.
150506	Mayers No. 2	New Westminster	Barge	New Westminster, B.C. 1921	89.0	32.1	8.6	201	201	J. Mayers, New Westminster, B.C.
150357	Thomas A. Wark	Montreal	"	Charlemagne, Que. 1921	129.0	27.3	9.1	310	287	St. Maurice Paper Co., Montreal.

cludes 13 large winches, one on the poop deck with extended ends for warping and with special drums for use as emergency steering gear. The steering gear is operated by telemotor control and is placed in a steel house aft. The boilers are built for a working pressure of 200 lb. and are equipped to burn either coal or oil.

Maritime Provinces and Newfoundland.

A proposal to build a permanent wharf for the protection of the northern wing of the east ferry floats at St. John, N. B., was defeated by the city council, Sept. 13.

The Newfoundland schooner Edith Pardy, was reported, Sept. 3, to have been abandoned in a sinking condition, about 60 miles west of St. Pierre, Miquelon, while bound from Sydney, N.S., to Avondale, Eng., with coal.

The Dominion Coal Co.'s s.s. Kamouraska collided with the schooner Granite, owned in Lunenburg, N.S., at the end of August, off Sydney, during a dense fog. The schooner was considerably damaged and was towed to Sydney for repairs.

The Reid Newfoundland Co. is reported to have bought the s.s. Stanley from the Marine Department. She was built at Govan, Scotland, in 1888, and is screw driven by engine of 300 n.h.p. Her dimensions are,—length 207.8 ft., breadth 32 ft., depth 17.9 ft.; tonnage, 914 gross, 395 net.

It is reported that Capt. Jos. Blois of the C.G.S. Stanley, which is stated to have been sold, has been transferred to the s.s. Aranmore, with Capt. Bayers of the s.s. Dollard as first officer. The s.s. Dollard, it is stated, has been laid up for the winter.

The schooner Bernice R., owned by M. J. Parks, La Have, N.S., was lost towards the end of August, while en route from New Campbellton, N.S., to Campbellton, N.B. She was built by J. N. Rafuse & Son, Salmon River, N.S., in 1918, and had the following dimensions, length 134 ft., breadth 30.5 ft., depth 11.6 ft.; tonnage, 378 gross, 324 net.

The Halifax & Canso Steamship Co.'s s.s. Scotia was burnt to the water's edge, Aug. 26, while tied to her wharf at Drum Head, N.S., and is stated to be a total loss. She was built at Mahone Bay, N. S., in 1907, and was screw driven by engine of 52 n.h.p. Her dimensions were, length 138.8 ft., breadth 26.8 ft., depth 9.6 ft.; tonnage, 376 gross, 268 net.

The Southern Salvage Co.'s wrecking tug Coast Guard foundered off Little Hope, near Liverpool, N.S., Sept. 8, after striking a submerged wreck and making a large hole in her hull. She was built at Shelburne, N.S., in 1904, and was screw driven by engine of 16 n. h.p. Her dimensions were,—length 77.6 ft., breadth 24.6 ft., depth 8 ft.; tonnage, 110 gross, 52 net.

The international fishing schooner races are scheduled to commence off Halifax, N.S., Oct. 25. The U.S. fishermen selected the schooner Mayflower, but an objection was entered from Canada, on the ground that she does not comply with the rules, having been built more on the lines of a sailing yacht, and thus could not carry a proper quantity of fish, and also that she did not sail for the fishing grounds within the time allowed by the rules.

Province of Quebec.

Capt. O. Langlois, owner of the schooner Mariel Manda, is suing the City of Quebec for $2,267, as damages for the loss of both masts of his schooner, caused by the sudden closing of the drawbridge on the St. Charles River, as she was passing.

The Montreal Harbor Commissioners have installed another floating grain elevator, making four now in operation in the port, which greatly helps in speeding up the loading of grain. The last elevator is working about 15 hours a day and handles about 7,000 bush. an hour.

During the third week in August, pilots of the Quebec Corporation of Pilots, handled 89 ocean steamships from Father Point, en route to Montreal. This is stated to constitute a record. For the present season, more ocean steamships have been handled to Montreal for grain, than in any previous season, and the increase was especially marked during August.

Negotiations are proceeding with the Dominion Government for a grant towards the provision of a special winter steamship service to points along the north shore of the St. Lawrence River and Gulf. It is stated that the Government has offered to pay $35,000 for the carriage of mails, for which it now pays $42,000 for transportation overland by dog teams, but it is reported that a further $20,000 is essential to assure the steamship service.

The s.s. Narragansett, which, as mentioned in our last issue, has been bought by Canada steamship Lines, is a steel twin crew steamship, built at Wilmington, Del., in 1913. Her dimensions are, length 320.2 ft., breadth 48.1 ft., depth 22 ft.; tonnage, 3,539 gross, 2,134 net. We are officially advised that she is to be thoroughly overhauled to make her suitable for the company's St. Lawrence River service, by the Davie Shipbuilding & Repair Co., Lauzon, Que., and that most likely her name will be changed when she is placed on the Canadian register at Montreal.

Capt. J. E. Bernier, formerly of the Gulf of St. Lawrence Shipping & Trading Co., is endeavoring to establish a winter steamship service from Murray Bay, Que., the terminus of the Quebec & Saguenay Ry., along the north shore to Clarke City, calling at Tadousac, Gibault, Shelter Bay, Point des Monts, Franklyn River, Bersimis, Trinity Bay and St. Margarets Bay. It is proposed to buy the s.s. Champlain from the Dominion Government, or some other suitable icebreaking steamship, and to operate her under the management of The Quebec North Shore Service Registered.

Ontario and the Great Lakes.

The s.s. William H. Wolf, owned by E. H. Horn, Milwaukee, Wis., sprang a leak in Lake Superior, Sept. 17, and after putting in to Portage, Mich., sank there. She was refloated a few days later and proceeded to Houghton, Mich., to unload.

Canada Steamship Lines' management is reported to be considering the question of lengthening its s.s. Toronto by 50 ft., to give space for 30 additional staterooms, and bring the ship to the same size as its s.s. Kingston.

The Keystone Transports' s.s. Keywest collided with and sank the schooner Oliver Mowat, near Duck Island, Lake Ontario, Sept. 1, two of the crew of five being saved. The schooner, it is stated, is owned by Hepburn & Co., Picton, Ont. She was built at Mill Haven, Ont., in 1873, her dimensions being, length 116 ft., breadth 23.8 ft., depth 9.8 ft., tonnage 170 net.

Canada Steamship Lines is reported to have taken the steamships J. H. G. Hagarty, Collingwood, W. D. Matthews, Midland King, Valcartier and Glenmount out of service, temporarily. during September, as grain had been moving in such volume that the Montreal elevators were taxed beyond their capacity. It is stated that the ships will be replaced in service immediately the congestion is relieved.

Dominion Wreck Commissioner Capt. L. A. Demers, held an enquiry at Montreal, Sept. 17, into the collision between Keystone Transports s.s. Keywest and the schooner Oliver Mowat, in which the latter was sunk with a loss of three lives, off False Ducks, near Kingston, while the Keywest was upbound from Montreal, and the Oliver Mowat crossing from Picton to Oswego, N.Y. Judgment was reserved.

The Toronto Harbor Commission disposed of $4,000,000 of bonds by tender, Sept. 12, to R. A. Daly & Co., Toronto, and associates in New York and Boston, at 73.57 U.S. funds and 82.03 Canadian funds. Seven other tenders were put in. They mature in 1953, bear interest at 4½%, and are issued under authority granted in 1913, when the Commission was authorized to issue bonds for $25,000,000, of which $18,500,000 have been issued to date.

Ships Added to and Deducted From the Canadian Register During June, 1921.

	Steam.			Sailing.		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	24	1,797	1,032	8	1,342	1,271
Purchased from foreigners	7	15,464	9,630	1	128	107
Transferred from U.K. ports	4	16,800	10,619	....	.....	.....
Registered anew	3	120	105	1	50	50
Totals	38	34,181	21,386	10	1,520	1,428
Deducted.						
Wrecked or otherwise lost	4	4,008	2,426	11	1,312	1,255
Broken up or unfit for use	5	175	117	38	1,538	1,531
Transferred to British Possessions	1	24	17	3	822	719
Sold to foreigners	....	.....	.....	11	1,731	1,385
Registered anew	2	120	81	4	183	175
Other ships	3	7,697	4,907	....	.....	.....
Totals	15	12,024	7,548	67	5,586	5,065

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Dominion Government has placed buoys in channels in the Mackenzie River where there are known dangers to navigation.

The Northern Trading Co.'s s.s. Northland Echo sailed from McMurray, Alta., Sept. 12, for Fort Fitzgerald on her last trip for the season.

The Hudson's Bay Co.'s s.s. McMurray sailed from McMurray, Sept. 12, for northern ports with cargo for the company's posts on the Mackenzie River. The McMurray goes as far as the south end of Smith Portage, where cargoes are transferred across the portage and reshipped on another steamboat for Mackenzie River points.

The Alberta & Arctic Transportation Co.'s s.s. D. A. Thomas took up her winter quarters during September at Peace River, Alta. It is stated that owing to the discontinuance of the steamship service on the Peace River, shipwrights engaged in connection with it had to travel from Fort Smith to Edmonton, via Athabasca River, and proceed north to Peace River from there.

British Columbia and Pacific Coast.

The Canadian Robert Dollar Co., which has occupied the Great Northern Ry. docks at Vancouver since 1915, has removed its Vancouver quarters to the C. P.R. docks.

The Hudson's Bay Company's motorship Lady Kindersley, which sailed from Vancouver for the north recently, has been libelled at Juneau, Alaska, as a result of a collision with Pacific Gypsum Co.'s barge Palmyra, which was being towed, near Whale Island. The tug's crew states that the Lady Kindersley paid no attention to frequent whistle signals.

The fully rigged ship Mafalda, owned formerly by Norwegian interests, but lately acquired by Sir John Jackson Ltd., contractors for the Victoria harbor work, is undergoing extensive repairs at Yarrows Ltd. yard at Esquimalt, after which, it is stated, she will load the Sir John Jackson plant and material for transfer to Great Britain.

The s.s. Princess Louise, which was launched at North Vancouver, Aug. 29, for the C.P.R. British Columbia Coast Service, and dealt with fully on another page of this issue, is the second ship of that name to be utilized in that service. The first s.s. Princess Louise was built at New York in 1869. Her hull was of seasoned white oak, and she was propelled by side wheels, with a beam engine. Her dimensions were,—length 180 ft. 10 in., beam 30 ft., depth of hold 12½ ft. She made her first trip from Olympia to Victoria, Dec. 7, 1869, and in 1879 was sold to the Hudson's Bay Co., and registered at London, Eng. In 1883 she was transferred to the Canadian Pacific Navigation Co., and in 1901 went into C.P. R. hands and was operated in the British Columbia coast service, until a few years ago, when she was sold to Marpole, Macdonald & Co., Victoria, and converted into a coal hulk. During the time she was operated by the H. B. Co., she ran to its various posts as far north as Port Simpson, and under C.P.R. management she was operated occasionally on the northern run, but chiefly in local water, calling at Victoria, Vancouver, New Westminster, Nanaimo, and some other island ports.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

51. Aug. 10—136. New Brunswick, Bay of Fundy, Deer Island, Clam Cove Head, spindle established. 137. New Brunswick, Bay of Fundy, St. Lawrence Harbor entrance, channel between Negro Point breakwater and Partridge Island, differences in depth, caution. 138. Quebec, ship channel between Quebec and Montreal, foot of Isle aux Foins, buoy established.

52. Aug. 11.—139. Nova Scotia, Cape Breton Island, west coast, Margaree, change in character of light. 140. New Brunswick, Northumberland Strait, Miramichi River to Douglastown, dredging.

53. Aug. 15.—141. British Columbia, Vancouver Island, South Coast, Esquimalt Harbor, chart issued. 142. British Columbia, Vancouver Island, east coast, Kelp Bar, gas and bell buoy to be reestablished. 143. British Columbia, Queen Charlotte Sound, Blunden Harbor, uncharted rock. 144. British Columbia, Hecate Strait, northern portions, chart issued. 145. British Columbia, Chatham Sound, Hogan Ledge, reported error of charts.

54. Aug. 17.—146. Quebec, Gulf of St. Lawrence, Pentecote River, new range lights established.

55. Aug. 22.—147. New Brunswick, south coast, Bay of Fundy, entrance to L'Etang harbor, Bliss Harbor and Black Bay, bell buoy established. 148. Quebec, River St. Lawrence, Channel patch, vessel sunk, gas buoy placed to mark wreck.

Welland Ship Canal Contracts.

As mentioned in Canadian Railway and Marine World for September, the Railways and Canals Department has awarded the contract for the completion of the work on the combined sections 1 and 2, to J. P. Porter, Halifax, N.S. We are officially advised that a partnership has been formed, consisting of J. P. Porter, G. M. Standifer, and the firm of Porter Bros., represented by R. B. Porter, under the name of J. P. Porter, Standifer & Porter Bros., to carry out the work. Steam shovel operations are being carried on under the supervision of T. Standifer, concrete work is supervised by F. Porter, engineering work by A. C. Brown, and financing and accounting affairs by W. D. Keir. Owing to the late date of awarding the contract, the season's work will be somewhat limited, but operations have been commenced, and approximately 400 men are at work, operating two steam shovels, and pouring concrete at locks 1 and 2.

Sec. 1, the contract for which was originally let Aug. 1, 1913, to the Dominion Dredging Co., consists principally of the construction of the new harbor at Port Weller, at the Lake Ontario end of the canal, covering about 1½ miles of dredging in the lake, and considerable pier work, 1½ miles of canal excavation, the construction of lock 1 with its weirs and entrance walls, between Lake Ontario and bridge 2.

Sec. 2, the contract for which was originally let, Dec. 31, 1913, to Baldry, Yerburgh & Hutchinson, Ltd., includes, in addition to the excavation of the canal prism, the construction of locks 2 and 3, with their regulating and waste weirs, the substructure of four bridges in addition to one at the head of lock 2, and a large amount of watertight embankments.

Work on these, as well as other contracts was suspended in Jan. 1917, on account of war conditions, but was resumed early in 1919, on a cost plus 8% basis, and considerable work has been done at intervals since. It is estimated that on the two sections combined, there remains about 40% of the work to be completed.

Tenders have been called for the completion of the work on sections 3 and 4. Sec. 3 commences at about station 380+00, a short distance from where the Merritton-St. Davids Road crosses the canal, and extends through Thorold to about station 490+00, where it joins sec. 4, which extends from that station to a short distance north of Allanburg, station 640+00, where the new ship canal joins the present canal.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during August, 1921:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B.M. 7,655	36,520	44,175
Flour	"	Barrels 378,660	853,590	1,232,250
Wheat	"	Bushels 1,449,832	8,682,435	10,132,267
Grain, other than wheat	"	Bushels 3,972,959	6,325,800	10,298,759
Copper	"	Short tons	2,588	2,588
Iron Ore	"	Short tons	4,383,949	4,384,949
Pig Iron	"	Short tons	.....	.....
Stone	"	Short tons 5,775	600	6,375
General Merchandise	"	Short tons 306	9,676	9,982
Passengers	"	Number 7,167	4,363	11,530
Coal, soft	Westbound	Short tons 14,088	1,683,980	1,698,068
Coal, hard	"	Short tons	489,142	489,142
Iron Ore	"	Short tons	.....	.....
Manufactured Iron and Steel	"	Short tons 205	3,652	3,856
Salt	"	Short tons 590	2,950	3,540
Oil	"	Short tons	21,290	21,290
Stone	"	Short tons 2,241	92,362	94,603
General Merchandise	"	Short tons 29,174	30,160	59,334
Passengers	"	Number 7,137	4,956	12,093
Summary				
Vessel Passages		Number 551	1,328	1,879
Registered Tonnage		Net 453,412	4,507,509	4,960,921
Freight—Eastbound		Short tons 175,288	4,952,755	5,128,043
Westbound		Short tons 46,298	2,323,535	2,369,833
Total Freight		Short tons 221,586	7,276,290	1,497,876

The s.s. Cap Nord, one of six auxiliary twin screw, 5 masted schooners, built by Wm. Lyall Shipbuilding Co., Vancouver, B.C., in 1918, for the French Government, at a reported cost of $500,000, was sold by auction in London, Eng., recently, to a Mr. Petersen, of Birmingham, Eng., for £2,000.

Canal Statistics for August, 1921.

The Dominion Bureau of Statistics, Transportation Branch, reports as follows:—

Traffic through the Canadian and U.S. locks at Sault Ste. Marie showed a decrease from July of 640,138 tons and from Aug. 1920 of 4,927,610 tons. The decrease from 1920 was principally due to the light iron ore shipments, which decreased 4,399,872, or over 50%, while the soft coal shipments were 788,922 tons less than during July. Wheat increased 2,290,887 bush., and other commodities showed little change from last year. The passenger traffic decreased 2,481 passengers from 1920, but was 1,483 passengers over July.

Traffic on the Welland Canal increased 99,422 tons over 1920, due to increases in grain. Grain cargoes constituted over 63% of the traffic. Soft coal decreased 171,550 tons.

There was a decrease in St. Lawrence Canal traffic from July of 50,600 tons. The largest decrease was in U.S. corn, which decreased 118,587 tons. Other grains showed considerable increases over July and also over Aug. 1920.

During the last two months there have been large quantities of U.S. grain exported via Montreal, which is shipped via Georgian Bay ports and rail to Montreal, and also all water via the Welland and St. Lawrence Canals. The premium on U. S. currency and the elevation charges at New York make the all water Canadian route from Chicago, Duluth and Milwaukee about 2¾c. a bushel less than via Buffalo and New York. Both the lake and rail, and the all rail rate, from Port Arthur and Fort William to Montreal is over 5c. a bushel less than to New York. The payment in Canadian currency reduces this still further and more than offsets the heavier insurance rates from Montreal.

Mainly About Marine People.

Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and of the Naval Service, retains those positions in the reorganized Dominion cabinet, which was announced by Premier Meighen, on Sept. 21.

A. E. Higgins, Vancouver, B.C., has been presented with the Royal Albert bronze medal, in recognition of gallant conduct on Aug. 27, 1919, when an explosion occurred on the Canadian Robert Dollar Co.'s s.s. Melville Dollar, of which he was third engineer.

Albert Hoare, steward of the C.P.R. s.s. Keewatin, died suddenly while she was crossing Lake Huron on Sept. 18.

Joseph W. Isherwood, the founder of the Isherwood system of shipbuilding, has been created a baronet for distinguished service in naval architecture, especially during the war. He was born at Hartlepool, Eng., in 1870, and served an apprenticeship in Furness, Withy & Co.'s drafting room at West Hartlepool, and subsequently became associated with Lloyd's Register of Shipping, as surveyor, remaining for 11 years. The Isherwood system of ship construction was patented in 1906, and in the following year he left Lloyd's to devote his time to the new system . He is a member of the Institute of Naval Architects, the Northeast Coast Institute of Engineers and Shipbuilders, the Society of Naval Architects and Marine Engineers (New York), the Cleveland Institute of Engineers, and is also a liveryman of the Worshipful Company of Shipwrights.

J. J. McWilliams, formerly Dominion Government signal service agent at Father Point, Que., and who also represented the Shipping Federation of Canada, Canadian Pacific Ocean Services, Dominion Government Telegraphs and Great Northwestern Telegraph Co., died in New York, Sept. 7, aged 66, after an illness lasting nearly a year.

Joseph Nordman, heretofore Travelling Passenger Agent, White Star-Dominion Line, is reported to have been appointed General Continental Passenger Agent, International Mercantile Marine Co., in charge of the Passenger Department for both the U.S. and Canada, with office at New York.

W. G. Ross, President, Montreal Harbor Commission, has been elected one of the Canadian Senior Golf Association's governors.

R. Home Smith, President, Algoma Central & Hudson Bay Ry., Toronto, has been elected Chairman, Toronto Harbor Commissioners, succeeding the late Lionel H. Clarke, Lieutenant Governor of Ontario.

Shipowners' Liability for Loss or Damage.

London, Eng., press dispatch, Sept. 7: Wm. Phillips, European Manager, Canadian National-Grand Trunk Rys., and Canadian Government Merchant Marine, told your correspondent that he considered that the recommendation made at The Hague International Law Conference, defining the liability of shipowners for loss of or damage to goods carried, and establishing a uniform bill of lading, reflected credit upon Canada's parliamentarians, as the basis for the recommendation was the Canadian Water Carriage of Goods Act, 1910.

The sum of $100, then stipulated as the liability per package, is increased by the new Hague rules to £100, owing to the advanced value of the average individual package. This increased liability, which was proposed by merchants and underwriters as a means of ensuring that every precaution be taken by the shipowners, was willingly assumed by the latter. The Conference recommended that the new rules be incorporated in all bills of lading from January 1922.

Vancouver Harbor, Drydock, etc.

We are advised that the Ballantyne pier construction is progressing satisfactorily, that the first contract, which is for dredging and filling, is practically completed, and that the second contract for all the concrete work is in progress.

Up to the time of our advice, on Sept. 14, J. Coughlan & Sons had not started work on the drydock, for the construction of which they entered into a contract with the Dominion Government some months ago.

Nepigon Fisheries Ltd. has been incorporated under the Ontario Companies Act, with $40,000 authorized capital and office at Port Arthur, Ont., to carry on a general fishing and fish curing business, and in connection therewith to own and operate ships, wharves, warehouses, etc. The provisional directors are, A. J., J. L., and L. V. McComber, Port Arthur.

Damages Awarded in Collision Suit.

Mr. Justice Maclennan, of the Admiralty Court, Montreal, is reported to have found that in the collision which occurred in the morning of July 16, 1920, in Lake St. Peter between Canada Steamship Lines' lake steamship Maplehurst and her tow, the barge Brookdale, and the George Hall Coal Co.'s steam tug, Margaret Hackett, both ships were at fault, and damages are assessed in proportion to the fault of each, as found by the court, viz., judgment in favor of the George Hall Coal Co. against the s.s. Maplehurst and her bail for three quarters of the damages to the tug Margaret Hackett and costs, and judgment in favor of Canada Steamship Lines against the tug Margaret Hackett and her bail for one quarter of the damages to the barge Brookdale and costs, with a reference to the district registrar, assisted by merchants, as assessors, to determine the damage due in each case.

Canadian Built Ships for Sale in Great Britain.

Among a number of ships of various types, built during the war, for war and general mercantile purposes, and which are being offered for sale in England, are a wooden steam drifter, unregistered, but known as C.D. 25, built by Davie Shipbuilding & Repair Co., Lauzon, Que., with engines by Goldie & McCulloch Co., Galt, Ont., and described as built equal to Lloyd's 100 A1 for this class, with compound single screw engines, 12 and 24 by 16 in., Scotch type boiler, 9 by 9½ ft., 140 lb. working pressure; speed about 9 knots; fuel consumption about 4½ tons a day; bunker capacity about 25 tons; dimensions,—length b.p. 84 ft., breadth extreme 19¼ ft., depth moulded 11 ft. The following schooners built in the Maritime Provinces, and now at various ports throughout the world, are also being offered:—Mark H. Gray, built by F. Gray, Mahone Bay, N.S.; Maxwell R., by Chester Basin Shipbuilding Co., Chester Basin, N.S.; Truro Queen, and Hiram D. McLean, by McLean & McKay, Economy, N.S.; Marion G. Douglas, by G. M. Cochrane, Fox River, N.S.; W. R. Reinhardt, by J. N. Rafuse, Lunenburg, N.S.; Cape La Have, by E. B. Ehrgott, Yarmouth, N.S.; Maid of Canada, by E. P. Rice, Weymouth, N.S.; Ruby and Dorothy, by J. R. Rafuse & Son, Conquerall Bank, N.S.; Eugenie Owen Mackay, by Pugsley & Robinson, Diligent River, N.S.

Leasing C.N.R. Port Arthur Elevators. The Canadian National Rys. received, to Sept. 24, tenders for the privilege of leasing, from Oct. 1, 1921 to Sept. 1, 1922, two working elevators, at Port Arthur, viz., A, of wooden construction, and B, of steel and concrete construction, with contiguous storage tanks of concrete and tile construction.

Great Lakes Levels—The U.S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level, for August, as follows:—Superior, 602.77; Michigan and Huron, 580.18; St. Clair, 575.29; Erie, 572.49; Ontario, 245.93. Compared with the average August levels for the past 10 years, Superior was 0.10 ft. above; Michigan and Huron, 0.75 ft. below; Erie, 0.14 ft. below, and Ontario, 0.57 ft. below.

The Ownership of the World's Mercantile Shipping.

Harrison Watson, Canadian Trade Commissioner, London, Eng., writes:—The notes which Lloyd's Register of Shipping issues with its annual register book are usually mainly devoted to some particular subject, and this year the feature is a comparison with the steam tonnage owned by the principal countries before the war and at the present time, supplemented by an estimate of what the respective figures would have been if the war had not taken place.

In illustrating the present situation by the table which follows, it is stated that as the precentage of sailing ships to the world's tonnage is now less than 6%, as compared with just over 8% in 1914 and nearly 22% in 1902, it is considered convenient to exclude sailing ships. In this connection it is, however, remarked that the reduction in sailing tonnage since June, 1914, amounting to 641,000 tons, is a much smaller decrease than that which occurred in previous periods of six years, which shows that shortage of tonnage has given new life to the construction of sailing ships. The United States is, however, the only country which has increased sailing tonnage since 1914, and at present 43% is owned in that country. This figure, however, includes, a large proportion of sailing barges. Other countries which still possess any considerable amount of sailing tonnage are the British Empire (440,000 tons), France (282,000 tons), and Norway (240,000 tons).

The following table shows the steam tonnage owned by the principle maritime countries before and after the war:—

Country.	June, 1914, tons gross.	June, 1920, tons, gross.	Difference between 1914 and 1920, tons gross.
United Kingdom	18,892,000	18,111,000—	781,000
Bri. Dominions	1,632,000	2,032,000+	400,000
America (U.S.)—			
Seagoing	2,027,000	12,406,000+	10,379,000
Great Lakes	2,260,000	2,119,000—	141,000
Austria-Hungary	1,052,00	nil	—
Denmark	770,000	719,000—	51,000
France	1,922,000	2,963,000+	1,041,000
Germany	5,135,000	419,000—	4,716,000
Greece	821,000	497,000	324,000
Holland	1,472,000	1,773,000+	301,000
Italy	1,430,000	2,118,000+	688,000
Japan	1,708,000	2,996,000+	1,288,000
Norway	1,957,000	1,980,000+	23,000
Spain	884,000	937,000+	53,000
Sweden	1,015,000	996,000—	19,000
Total abroad	26,512,000	35,794,000+	9,282,000
World's total	45,404,000	53,905,000+	8,501,000

Notwithstanding the large amount of ex-enemy tonnage provisionally allocated to British management, there are at present 781,000 tons less of steamships owned in the United Kingdom than before the war, and similarly the figures for France and Italy include a considerable number of ex-enemy ships. The outstanding feature of the altered conditions is an increase of the seagoing tonnage owned by the United States by nearly 10,400,000 tons, or over 500% on the 1914 figures; while German shipping, which had over 5,000,000 tons of merchant steamers, and occupied the second position in the world in 1914, has now sunk to the insignificant total of 419,000 tons. Indeed, the relative position of several countries has materially changed. In 1914 the United Kingdom owned 41.6% of the world's tonnage, while the present percentage is 33.6; Norway, which formerly occupied the fourth place, is now seventh; and Japan has risen from sixth to third.

Excluding ships trading on the Great Lakes of North America (about 2,300,000 tons), the United Kingdom percentage of the world's seagoing steam tonnage has decreased from 43.9 in 1914 to 35.1 in 1920, while the proportion of the United States has risen from 4.7% to 24%. The present position of the merchant steam tonnage as compared with 1914 is summarized thus:—

	Tons.
Decrease in United Kingdom	781,000
Loss to Germany	4,716,000
Total . .	5,497,000
Increase in the United States	10,379,000
Increase in other countries	3,619,000
Total . .	13,998,000
Net world's tonnage	8,501,000

As the interesting question has frequently been raised, "What would tonnage be if there had been no war?" the following careful estimate has been prepared:—Eliminating iron and wood tonnage and all ships trading on the Great Lakes of North America and assuming that the ratio of increase during the period 1914-20 would have been about four-fifths of the average ratio of increase which took place during the previous six years—which period, as it happens, included three poor years (1908-11) and three good years (1911-14)—the result is as follows:—Estimate of the tonnage of seagoing steel steamships which would have been in existence in 1920 if there had been no war:—

	Tons.
United Kingdom .	21,420,000
United States	2,155,000
Germany . .	6,478,000
Other countries	21,050,000
Total . .	51,103,000

To obtain figures regarding the actual tonnage owned at present which could be correctly compared with the above estimate it will be necessary to take into account the considerable amount of ex-German tonnage, the allocation of which is not known, but presuming that it would be distributed in somewhat similar proportions as have taken place up to now, the figures would be about as follows:—

	Tons.
United Kingdom .	18,500,000
United States	10,992,000
Germany . .	375,000
Other countries	17,720,000
Total . .	47,587,000

The difference therefore between the latter figures and the estimate of what would have occurred but for the war is as follows:—

	Tons.
United States—a gain of	8,837,000
United Kingdom—a loss of	2,920,000
Germany—a loss of	6,103,000
Other countries—a loss of	3,330,000
Total loss	12,353,000
Net world's loss	3,516,000

Dealing only with these figures, apart from the question of efficiency, the result appears to be that, notwithstanding the great expansion in the shipbuilding industry, the world as a whole is still about 3,500,000 tons of steel steam tonnage to the bad as compared with the above estimate. As regards the United Kingdom, in which country during the war merchant shipbuilding had to take second place, and which after the war has transferred so many ships to other flags, the present totals show a decrease of nearly 3,000,000 tons of steel steamships as compared with what could reasonably have been expected but for the world war. On the contrary, in the United States the increase during this period has been such as to bring the total tonnage of seagoing steel steamships actually equal to the combined totals of the principal European maritime countries mentioned in the above table (other than the United Kingdom). The general inference which may reasonably be drawn from the position set forth here, combined with the activity in construction shown in Lloyd's reports on shipbuilding, is that while freights are not likely to fall to pre-war level, there must inevitably be a further substantial reduction in current rates.

In conclusion, as Canada's share of steam tonnage is included in the table reproduced, under the heading British Dominions, it seems interesting to state that according to statistics published in the register book, Canada is recorded as owning 853,660 tons of steam and motor ships (seagoing and lakes) of steel, iron, wood and composite, supplemented by 312 sailing ships of all descriptions with a gross tonnage of 122,673.

Shortage of Cold Storage for Shipments to England.

London, Eng., cablegram, Sept. 12.—The shortage of cool air and cold storage accommodation for shipments of Canadian perishable cargoes direct to London appears to be largely due to the diversion to other ports of certain ships formrly carrying such cargoes to London, because the accommodation at Deptford is no longer available for meat carried by the same boats. Sir George McLaren Brown, European General Manager, C.P.R., is persistently urging on the London Markets Committee the need for providing alternative accommodation and suggests a lairage at Thameshaven, below Deptford, with railage to Smithfield. The Canadian Government Merchant Marine is still accepting freight payments in Great Britain at the Canadian rate of exchange. Other shipping lines are not following this example except under pressure of competition.

United States Mail Steamship Co.—It is announced that under an order of a U.S. court, the steamships hitherto operated by this company have been surrendered to the U.S. Shipping Board, and that the Board has allocated them temporarily to Moore & McCormack, the Roosevelt Steamship Co., and the United American Line, as joint managers, on behalf of the Board, under the name of the United States Line. Hickie, Borman, Grant & Co., London, Eng., have been appointed Genera Passenger Agents.

Australian Shipbuilding Costs. — The Commonwealth Government, about two years ago, authorized the building of several steel cargo steamships, with capacities varying from 5,604 to 6,170 d. w. tons. It is announced that building costs of thosec ompleted varied, the most expensive one costing $146.42 a ton. Of a further six, the costs varied from $142.67 to $145.15 a ton, another three, of 6,155 d.w. tons each, cost $140.95 a ton, and another five of the same tonnage, $145.80 a ton.

The Proposal to Dam Belle Isle Strait.

By W. Bell Dawson, D.Sc., M. Inst. C.E., Superintendent Tidal and Current Survey.

The Strait of Belle Isle, which connects the Gulf of St. Lawrence with the Atlantic, north of Newfoundland, is of much importance to navigation, because a great circle on the globe, from Lake Erie along the St. Lawrence valley and across the Atlantic to London, England, passes directly through this strait. It thus lies on the most direct line of navigation from Montreal and Quebec to Great Britain. The character of its currents and its ice conditions were therefore investigated as early as 1894, as soon as the Canadian Tidal and Current Survey was organized; and it is difficult to understand why the facts as thus brought to light have taken so many years to gain general recognition. Even earlier than this, in 1854, an official of the Newfoundland Government made an examination of the character of the currents there, and reported their behavior correctly; but this report was not published until it was embodied in the Tidal and Current Survey reports.

In regard to the project which is now being discussed for the damming of this strait, it may be stated in general terms that such a proposal is based on a misconception of the facts of the case. The current in the strait is tidal, and the flow is practically equal in the two directions. This was brought out by an examination of the conditions, made by the Tidal and Current Survey in 1894, and again in a more exhaustive manner in 1906, under the personal direction of the Superintendent of the Survey. The surveying steamship, provided with deep-sea anchorage, could be anchored at any point in the strait for several days at a time. It was equipped with current meters that registered electrically on board, by which a record of the speed and direction of the current was obtained continuously day and night. There were also appliances for the investigation of the under-current; and observations of the weather conditions were obtained, with an anemometer on the vessel and the usual meteorological instruments.

The strait has a width of 10 to 18 miles for 50 miles of its length, beyond which it widens rapidly in both directions. At its narrowest part the depth of water does not exceed 35 fathoms all the way across. It was found that the current under ordinary conditions turns regularly with the tide every six hours, in the usual way that tidal streams do. At times there is a greater flow in one direction than the other; and it is possible for this flow to become continuous for two or three days together, with only a variation in speed which accords with the rise and fall of the tide. But this more continuous flow may be either inward towards the Gulf or outward towards the Atlantic; and observations throughout the season from June to September showed that on the whole it is nearly equal; though there may possibly be some balance of flow in the course of the year in favor of the inward direction toward the Gulf of St. Lawrence.

A full description of the conditions is given in a report entitled "The Currents in Belle Isle Strait," published originally in 1895 by the Tidal and Current Survey, with a later edition in 1907 containing more detailed information. In this report there are diagrams showing the complete accord between the turn of the current when undisturbed, and the rise and fall of the tide as recorded by a registering tide gauge at Forteau Bay in the strait. The effect of the wind on the current is also fully discussed; as it may cause a superficial drift that differs from the regular inward and outward movement of the body of water which is maintained by the under-current. The water temperatures are also fully given, from the surface to the bottom, throughout the season.

It is evident from the conditions that are found in Belle Isle Strait, that there is no continuous inflow of cold water, from the Labrador current into the Gulf of St. Lawrence, which a dam across the strait would prevent. The real difficulty in the case is to account for the persistence of the idea that this continuous flow exists, when correct information was published 25 years ago in Canadian Government reports. This erroneous idea has at least been dispelled in shipping circles, as special pains have been taken to circulate correct information amongst navigators. A notice to mariners was issued at once, in Dec., 1895, when the true facts were ascertained; as it is clear that a mistaken view regarding the direction of the current in an important strait may lead to the miscalculation of position, if the weather should be foggy, and that a wreck might thus result.

The only explanation that can be offered, for the belief in a constant inward flow through this strait, is that it may have originated from the casual observation of the drift of ice. Many icebergs are carried southward by the general drift of the Labrador current, past the Atlantic end of Belle Isle Strait; and when the tide is rising, or at times when the current may be dominantly inward, some of the smaller icebergs drift into the strait. Most of these go aground eventually on the shores of the strait, or beyond its inner end, and break up; so that few of them return. The inward flow is thus made visible by the drift of ice, whereas the outward flow is not so. It is thus possible for a passing observer to be misled, if he does not spend any length of time in the strait. It is also true, in the early spring, that much ice may come into the strait from the northern regions, when the current itself is inward; whereas the outward current keeps the strait clear. This may add to the impression by making the inward current the more noticeable of the two.

It is to be hoped, however, that the actual conditions, so fully described in the report referred to, will be carefully studied by others than mariners, before any scheme involving a large expenditure is entered upon.

The Trans-European Co. Ltd. has been registered in London, Eng., with £150,000 authorized capital, to carry on business as merchant bankers, and to undertake financial and commercial operations. The company's chief object is to assist in the rehabilitation of trade, and the opening up of trade routes necessary for the resettlement of Europe. Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., is one of the provisional directors.

Canadian Pickfords Ltd. has been incorporated under the Dominion Companies Act, with authorized capital of $75,000 and office at Ottawa, to carry on business as travel organizer, tourist agent and contractor; agent and broker for transportation companies; agent for marine insurance and to act as agent in Canada for similar companies having their headquarters in Europe. The provisional directors are: J. R. Osborne, A. A. McGrory, R. J. Sims, and A. E. Thomas, Ottawa.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Brown Hoisting Machinery Co., Cleveland, Ohio, has issued a leaflet describing a clamshell bucket which it has added to its lines, and which is stated to be a powerful digger, and to have manganese steel digging edges, which can be easily replaced when worn. Bronze bushings are used throughout. The bucket is made in ¾ yd., 1 yd., 1½ yd., and 2 yd. sizes.

Diamond State Fibre Co., Toronto—T. J. McFadden, Ontario Representative, has completed a two months course in technical work at Toronto headquarters and is back on the road again. J. Alex. Regan, Quebec Representative, has been getting a few pointers in the technical departments at Toronto and Bridgeport during his holidays and has returned to his duties in Quebec.

Independent Pneumatic Tool Co., Chicago.—J. D. Hurley, President, has returned after a six weeks European trip.

Transportation Conventions in 1921.

The names of persons given below are those of the secretaries, unless otherwise mentioned:—

Oct. 3-6.—American Electric Railway Association, Atlantic City, N.J. E. B. Burritt, New York, N.Y.

Oct. 4-6.—Maintenance of Way Master Painters' Association, Buffalo N.Y.; E. E. Martin, Union Pacific Rd., Kansas City, Mo.

Oct. 18-20.—American Railway Bridge and Building Association, New York, N.Y.; C. A. Lichty, Chicago & North Western Ry., Austin Station, Chicago, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.— Capt. R. D. Simpson, Owen Sound, Ont.

Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.
Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.
Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.
Engineers' Club of Toronto—R. B. Webster, 84 King Street West, Toronto.
Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.
Express Traffic Association of Canada—C. N. Ham, Montreal.
Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.
Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.
International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.
Niagara Frontier Summer Rate Committee—James Morrison, Montreal.
Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.
Railway Association of Canada—C. P. Riddell, Montreal.
Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.
Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.
Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.
Allow five words where replies are to be sent to a box number. Minimum order—$1.
Rates under other headings and for display advertisements on application.

TANKS WILL NEVER BE CHEAPER

At our prices we should sell a tank every thirty minutes!
We sell all kinds and any kind of tanks and guarantee them.
New and used tanks in any part of the country.
Steel storage and pressure tanks
Steel and wood rectangular tanks
Steel and wood water and oil tanks
Steel and wood towers and tanks
Steel galvanized and special tanks
Steel jacketed and agitated tanks

Largest dealers in tanks

The Curtiss-Willis Co.
30 Church Street, New York

THE CURTISS-WILLIS CO., Inc.
No. 30 Church St., New York
Largest Dealers in
USED AND NEW TANKS
Send for our new tank list. MOST COMPLETE EVER ISSUED.

For Sale

"We are now prepared and glad to furnish Stucki Side Bearings per Canadian Patents Nos. 187019 and 170780 upon request. Please call—The Holden Co., Ltd., Montreal, Canada."

CANADIAN NATIONAL RAILWAYS.

GRAND TRUNK PACIFIC RAILWAY COMPANY

FOR LEASE

SHIPBUILDING YARD AND DRY DOCK.

The undersigned will receive applications for a lease for a term of years of the Dry Dock and Shipbuilding Yard property of the Grand Trunk Pacific Railway Company at Prince Rupert, B.C., the property comprising:—

1. Water front lots and wharves extending to an area of approximately 30 acres, together with water lots containing an area of over 60 acres.
2. All buildings, plant, shipbuilding plant, tracks and fixtures, fixed machinery and equipment thereon, according to Inventory, including Locomotive Crane, Coal Digging Tower, 50 Ton Shearleg Derrick, Power House equipped with 6 400 H.P. Boilers with automatic stokers, 2 1-000 K. W. Turbo Generators, Air Compressor, Coal and Ash Hoists, and Overhead Travelling Crane; Machine Shop, Blacksmith Shop, Foundry, and Ship Shed, with equipment.
3. 20,000 Ton Floating Dry Dock in three independent sections equipped with air compressors.
4. Docks, wharves, piers, landing stages, etc.

The property is equipped with extensive trackage facilities, sewage system, steam, water and air lines.

The property will be available for lease commencing 1st November, 1921.

Plans of property may be seen and full particulars obtained at the office of the undersigned, or at the office of J. H. Pillsbury, Inspecting Engineer, G.T.P. Railway, Prince Rupert. Conditions of lease and other information required will be furnished to responsible parties on application therefor to the undersigned.

R. M. MITCHELL,
Right of Way and Property Commissioner,
No. 9 Toronto Street, Toronto.

CANADIAN NATIONAL RAILWAYS.

CANADIAN GOVERNMENT RAILWAYS.

EASTERN LINES

SEALED TENDERS, addressed to A. F. Stewart, Chief Engineer, Moncton, N.B., and marked on the outside, "Tender for Ice House," will be received up to 12 o'clock noon, Thursday, October 6th, 1921, for the construction of an extension to Ice House at Chaudiere Junction, P.Q.

Plans, Specifications and blank form of contract may be seen at the following offices:

Chief Engineer, Moncton, N.B.
District Engineer, Quebec, P.Q.
Division Engineer, Tunnel Station, Montreal, P.Q.

All the conditions of the specification and contract must be complied with. Tenders must be put in on the blank form of tender, which may be obtained from any of the offices at which the plans are on exhibition.

Each tender must be accompanied by an accepted bank cheque, payable to the Canadian National Railways for an amount equal to ten per cent. of the tender.

Lowest or any tender not necessarily accepted.

W. A. KINGSLAND,
General Manager,
Eastern Lines.

Dated at Moncton, N.B., September 17th, 1921.

The Canadian Bridge Co., Limited
Walkerville, Ontario

Locomotive Turntables Roofs Steel Buildings

Manufacturers of
Railway and Highway
BRIDGES
Montreal Office in New Birks Building

Structural Iron Work of all Descriptions

The Imperial Guarantee and Accident Insurance Co. of Canada
Imperial Protection. Accident and Sickness Insurance. Guarantee Bonds.
Plate Glass and Automobile Insurance. Automobile Fire Insurance
A Strong Canadian Company
Head Office, 20 Victoria St., Toronto, Ont.
Branch Offices:
Montreal, Que., Canada Life Bldg. Winnipeg, Man., Merchants Bank Bldg. Calgary, Alta., Canada Life Bldg. Vancouver, B.C., 530 Seymour

Engineers and Contractors

The Strauss Bascule Bridge Co.

Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

VIVIAN T. BARTRAM

Railroad and Harbour Works

Head Office

Bank of Toronto Bldg. TORONTO

ANGUS SINCLAIR, C. E.

Railway Contractor

OFFICE: EXCELSIOR LIFE BUILDING, Adelaide and Toronto Sts, Toronto

THE ARNOLD COMPANY

ENGINEERS--CONSTRUCTORS.
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—Electrification of Steam Railroads.
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Manufacturer of

Diving Apparatus

For Sale or Hire

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13-15 Concord St., Montreal.

ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.

Robert W. Hunt & Co., Limited

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Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.

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Branches: TORONTO VANCOUVER LONDON, ENGLAND

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To R.S.A. Specification
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LAMPS

MARINE
To B. of T. Requirements
Catalogue No. 24

THE HIRAM L. PIPER COMPANY, Limited
Montreal, P.Q.

Third Rail Terminal, Showing Method of Attaching to Rail.

STANDARD

Cable Accessories

include a complete line of Outdoor (Type D.O.A.) and Indoor (Type D.S.) Cable Terminals, Cable Junction Boxes, "Ozite" Insulating Compounds, etc.

These have been developed during 39 years' experience in the manufacture and installation of Electric Wires and Cables.

Our experience is at your service.

Standard Underground Cable Co. of Canada, Limited

Branch Offices and Warehouses:
Montreal, Toronto, Winnipeg Seattle.
General Offices and Works: Hamilton, Ont.

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Offices throughout the Civilized World.

Executive Offices:
NOS. 346 and 348 BROADWAY,
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Subscriptions are based on the service furnished and are available only by reputable wholesale jobbing, and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. Correspondence invited.

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Halifax, N.S.; Hamilton, Ont.; London, Ont.; Montreal, Que.; Ottawa, Ont.; Quebec, Que.; St. John, N.B.; Toronto, Ont.; Vancouver, B.C.; Calgary, Alta.; Edmonton, Alta.; Winnipeg, Man.; Victoria, B.C., and St. John's, Nfld.

JOHN A. THOMPSON,
Gen. Man. Western Canada, Toronto.

The BERTRAM Page

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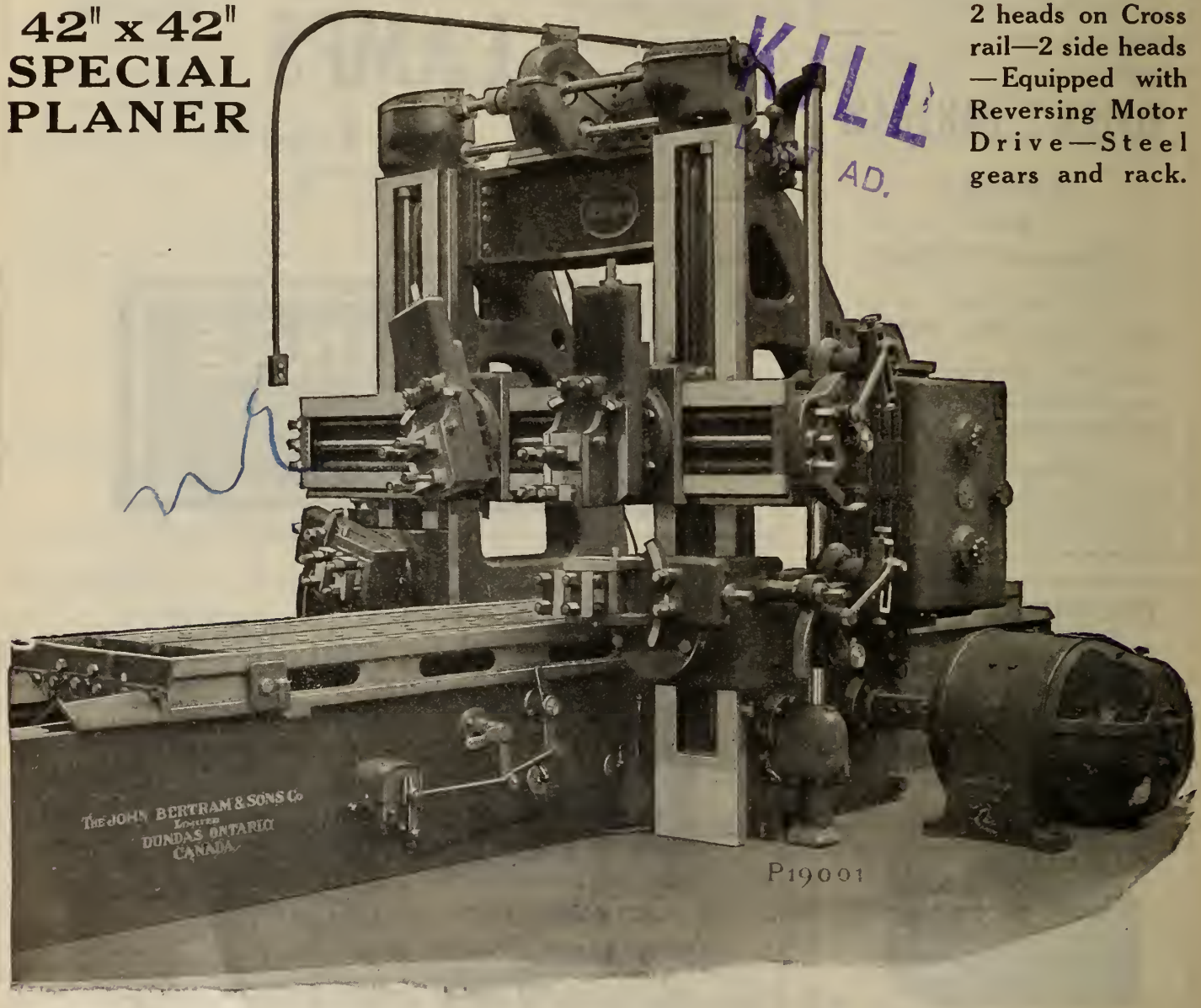
42" x 42" SPECIAL PLANER

2 heads on Cross rail—2 side heads—Equipped with Reversing Motor Drive—Steel gears and rack.



The John Bertram & Sons Co., Limited

DUNDAS. ONTARIO. CANADA.

MONTREAL	TORONTO	VANCOUVER	WALKERVILLE	WINNIPEG	HALIFAX
723 Drummond Bldg.	1002 C.P.R. Bldg.	609 Bank of Ottawa Bldg.	103½ Sandwich St.	1205 McArthur Bldg.	Roy Building

performance on the job COUNTS

5200 Pounds Up Grade

This Fairmont engine is owned by Elie Dandelin operating on the Central Vermont R. R. The lumber weighs 4100 pounds; besides the lumber, tools and men there are other materials weighing 1100 pounds.

Mr. Dandelin advises that he has used his Fairmont steadily for eighteen months—traveling 5240 miles without spending one cent for repairs.

Fairmont extra power, long life, low up-keep and economy has proven itself a wonderful help towards maintenance efficiency and economy on nearly every railway system in America.

We have some valuable maintenance information for you. Send for it.

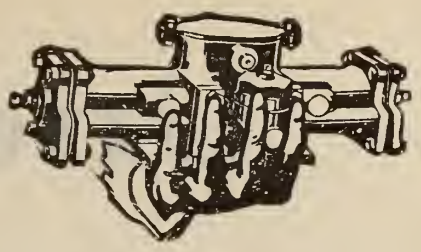
Fairmont Gas Engine and Railway Motor Car Co.

Dept. D-10 Fairmont, Minnesota.

Canadian Representative

WM. A. GOOLD 39 Charlotte St., Winnipeg, Canada

Fairmont Ball Bearing Motors



BETTER SERVICE

"Better Service" in electric railway operation means more cars, shorter headways and shorter running time.

You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door* and *Step Control,* which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control,* which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

National Pneumatic Company

Originators and Manufacturers of

National Pneumatic
Door and Step Control
National Pneumatic
Motorman's Signal Lights
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Safety Interlocking Door Control
National Pneumatic
Door and Step Operating Mechanism
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Make your peak periods produce maximum profit and efficiency

National Pneumatic Co., Inc.

50 Church St., New York Edison Bldg., Chicago
Works: Rahway, N.J.

Manufactured in Canada by Dominion Wheel & Foundries, Ltd., Toronto, Ont.

Unemployment —and the

The indicator of true prosperity is Employment. The presence of unemployed men, unemployed machinery, unemployed railway equipment, and unemployed capital in Canada is reason enough, therefore, for every large Canadian business interest to study its relation to the general problem—to see whether anything in its power remains to be done to advance the general prosperity of the country.

In this connection the railway companies have been specially interested. Freight Rates touch everyone, and, because they touch everyone, are always close to the public consciousness and more conveniently attacked than the true causes of depression which are less easily discerned and more difficult, if not indeed impossible, to control.

Furthermore, the railways while joining with everyone else in the general agitation for deflation of prices and wages—found themselves recently in the seemingly anomalous position of demurring when it was proposed to lower railway rates. They were made to appear as though they were endeavoring with one hand to put wages down and with the other hand to keep rates up, thereby securing for their own treasuries instead of passing on to the Canadian public, any saving effected on the wage rolls. They were placed in the equivocal position of having urged blanket increases of rates when wages went up—and of opposing blanket **decreases** when wages were seemingly decreased.

The following statement is offered, therefore, with a view to exhibiting what the railways believe to be the true relation of railway freight rates to the question of unemployment, outlining the history of Canadian rates, explaining something of the groundwork of ratemaking and clearing up the seeming anomalies referred to, so that none may remain as possible causes for future weakening of confidence between the public and the carriers.

I. Freight Rates and Unemployment:

With a large part of the world's population, idle, or only partially efficient owing to wars or disturbed political conditions—with inventors in many parts of the world almost afraid to expose their inventions, organizers afraid to organize, capital hesitating to invest—a corresponding proportion of world production is missing. The total of goods available for the world is less than normal. Those who do not produce—speaking generally — cannot buy! Few purchasers—few sales; few sales—little employment. This is the great world-wide fundamental of the unemployment situation.

The condition is international, not local to Canada. If Canadian railway rates were a determining factor in making the sale price of our export goods, in other words if Canadian prices were higher in international markets than the goods of our competitors, then railway rates would be contributing to unemployment in Canada by depressing our sales abroad, lowering the number of our customers, and the orders coming to our producers.

But in the first place the real effect of freight rates on price making is a debatable point. This is proven

(1) by the fact that prices fell last fall after the rates were increased instead of rising as the retail trades had prophesied;

(2) by the fact that a 10% reduction on western coal rates, offered in order to stimulate coal movement in the summer months, was followed by a drop in the coal tonnage offering instead of an increase.

In the second place, assuming for the purposes of argument they did have serious effect, Canadian export rates are lower and not higher than the rates in countries with which Canada may be compared. Mile for mile the haul from western Canadian points to the head of navigation is cheaper than in the United States. The export rate on grain is lower than it was last August.

In other words, in international competition on her chief items of export, Canada is helped by her railway rates. So far as international trade is concerned, they are alleviating unemployment rather than aggravating it!

Inside Canada the same is true. Although it is a very difficult point to prove or disprove, the railways of Canada are sincere in claiming that, by and large, goods are carried more cheaply in Canada than in the United States. Canada had one blanket reduction of 5% last January, whereas there is still no decrease, nor immediate prospect of a blanket decrease in the United States!

II. The Trend of Freight Rates:

With the exception of war and post-war conditions—the whole tendency of freight rates in this country, as in any other progressive country of its kind, is downward. As Canada's population rises, as our industries multiply and the density of traffic becomes more nearly like that of older countries, some of the principal costs of railway service can be subdivided among a greater number of shippers and travellers, levying on each, therefore, a smaller fraction of these costs than before. For twenty years prior to the war, traffic was on the increase. For twenty years, therefore, the railways have been adjusting rates downward—quite apart from special decreases put into effect by the Board of Railway Commissioners. These revisions have been skillfully applied by experienced, practical economists—that is, by the Freight Traffic experts of the railways, whose business it is to know all branches of industry intimately, so that the benefit of these voluntary rate adjustments would go to "key commodities," thus stimulating further growth of the country, increase in traffic and in the end, further reductions of rates. The difference between giving a reduction to a "key industry" rather than spreading over all kinds of goods is illustrated in the case of a certain small railway which by con-

The **RAILWAY ASS**

263 St. James Street,

—Freight Rates Railways

centrating rate reductions on lumber, enabled the mills of that region to remain open and the people to remain at work, whereas if the effect of the reductions had been scattered over all the goods carried by that road each family would have been able to save a small handful of silver in a year (provided the decreased rates had been passed on as decreased prices by storekeepers)—but there would have been almost **no** employment!

So much for the day to day reductions arranged on thousands of articles by the Traffic Departments of the roads. In 1907 a substantial reduction in Eastern rates was made. In 1914 a very material cut was applied in the West. So that the transcontinental lines entered the war period with a depressed earning power.

Now while all—even the railways—see the desirability for low freight rates, there are certain limits beyond which no one urges reductions. Of course there are theorists such as Mr. Bernard Shaw, who believed that all railway service should be free. But leaving aside views so far in advance, as yet, of public opinion, it is assumed by most people that a railway will give best service at least cost—because, of course, even free railways must be paid for by the taxpayer—when their managements are allowed to show their mettle by meeting the obligations of their properties out of their earnings. It is usually recognized that these obligations fall into two groups:

Group I.—To pay their employees; to pay for current supplies of materials such as coal, etc.; to pay for repairs and replacements.

Group II.—To pay such a wage or hire for the use of the capital which built these railways as will make Canadian railway securities always desirable, and easily marketed whether as bonds or stocks. This involves more than the mere payment of the established rate of dividend in the case of privately owned roads. It involves the earning also of some surplus—a safety margin of income over expenditure, which will assure investors of complete safety. This principle of a surplus was definitely established by the judgment of the Board of Railway Commissioners in 1914, under the chairmanship of Sir Henry Drayton—and upheld by its judgment of 1920, when the matter was again considered exhaustively. On this principle rests Canada's ability to enter the money markets wherever she may need and feel confident of bringing back funds for extending her railways as she may require in the future.

War conditions, following the Western and Eastern rate adjustments, brought the railway managements sharply up against these fundamental problems. Comparing the Government's figures for 1907 against 1919—the last year for which the Railway Blue Book is available—the wage bill of the railways rose 306%! Coal 345%! Ties 320%! But neither the volume of traffic nor the scale of freight rates increased in comparable degree during that period! The actual revenue per ton per mile (which is the real proof or disproof of the matter) advanced only 20% over 1907. The year 1920 enlarged the discrepancy, although an increase of 35% on Western lines and 40% in the East was supposed to yield enough additional revenue to meet the increased wages. The increased wages were effective from May 1st—the increased rates not until September 1. The effectiveness of that increase depended on the volume of traffic remaining at a fairly high level. It did so for a time, then began to drop. Today it is very low. Nevertheless, a 5% decrease was applied in January. **For the first 6 months of 1921 as compared to the first 6 months of 1920 the volume of traffic on the most fortunately situated Canadian road fell 26.72%! And its revenue on this business, in spite of the higher rates, fell 11.14%!**

The net result of these changes has been a state of emergency in the offices of even the most fortunately situated of all Canadian roads. Wages could be paid and bills met on time. Even the usual dividend was paid and a very slight surplus—one of the factors in maintaining the reputation of Canadian railway securities, was earned! But this was only done by deferring work that must ultimately be done on current account. Such economies cannot long be continued without eating too far into the broad safety margin which the Canadian roads maintain! Nothing but slackened speed of trains and reduced Canadian industrial efficiency can result if these savings have to be long continued. Falling traffic still further aggravates the condition. Maintenance cannot continue to be sacrificed to protect the credit of our railway securities! Neither can be neglected!

In May the managements approached the task of reducing their wage bills. For the first time in many years it was the managements and not the men who were taking the initiative. They had been forced to adopt the war-time increases granted in the United States—where 92% of the membership of the railway unions lie. Therefore when the reverse movement was undertaken in that country the Canadian roads at once gave due notice and a provisional and conditional decrease of roughly 10%—corresponding to the same movement in the United States— was put in effect, tentatively, as from July 15th. This reduction has not been accepted by the United States membership of the unions, where a vote is being taken on the question—nor by the Canadian membership, who have applied for a Board of Conciliation. Every resource of the managements will be used to sustain this imperatively necessary and only too moderate reduction of their wage bills—which account for 60% of the cost of operation—they are compelled to regard the matter as still unsettled and therefore not to be considered as a basis for the reduction of railway rates—a view which a majority of the Board of Railway Commissioners has just expressed in its judgment.

III. In Conclusion:

The railway managements welcome deflation of railway rates and are working steadily toward that end. On two grounds, however, they asked that any general decrease be deferred:

First.—Because the so-called wage decreases are not yet assured and cannot be until the parallel decreases in the United States, where 92% of the union membership lies (and where no general freight rate reductions have been ordered), are settled.

Second.—Because the volume of traffic in the immediate future is problematical and any serious decline, if coupled with a decrease in rates, would have very grave effect on even the most favorably situated managements.

The railways have spoken against blanket decreases on the grounds that it would be in the interests of the country as a whole to concentrate any beneficial effect to be expected, on "key commodities" rather than distribute them over all classes of goods, thereby benefitting only the distributors.

They have been actuated throughout by the desire to assist in the process of deflation—objecting only when that process might seem to threaten their solvency and injure them—and through them—the ultimate interests of the Canadian public.

OCIATION *of Canada*
Montreal, P.Q.

TORONTO DRY DOCK COMPANY

Harry J. Dixon, *Manager*

Docking, Rebuilding and Repairing Steamers, Dredges, Tugs and Scows of either steel or wooden construction.

Floating Dry Dock

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CONTRACTOR FOR HARBOR IMPROVEMENTS,
SALVAGE, TOWING AND
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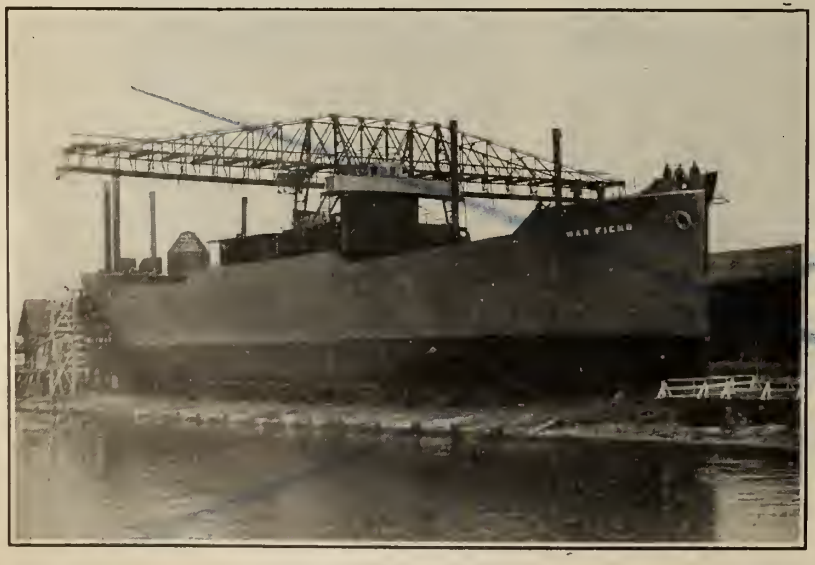
Tugs, Lighters, Divers, Diving Gear and Steam Pumps
at all times available.



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Builders of STEEL SHIPS,
SCOWS and DREDGES

Plant is equipped with the latest appliances. Special attention is given to repairs and alterations.

Canadian Gold Car Heating & Lighting Company, Limited
ECONOMICAL—SYSTEMS OF MERIT—WILL NOT FREEZE
Vapor Systems, Pressure Systems, Vapor and Pressure Systems, Hot Water Systems, Electric Systems
Automatic Heat Control for all Systems—Ventilators
346 ST. JAMES STREET MONTREAL, CANADA

DOMINION TOWING & WRECKING CO., LIMITED
Tug Strathmore
" Strathbell
Harbour Tug Service
Lighter Strathbuoy—Capacity, 700 tons.
Equipped for all kinds of Towing, Wrecking, Etc.
Sand and Gravel supplied for Concrete Work, Rock and Soil Filling for Cribwork.
Dock Telephone, South 184: Head Office, South 2383. JOHN BELL, General Manager, 509 Grain Exchange, Fort William, Ont.

DEPARTMENT OF RAILWAYS AND CANALS, CANADA.

WELLAND SHIP CANAL
Sections 3 and 4 Combined.

NOTICE TO CONTRACTORS.

SEALED tenders addressed to the undersigned and marked "Tender for Sections 3 and 4 Combined, Welland Ship Canal," will be received at this office until 12 o'clock noon, on Wednesday, October 5th, 1921.

Plans, specifications and form of contract to be entered into can be seen on or after this date at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, and at the office of the Engineer in Charge, Welland Ship Canal, St. Catharines, Ontario.

Copies of plans and specifications may be obtained from the Department on the payment of the sum of fifty dollars. To bona fide tenderers this amount will be refunded upon the return of the above in good condition.

An accepted bank cheque on a chartered bank of Canada for the sum of $1,150,000, made payable to the order of the Minister of Railways and Canals, must accompany each tender, $800,000 of which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted.

The cheque thus sent in will be returned to the respective contractors whose tenders are not accepted.

The cheque of the successful tenderer will be held as security, or part security, for the due fulfilment of the contract to be entered into and for the initial payment of $350,000 on plant and stores.

The lowest or any tender not necessarily accepted.

By order,

J. W. PUGSLEY,
Secretary.

Department of Railways and Canals,
Ottawa, September, 1921.

IMPERIAL BANK OF CANADA

Capital Authorized.....$10,000,000
Capital Paid Up..... 7,000,000
Reserve Fund..... 7,500,000
Head Office: Toronto.
Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.
Sterling and New York Exchange bought and sold.
Savings Department: Interest allowed on deposits at best current rates.
Branches throughout the Dominion of Canada.

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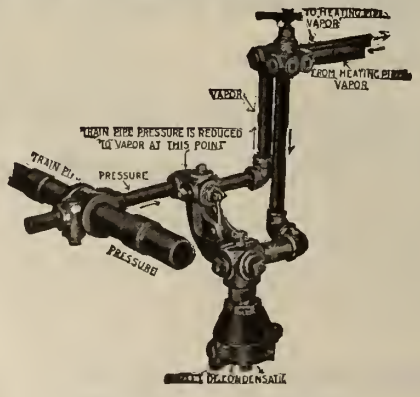

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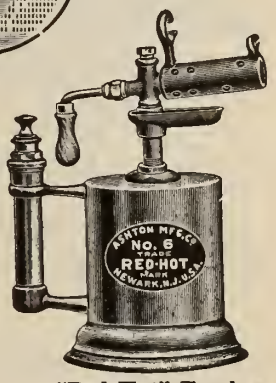

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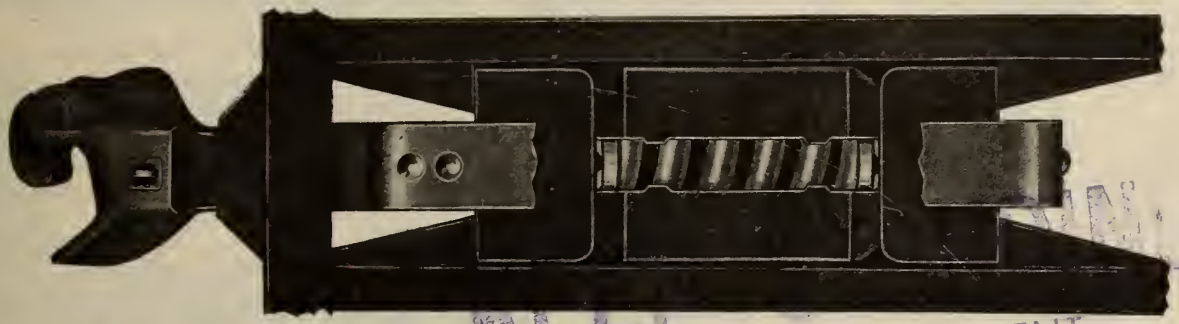

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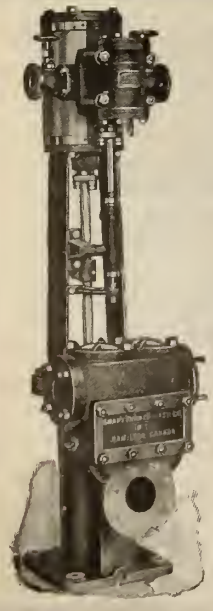

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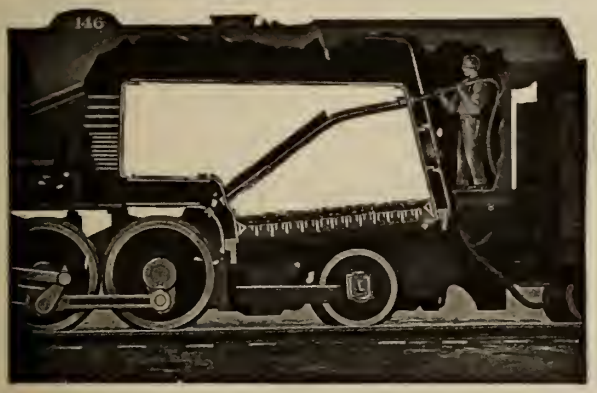

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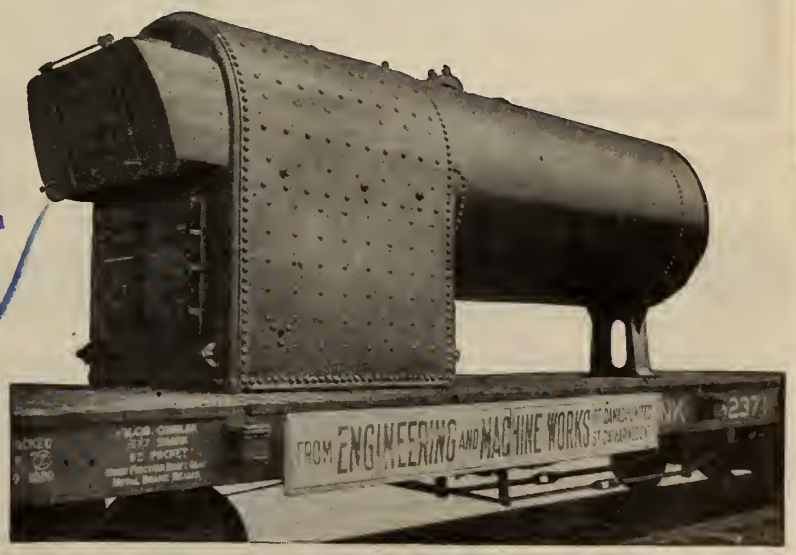

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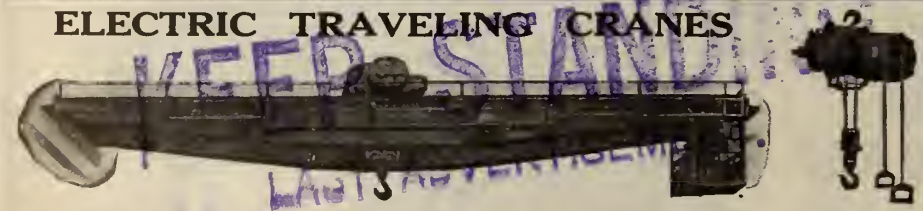

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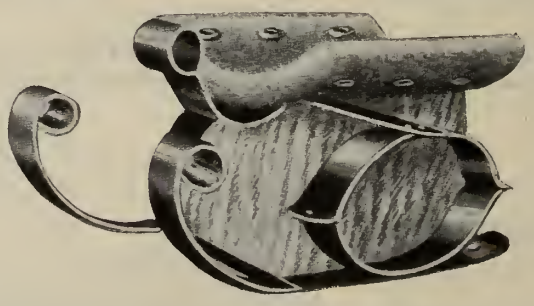

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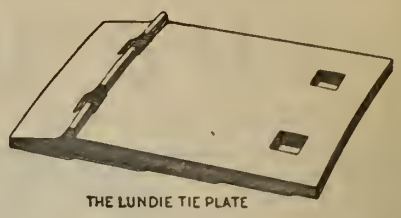

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Come and visit our new showrooms at 235 Carlaw Avenue, Toronto, or write us for fuller particulars regarding the different forms of Diamond F. Track Insulation.

Diamond State Fibre Company
of Canada, Limited.
Head Office and Works
235 Carlaw Ave, Toronto, Canada

Alphabetical List of Advertisers

A

Algoma Steel Corporation 52
American Steel Foundries 2
Arnold Co. 43
*Associated Business Papers Inc. —
*Association of Manufacturers of Chilled Car Wheels 21

B

Babcock & Wilcox 55
Barrett Co. 20
Bartram, V. T. 43
Berry Bros. 50
Bertram, John, & Sons Co. 44
Bowser, S. F., Co. 30
Bradstreet Company 43
British Empire Steel Corp. 22
Brown Hoisting Machinery Co... 3
Brydges, Ltd. 60
Buffalo Brake Beam Co. 28
Butterfield & Co. 50

C

Canada Foundries & Forgings Ltd. 43
Canada Grip Nut Co. ..... —
Canada Iron Foundries, Ltd. 51
Canada Machinery Corporation .. 26
Canada Steamship Lines, Ltd. 27
Canadian Bridge Co. 56
Canadian Bronze Co. 58
Canadian Car & Foundry Co. ..... —
Canadian Clothel Refrigerating Co. Ltd. 36
Canadian Consolidated Rubber Co. 10
Canadian Fairbanks-Morse Co. .. 40
Canadian General Electric Co..... 12
Canadian Gold Car Heating and Lighting Co. 49
Canadian Government Merchant Marine, Ltd. 9
Canadian Johns-Manville Co. 50
Canadian National Carbon Co. 53
Canadian National Railways 62
Canadian Pacific Railway 58
Canadian Railway and Marine World . . ..16 and 67
Canadian Ramapo Iron Works Ltd. 52
Canadian Steel Foundries, Ltd..... 11
Canadian Vickers, Ltd. 56
Canadian Westinghouse Co. 37
Carr, C. E. A., Co. 55
Carter White Lead Co. 59
*Chase, L. C., & Co. 37
Coghlin, B. J., Co. 54
Collingwood Shipbuilding Co. 29
Commercial Acetylene Supply Co. 26
Consolidated Steel Corp. 6
Corbet Foundry & Machine Co... 56
Crane Limited 23
Curtiss-Willis Co. 56

D

Date, John 43
Dearborn Chemical Co. of Canada 5
Diamond Saw & Stamping Works 60
Diamond State Fibre Co. of Canada 65
Dominion Brakeshoe Co. 56
Dominion Bridge Co. 32
Dominion Oxygen Co. 18
Dominion Steel Products Co. 38
Dominion Towing & Wrecking Co. 49
Dominion Wire Rope Co. 24
Duner Co. 58

E

Engineering & Machine Works of Canada 57

F

Fairmont Gas Engine & Railway Motor Car Co. 45
Flannery Bolt Co. 25
Franklin Railway Supply Co. of Canada 33

G

Galena Signal Oil Co. .....1 and 19
Galt Malleable Iron Co. 62
Gartshore, J. J. 62
General Railway Signal Co. of Canada 62
General Supply Co. of Canada.. 67
Grand Trunk Railway 33
Griffin & Brinkerhoff 58

H

Hamilton Bridge Works Ltd..... 51
Hart-Otis Car Co. 24
Holden Co. 31
Hopkins, F. H., & Co. 24
Hoyt Metal Co. 59
Hunt, Robert W., & Co. 43
Hunt-Spiller Mfg. Corporation.... 28

I

Imperial Bank of Canada 45
*Imp. Guar. & Accident Ins. Co. 56
Inglis, John, Co. 34
International Correspondence Schools 49
International Machinery & Supply Co. 35

J

Joliette Castings & Forgings Ltd. 53

K

Kennedy, The William, & Sons, Ltd. 2
Krauser, Webb. G. 7

L

Lewis, Rice, & Son 33
Lincoln Electric Co. 15
Lundie Engineering Corporation 62
*Luther Grinder Mfg. Co. ..... —

M

McAvity, T., & Sons 39
Marconi Wireless Telegraph Co. 55
Midland Shipbuilding Co. 48
Miller, F. W., Heating Co. 62
Miller, Roger, & Son 59
Miner, W. H. 64
Montreal Locomotive Works, Ltd. 27

N

National Lock Washer Co. 14
National Pneumatic Co. 45
Nichols, G. P., & Bro. 58
Nicholson File Co. .....Cover 4
Northern Crane Works Ltd. 58
Northern Electric Co. 4
Norton, A. O., Ltd. 32

O

Ohio Brass Co. 13
Orton & Steinbrenner Co. 51

P

Page-Hersey Tubes, Ltd. 31
Peacock Bros. 17
Pedlar People, Ltd. 36
Piper, The Hiram L., Co. 43
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 38

R

Railway Association of Canada 46 and 47
Rail Joint Co. of Canada 54
Railway & Power Engineering Corp. 40
Reid Newfoundland Co. 29
Russell, J. E. 48

S

Safety Car Htg. & Ltg. Co..... 48
Sinclair, Angus 43
Slater, N., Co. 41
Smart-Turner Machine Co. 54
Standard Car Truck Co. 56
Standard Underground Cable Co. of Canada 43
Star Brass Works 35
Steel Co. of Canada 8
Strauss Bascule Bridge Co. 43
Superheater Co. 59
Symington Co., The T. H. 25

T

Taylor & Arnold Engineering Co. 30
Toronto Drydock Co. 48
Tuco Products Corporation 57
Turnbull, Harvard, & Co. 41

U

Union Draft Gear Co. 7
Universal Draft Gear Attachment Co. 7
Universal Lubricating Co. 57

V

Vapor Car Heating Co. of Canada 52

Y

*Yarrows Ltd. ..... —

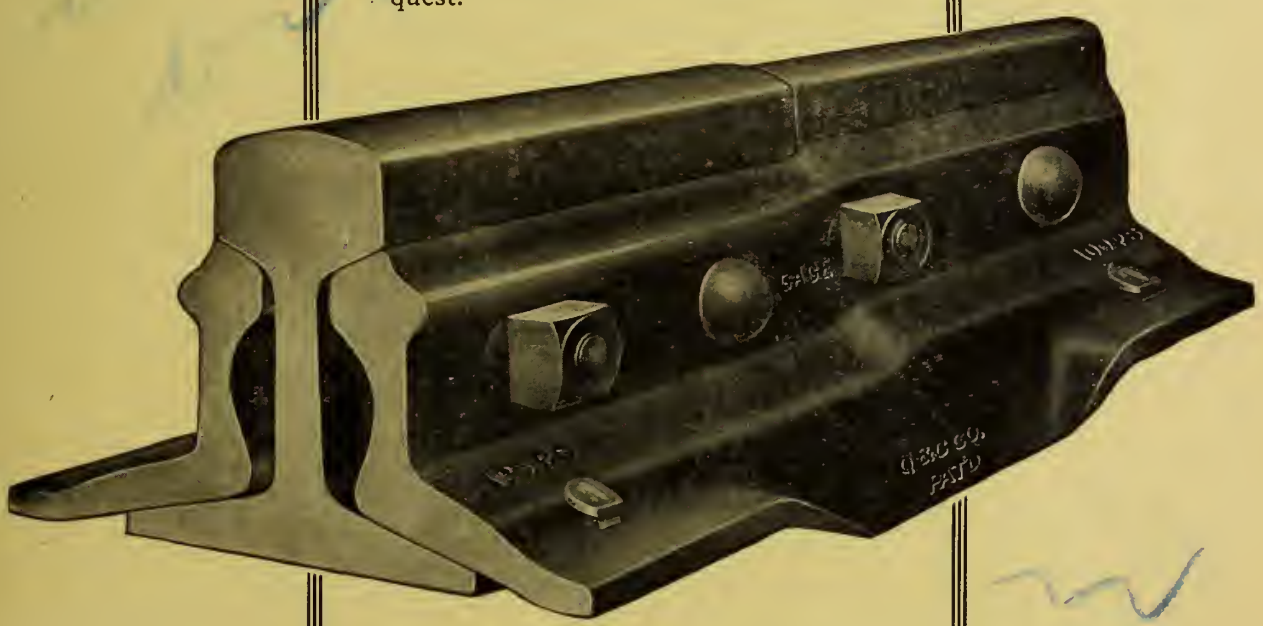
*Alternate months.

The Q&C Rolled Steel Step Joint

If our joint is as good as we believe it is, or as good as our patrons tell us, that is because we have not once swerved from the purpose with which we started — to build the strongest, most economical compromise joint possible, putting into its structure, without thought of cost, all that honest metal could give and devoted workmanship could avail. Years of continuous service under varied conditions surely attest the value of our joint on the various roads throughout the country. There is no comparison between the Q & C Rolled Steel Step Joint and a cast metal step joint. The reasons are obvious.

Q & C Rolled Steel Step Joints can be furnished to join any standard sections of "T" rail made.

When you buy, specify Q & C Rolled Steel Step Joints. Our service department will be glad to furnish any blue prints or literature on request.



The General Supply Co.,
of Canada, Ltd.

MONTREAL 356-360 Sparks St. WINNIPEG
TORONTO OTTAWA VANCOUVER

IT pays to keep a close watch on files.

As soon as a file has lost its original keenness, that file should be discarded at once.

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Kearney & Foot - Great Western
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Made in Canada by:
NICHOLSON FILE COMPANY
Port Hope - Ontario

Canadian Railway AND Marine World

285

ESTABLISHED 1898.

Number XII.
Index to contents, 587.

TORONTO, CANADA, NOVEMBER, 1921

Single copies 25c.
Subscription $2 a year

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Coghlin Springs are a purely Canadian product and have been made and supplied by us since 1869.

This record of fifty-two years continual production for the most exacting service conceivable is ample proof of Coghlin quality.

Our knowledge and unusual experience enables us to provide each class of Spring with the particular character of steel and degree of temper best suited to the purpose for which they were designed; and strict attention to every detail in the manufacture insures the uniformly high quality for which Coghlin Springs are so famous.

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Steam Railway and General, Page 567. Electric Railways, Page 599. Marine and Shipbuilding, Page 609.

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ECONOMY CAST STEEL DRAFT ARMS

Application of Economy Cast Steel Draft Arms will keep cars off repair tracks.

The value of the Economy Cast Steel Draft Arm is emphasized by the fact that there are over 625,000 in service.

Application of Economy Cast Steel Draft Arms increases the revenue.

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KENNEDY PROPELLER WHEELS

Cut Shows Propeller 17 Ft. 6 Inches in Diameter, Weight 10 Tons. All Sizes, Sectional or Solid Iron, Semi-Steel or Steel.

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Steel Castings, All Sizes

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THE WM. KENNEDY & SONS, LIMITED : OWEN SOUND

ESTABLISHED 1860

Making good on many jobs for us

"We originally bought a Brownhoist crane because we believed in its superior qualities, and we have not been disappointed," writes the Trumbull Public Service Corp., of Warren, Ohio. In fact, they are so well pleased with their investment that after three years' service, they recently bought another Brownhoist to take care of the increased capacity of their plant.

This crane is only one of thousands of Brownhoists which are making good on many jobs for their owners. Catalog K shows some of these cranes at work. We will be glad to send you a copy of this book.

The Brown Hoisting Machinery Co. - Cleveland, Ohio.

Branch Offices, New York, Pittsburgh, Chicago, San Francisco and New Orleans.

BROWNHOIST

DEDICATED TO QUALITY SINCE 1880

The Merits of Dearborn Treatment

Are demonstrated in actual dollars saved to the railways in locomotive operation.

Boiler washing expense is reduced, and corresponding locomotive hours saved by the increase in mileage between boiler washings, accomplished by the use of Dearborn Treatment. There is a large saving in fuel, due to heating surfaces being free from scale, and fuel is saved also by reducing the amount of water blown out, both benefits which follow the use of Dearborn.

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of Canada, Limited
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25 Broadway, New York, U. S. A.

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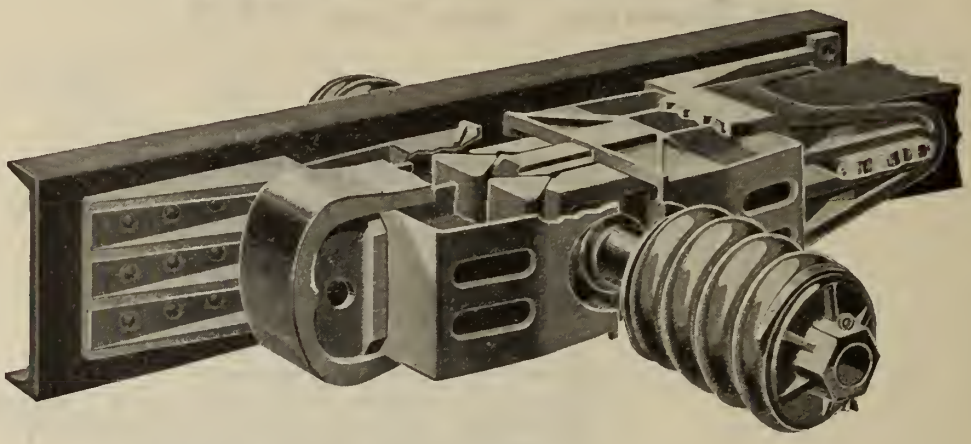

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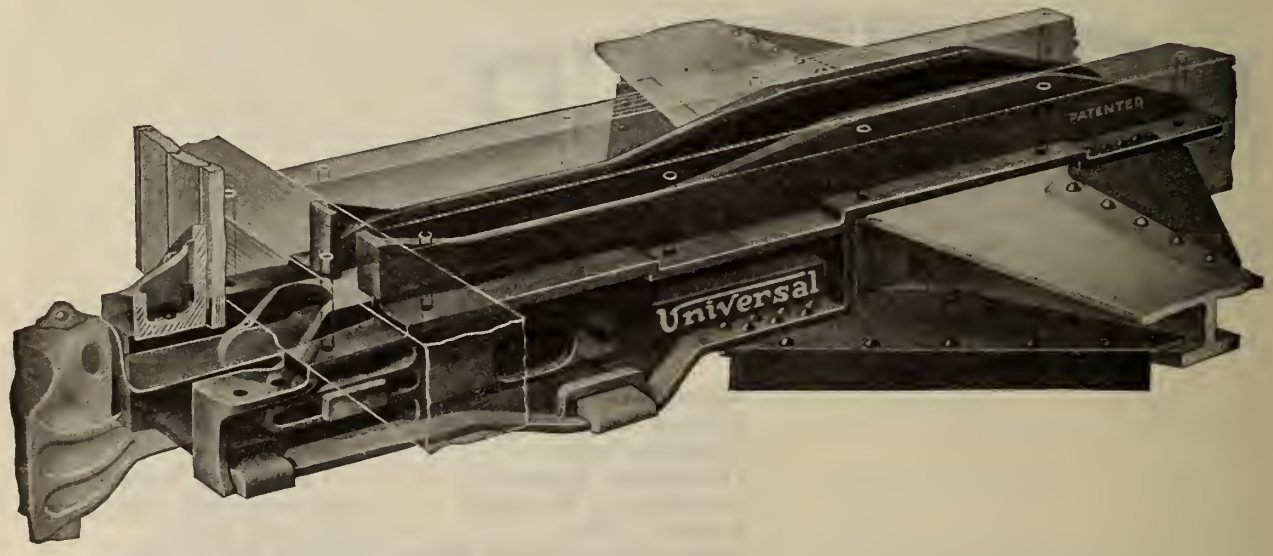

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HAMILTON MONTREAL

66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

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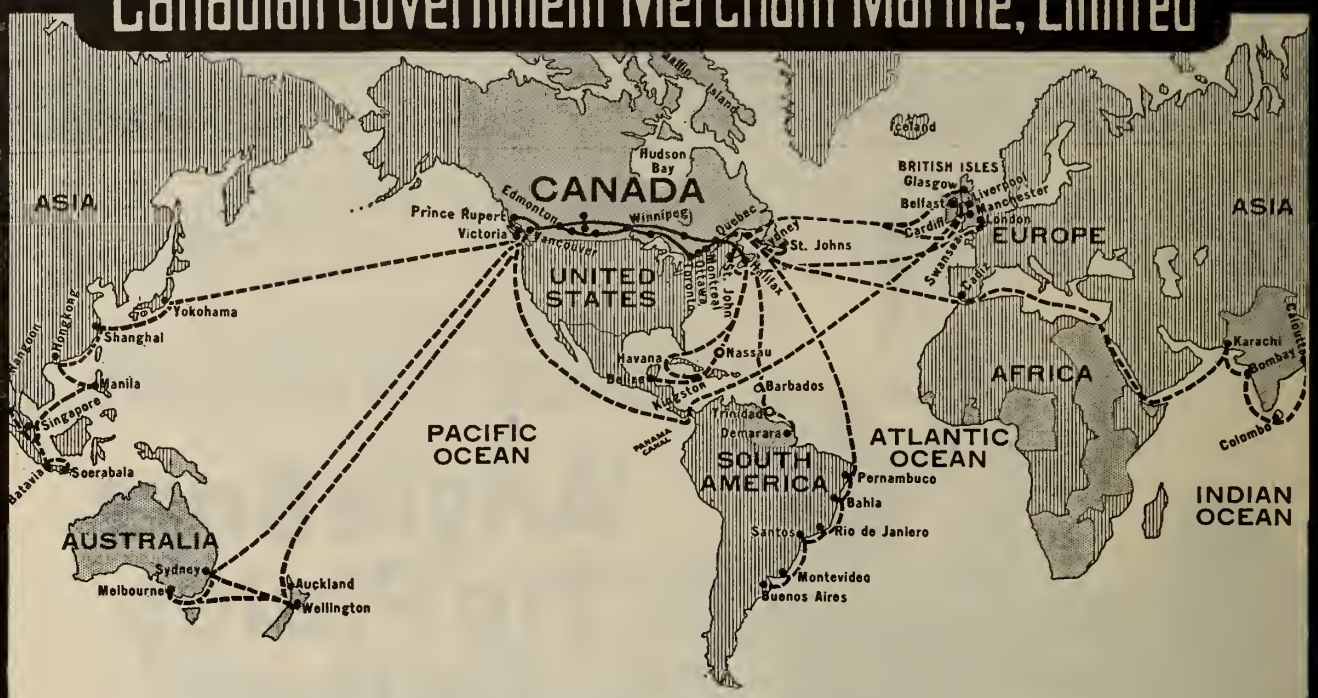

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Superior First Class Accommodation. Excellent Cuisine.

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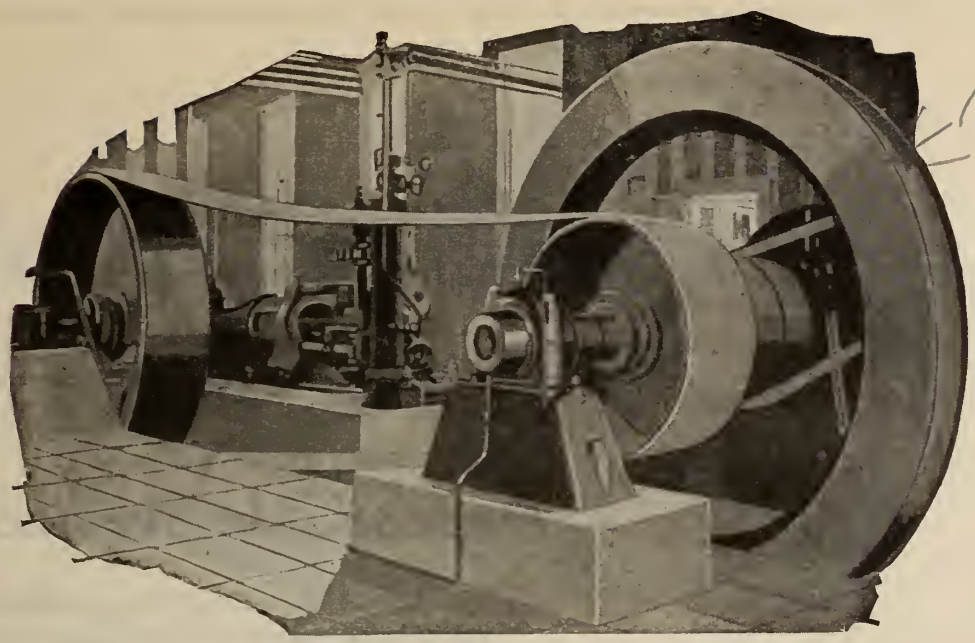
Canadian National Railways



Transmission Insurance

Are your drives insured against belt unreliability? Power economy in machine shops and power plants is gained only by transmission efficiency. The highest efficiency is reached with Dominion Rubber System Friction Surface Belting—properly installed because it represents the skill and experience of the largest manufacturers in Canada.

One of our belting men, from our nearest Service Branch, will gladly inspect conditions in your plant and submit recommendations for your approval.

Dominion Rubber System

Service Branches:

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DOMINION RUBBER SYSTEM PRODUCTS

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Transmission: "Dominion," "Keewatin," "Para."
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Steam: "Indestructible," "Rockproof," "Para."
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Suction: "Para," "Star," "Trade."
Garden: "Canadian," "Dominion."

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Moulded Goods.
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Friction Tape, Splicing Compound.

DOMINION RUBBER SYSTEM AND ASSOCIATED COMPANIES

Q & C Rolled

Dependable Service—

The tide of buying preference has turne to those products whose trade marks carr the assurance of dependable service.

There is a consistency about the economi cal and endurance qualities of the Q & Rolled Steel Step Joint that steadily win careful joint purchasers. It has been ou aim to build the strongest and most econ omical compromise joint made, putting int its structure the results that only hones metal, devoted workmanship, and desig could obtain.

Combined with their feature of strength—whic under actual test has been proven many time stronger than cast metal— Q & C Rolled Steel Ste Joints embody the factors of safety and economy By our process of manufacture a rolled steel join

Q AND C

Steel Step Joints

with the Bonzano and Thomson features is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the Step Joints that are most efficient. A card will bring you any information. Write us today.

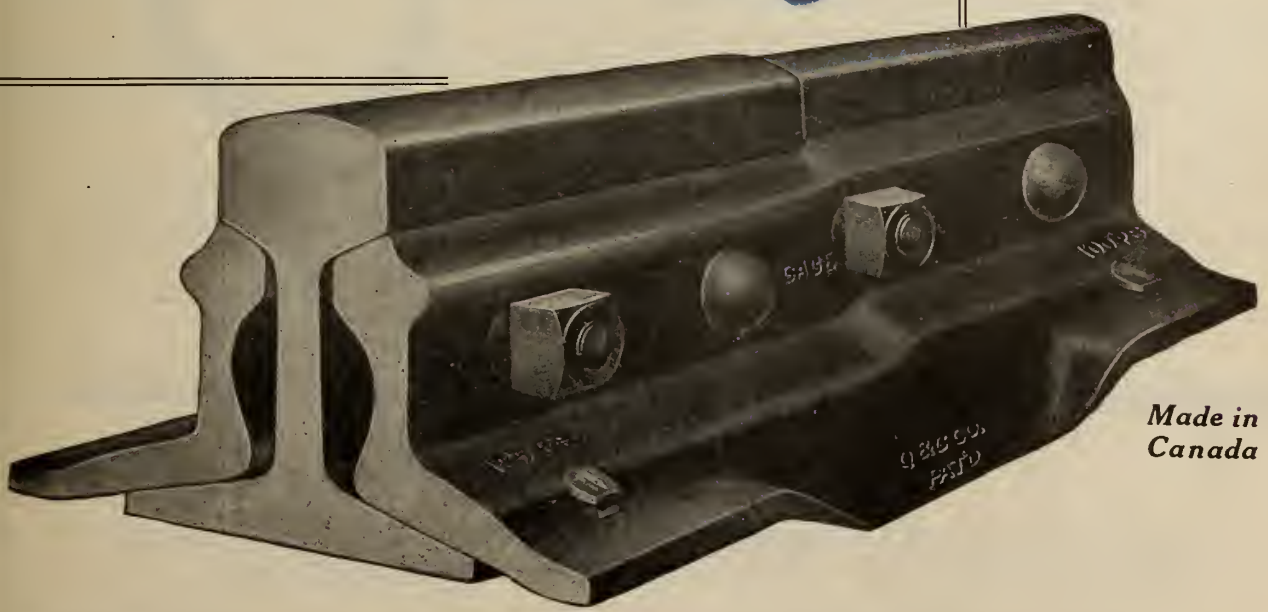
We Also Manufacture

Derails, Replacers, Rail Braces, Rail Benders, Rail Saws, Snow Plows, Snow Flangers, Guard Rail Clamps, Guard Rail Braces, Electric Snow Melters, Rolled Steel Step Joints, Bonzano-Thomson Rail Joints.

The General Supply Co., of Canada

LIMITED

MONTREAL 356-360 Sparks St. WINNIPEG
TORONTO OTTAWA VANCOUVER
NORTH BAY MONCTON



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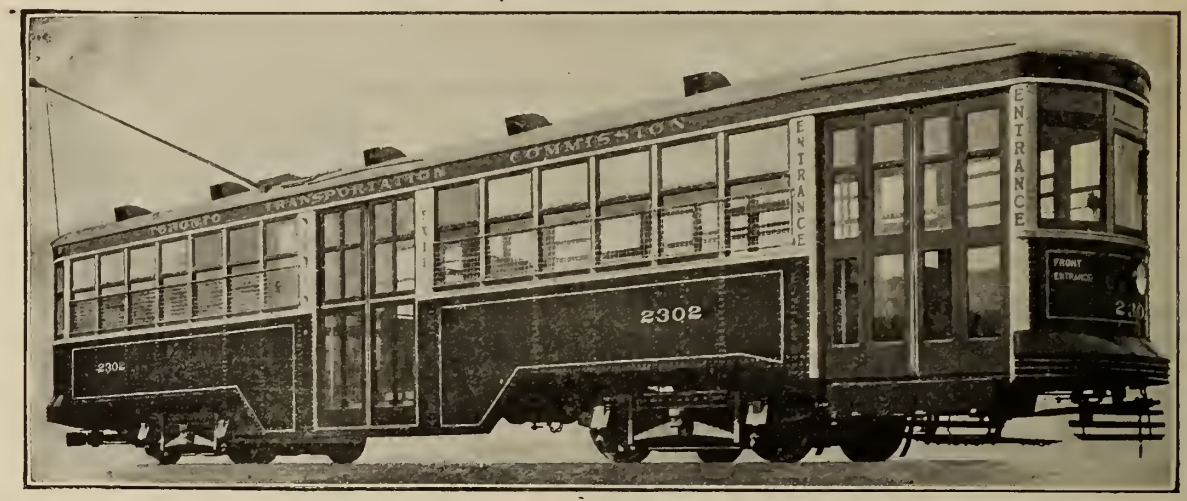
for City, Suburban and Interurban Service



Built 1921 for Toronto Transportation Commission

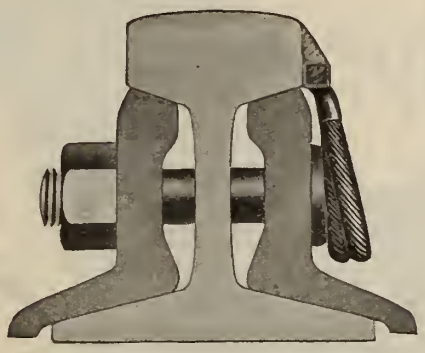
MOTOR CARS
TRAILER CARS
PASSENGER CARS
FREIGHT CARS
SWEEPER CARS
SPRINKLER CARS
DUMP CARS
SNOW PLOWS
et cetera

Canadian Car & Foundry Company, Limited

General Offices
Transportation Building
MONTREAL

O-B WELDED RAIL BONDS

O-B Gas Weld Signal Bond. This bond is making splendid records on signal track circuits—improving operation and reducing costs.



All O-B Welded Bonds have this beveled shape when the weld is completed.

Pioneers that are still in the lead

With a clear field before them, O-B Engineers designed and produced the first commercial welded rail bond six years ago. Each passing year has added proof that the pioneers were right. Today O-B Welded Bonds retain the same fundamentals of design which made them a success from the start.

O-B Bonds of both gas weld and arc weld types have a flat welding surface. The flat shelf is handy for gas welding and essential to arc welding—electric welding is not satisfactory in an angle of less than 90°.

With O-B Bonds the weld is built up in beveled form. This shape gets the greatest strength and the most contact for a given volume of welding metal.

O-B Gas Weld Bonds have a patented means of allowing the gas to escape between bond and rail.

O-B Arc Weld Bonds have a steel welding surface—the easiest electric welding is from steel to steel with steel. Copper sleeves shield the strand, where it joins the terminal, from the intense heat of the arc and protect the cable against vibration.

You pay more for the waste of poor bonding than good bonding costs. O-B Bonds are good bonds. In addition to welded bonds of all types the O-B family includes various designs of stud terminal rail bonds. Prompt shipments. Start saving now.

O-B Type ST-2—steel terminal gas weld bond. This is the latest development in gas weld bonds.

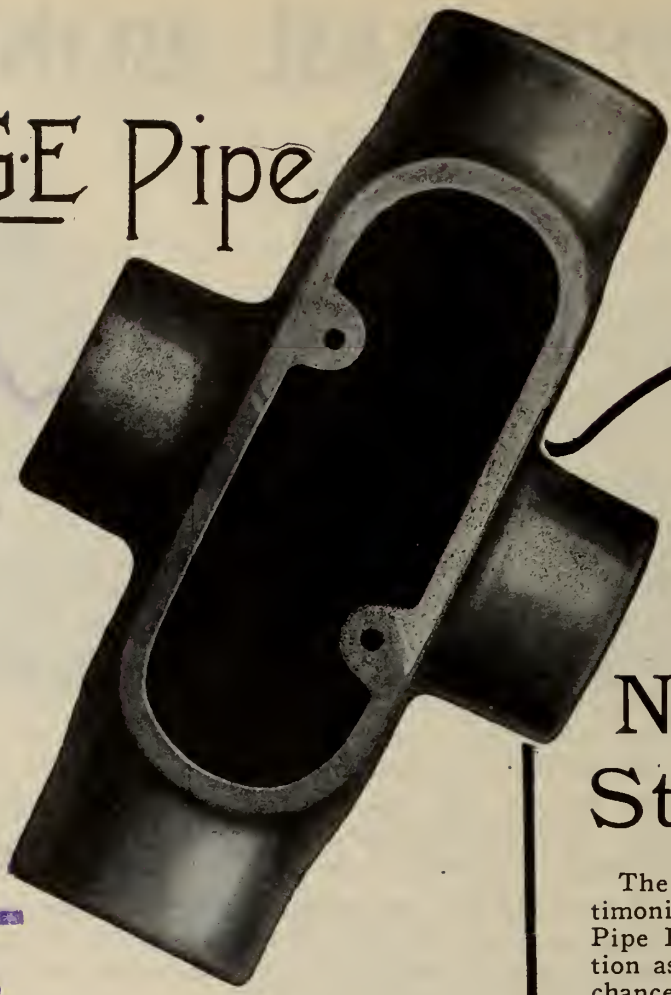
O-B Type AW3 Arc Weld Bond. Installed with any electric arc welding machine. Best results are obtained when O-B Resistance Arc Welder or Wilson Plastic Arc Welder are used.

THE OHIO BRASS CO.

MANSFIELD, OHIO, U.S.A.

Products: Trolley Materials, Rail Bonds, Electric Car Equipment, High Tension Porcelain Insulators, Third Rail Insulator.

C.G.E Pipe Fittings



KILL
LAST AD.

Used on the New Toronto Street Cars

The above fact is just one more testimonial of the superiority of C.G.E. Pipe Fittings. On such an installation as this, nothing could be left to chance. Only Pipe Fittings of tested worth could be considered.

When it is taken into consideration that there are ten separate, and distinct inspections, that C.G.E. Pipe Fittings must pass, before they are allowed to be put into stock, it is no wonder that these Fittings have such an enviable reputation.

The above features are worth serious consideration when next you order Pipe Fittings.

C.G.E. Pipe Fittings Are "Made in Canada"

Canadian General Electric Co., Limited

HEAD OFFICE – TORONTO

Branch Offices: Halifax, Sydney, St. John, Montreal, Quebec, Sherbrooke, Ottawa, Hamilton, London, Windsor, Cobalt, South Porcupine, Winnipeg, Calgary, Edmonton, Vancouver, Nelson and Victoria.

MODERN vs. PRIMITIVE

AS the modern Pacific Type Locomotive is to the once famous DeWitt Clinton, so is Hipower to the Plain Coil Nut Lock—a development in basic design to meet the exacting requirements of modern service.

The Hipower Nut Lock is a natural, reasonable and mechanical development in railway track fastenings—a development prompted by railway engineers; conceived, produced and perfected by the oldest manufacturer of Nut Locks in the world and welcomed by every trackman whose good fortune it has been to use the device and appreciate its ability to effectively and permanently maintain the bolted security of track joint parts.

KILL
LAST AD.

The National Lock Washer Co.

Established 1886

Newark, N. J.

New York
Nashville
Richmond

Chicago
San Francisco

Detroit
St. Louis
Denver

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EVAPORATORS

The New Weir Evaporator

WEIR PATENT CONTINUOUS BRINING & AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
3. The Special Tube Coupling.

These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

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Contractors to the British Admiralty and War Office and to the Governments of Australia, Canada, Egypt, India, New Zealand, South Africa, Argentine, Belgium, Brazil, Chili, Denmark, France, Greece, Holland, Italy, Japan, Norway, Portugal, Russia, Siam, Spain, Sweden, United States, Etc., Etc., also to the leading Steamship Lines and principal municipalities throughout the world.

MADE IN CANADA

G. & J. WEIR (Canada) LIMITED

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PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver

Valvular Tank Trouble

WHEN oxygen tank valves leak—in transit or in operation—dollars are dissipated in the air instead of being pocketed by efficient welding or cutting work at the blowpipe tip.

Dominion Oxygen cylinders—like the product—are perfected in every detail. The Wedge Valve on a Dominion Oxygen tank cannot leak. It is the evolution of years of painstaking study, both in design and structural material.

Forged from bar stock, it resists the wear and tear of internal friction and if foreign matter, by any chance, score the face the valve re-seats itself while the tank is fully charged and in operation — a unique time and money-saving feature. And a twist of the fingers is all that is necessary. No tools are required.

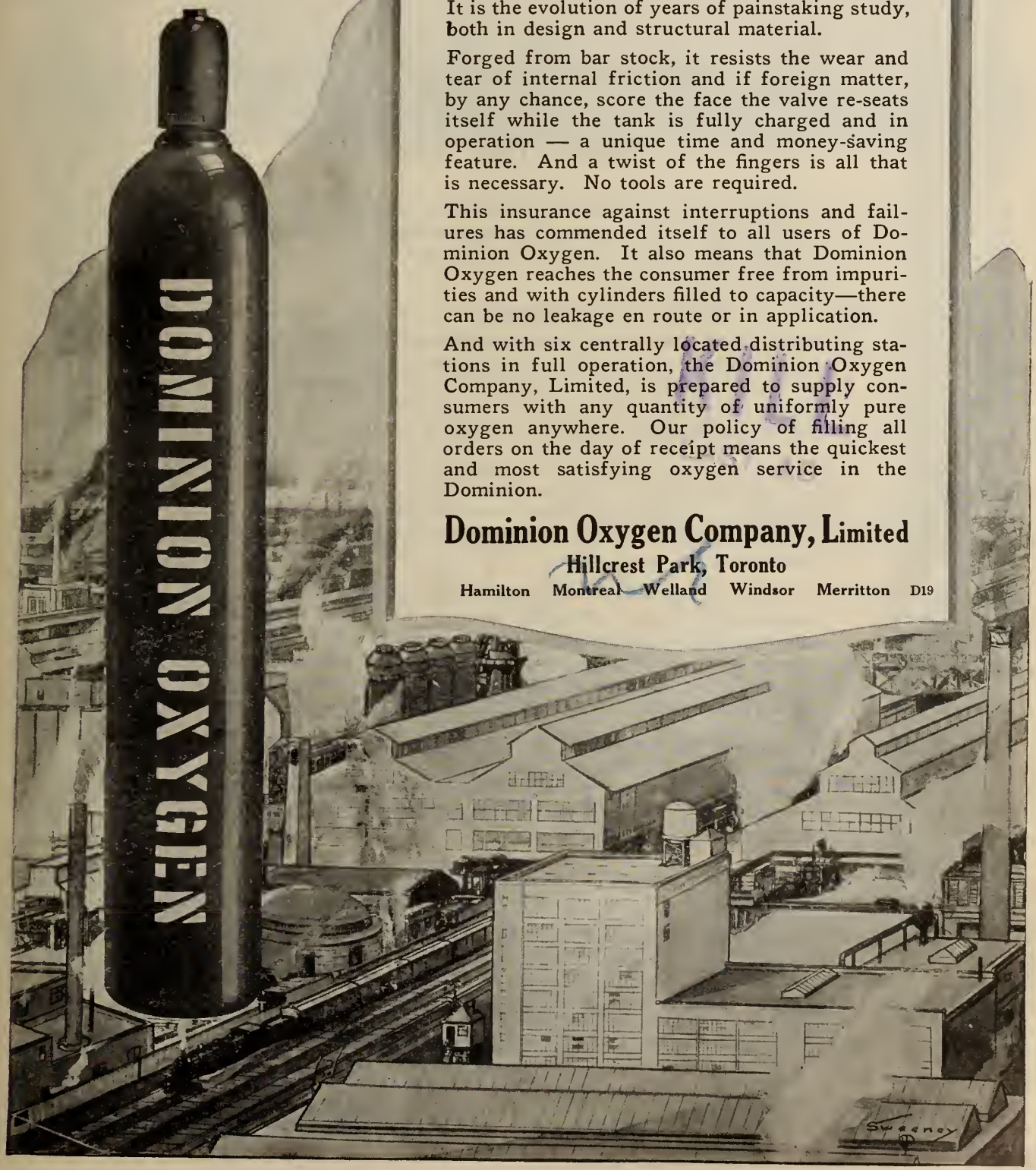
This insurance against interruptions and failures has commended itself to all users of Dominion Oxygen. It also means that Dominion Oxygen reaches the consumer free from impurities and with cylinders filled to capacity—there can be no leakage en route or in application.

And with six centrally located distributing stations in full operation, the Dominion Oxygen Company, Limited, is prepared to supply consumers with any quantity of uniformly pure oxygen anywhere. Our policy of filling all orders on the day of receipt means the quickest and most satisfying oxygen service in the Dominion.

Dominion Oxygen Company, Limited

Hillcrest Park, Toronto

Hamilton Montreal Welland Windsor Merritton D19



You cannot tell what oil costs —when you buy it

Lubricating oil is worth just what it gives in lubricating service—and no more. It follows naturally that the oil that delivers 500 lubrication units is worth but half of that which produces 1,000 units.

This deduction is as equitable as it is simple. And on this fair basis Galena Car Oil and Galena Electric Car Oil are actually entitled to be rated at double value, by virtue of their proven ability to deliver double the mileage secured from other grades of car oil. Yet the price of Galena is not double—only slightly higher than that of the ordinary grades.

But there is another and even more important argument for the Galena product. The results of mileage tests are quickly apparent—with cheap oil more must be used, and oftener; the extra applications take time and time means money—added cost.

The cost of oil, as compared with cost of equipment, is negligible. Yet poor lubricants have put more good equipment out of business than almost any other cause. It is in time losses, repairs and replacements that the inferior oils take their toll, which, if added to their original cost, would make the price per gallon prohibitive.

Mechanical men know this to be a fact—experience has taught them. And for this reason—perhaps more than for the obvious argument of mileage—Galena Oils are specified on representative railways everywhere, for actual dollar and cents economy, as well as efficiency.

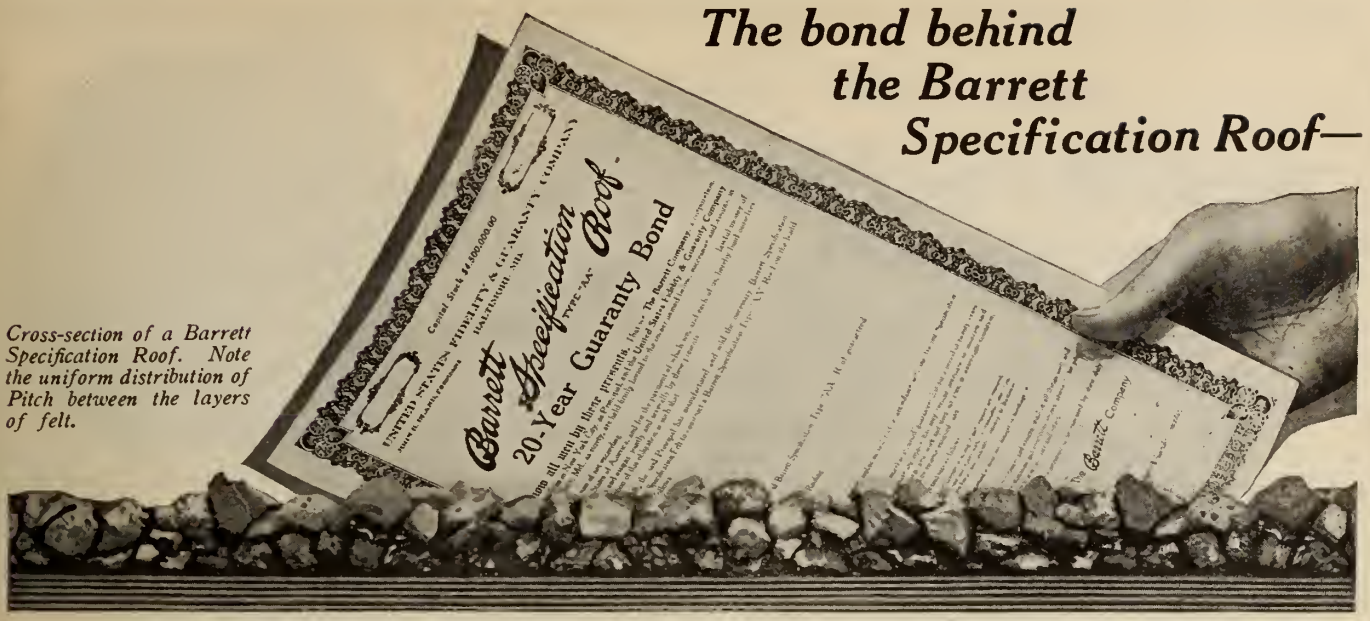
GALENA SERVICE

TRIGRAM G S O C TRADE MARK

GALENA-SIGNAL OIL CO.
OF CANADA LIMITED
TORONTO MONTREAL

TRIGRAM G S O C TRADE MARK

The bond behind the Barrett Specification Roof—



Cross-section of a Barrett Specification Roof. Note the uniform distribution of Pitch between the layers of felt.

EVERYONE admits that a bond issued by The United States Fidelity & Guaranty Company is surer protection against roof repair expense than any guarantee.

"But," owners and architects sometimes say, "I don't care so much about the cost of repairs. What I want to avoid is leaks — and even your Surety Company Bond can't keep the roof from leaking."

They're wrong! The bond does keep the roof from leaking. For the bond behind The Barrett Specification Roof is more than insurance against maintenance expense—

It is positive proof that the roof was laid by a roofing contractor who has earned a reputation for honest, dependable work. For only such roofers are permitted to lay Barrett Specification Bonded Roofs.

It is positive proof that a Barrett Inspector was present on the job—present to see that the highest grade pitch and felt were used in quantities sufficient to give maximum strength and durability—present to see that the heavy top coat of pitch was *poured* and in it the gravel or slag surface was properly imbedded to insure as high a degree of fire protection as any roof can possibly provide.

Barrett Specification Roofs take the base rate of fire insurance.

When a roof is built by a reliable roofer, and in strict conformance with The Barrett Specification, it is practically impossible for leaks or other roof troubles to develop until long after the expiration of the 20 or 10 year bonded period.

This is why The Barrett Specification Bonded Roof *costs less per year of service* than any other kind of flat roof.

Full details regarding these bonded roofs and copies of The Barrett Specification sent free on request.

The Barrett Company
LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S.

Barrett Specification Roofs

Bonded for 20 and 10 Years

Dominion Iron & Steel Co., Ltd. *Nova Scotia Steel & Coal Co., Ltd.*

Dominion Coal Co., Ltd. *Halifax Shipyards Ltd.*

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STEEL PRODUCTS,

of every description

STEAM COALS,

"Old Sydney", "Dominion"

"Springhill"

British Empire Steel Corporation

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120 St. James St.

Montreal, - Quebec.

To Get The Best Results

Buy Your **Wire Rope**

FROM ONE OF THE OLDEST MAKERS IN CANADA

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

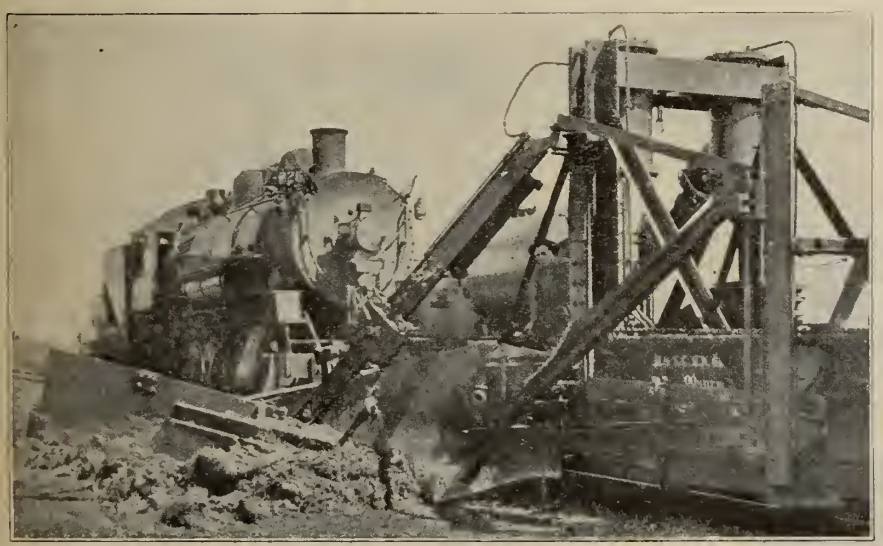
For Coal or General Service

Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

—DESIGNED, PATENTED AND BUILT IN CANADA—

The HART-OTIS CAR CO., Limited, MONTREAL



Do you know that there have been two recent improvements made in the

"Jordan" Spreader?

viz: A ditching attachment and a means of sloping sub-grade and banks in spreading for second tracks and in disposing of waste material adjacent to the track.

Branch:
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TORONTO

F·H·Hopkins & Co.
Limited

Head Office:
MONTREAL

performance on the job COUNTS

Over 23,000 Fairmont Motors in Operation--

Why-

Check up the Fairmont motors and motor cars on your road—compare their work, their operating cost and the length of time they have been on the job, with that of any other section car motor or motor car.

Fairmont motors are increasing the efficiency and decreasing the up-keep cost on maintenance work on nearly every railroad system in America.

Twelve years' success—over 23,000 Fairmont motors in operation. These facts, backed by performance on the job, has placed the name Fairmont first among railway motors and motor cars.

We have some maintenance records which will be of value to you. Write us for your copy.

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Fairmont, Dept. D-11 Minnesota.

Canadian Representative
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Why allow time and effort to be wasted with a file that has lost its keen-cutting qualities?

A new file costs a trifle—much less the labor-time wasted with an over-used file.

Keep a supply of fresh, keen-cutting files on hand.

For maximum efficiency, specify one of these famous brands, the standard for over fifty years:

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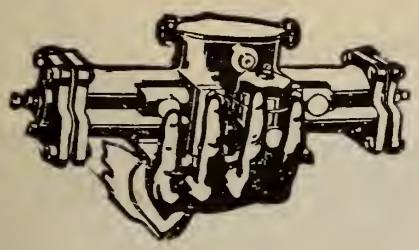
Nicholson File Company

Port Hope - Ontario



BETTER SERVICE

"Better Service" in electric railway operation means more cars, shorter headways and shorter running time.

You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door* and *Step Control,* which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control,* which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

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Originators and Manufacturers of

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Motorman's Signal Lights
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Make your peak periods produce maximum profit and efficiency

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the Universal Raw Material

It's **STRENGTH**

One instance where Hard Fibre has proved its superiority because of its strength and wearing qualities is in the making of noiseless gears—gears that are water, oil and grease-proof—vulcanized fibre gears that will give service in places and under conditions where the average silent gear could not survive.

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will stand up under the most trying conditions because they are almost as strong as cast iron and far more resilient. They withstand sudden shock or heavy strain: They save money because they save power, make a more quiet plant, better working conditions and speed up production generally.

Write us to-day for fuller particulars or have our travellers call on you.

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Head Office and Works:
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Diamond Fibre is supplied in sheets, rods and tubes convenient for all manufacturing purposes or machined to specification if desired.

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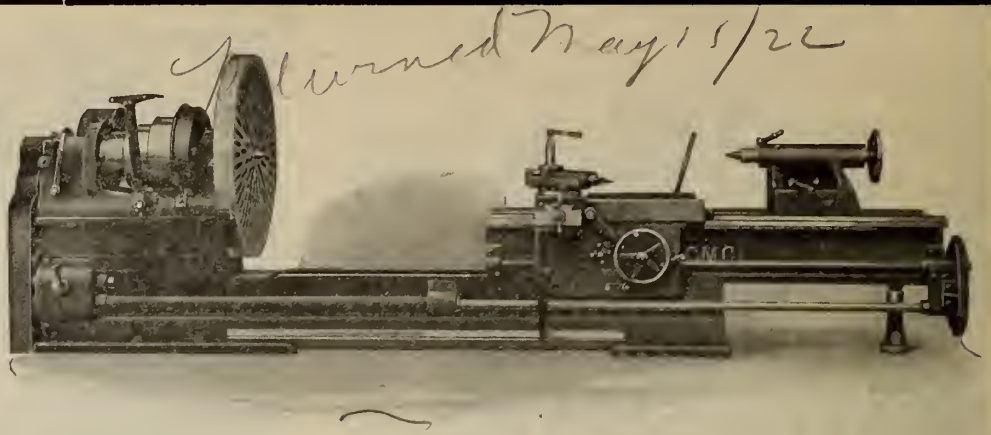

Get the advantages of a large Lathe for the price of a medium one by installing a 26" x 48" Extension Bed Engine Lathe. It will give 48" swing and extra length in the gap, besides ample length between centres. Smaller work performed as easily as larger jobs. Let us send full particulars.

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In some of the Northern Districts of Ontario, including Timagami, the open season is from October 25th to November 30th, both days inclusive.

Write to any Agent, Grand Trunk Railway System, for full information, or to:—

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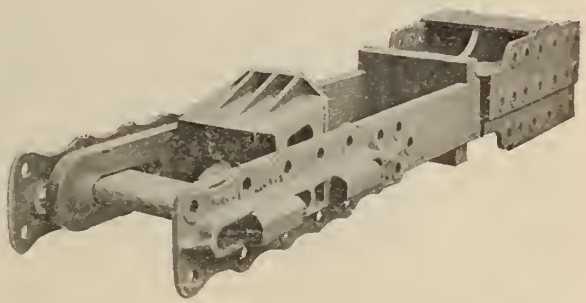
Made in Canada

Symington Malleable Iron Journal Box equipped with Malleable Iron Torsion Spring Lid.

Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



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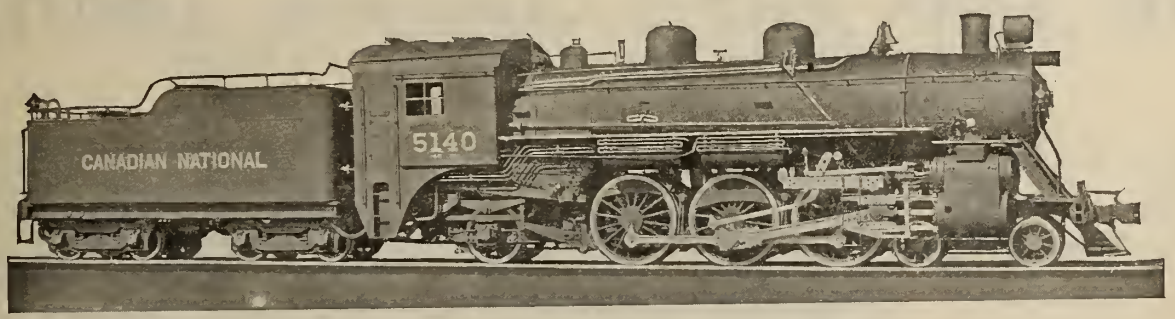

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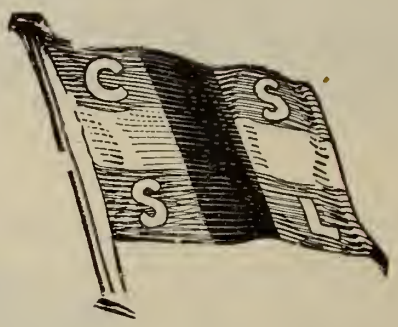
Intercontinental Transports Services Limited The All Water Route from the United Kingdom and the Continent to Fort William. Fortnightly sailings from the above ports. Further particulars on request.



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Boilers of all Kinds
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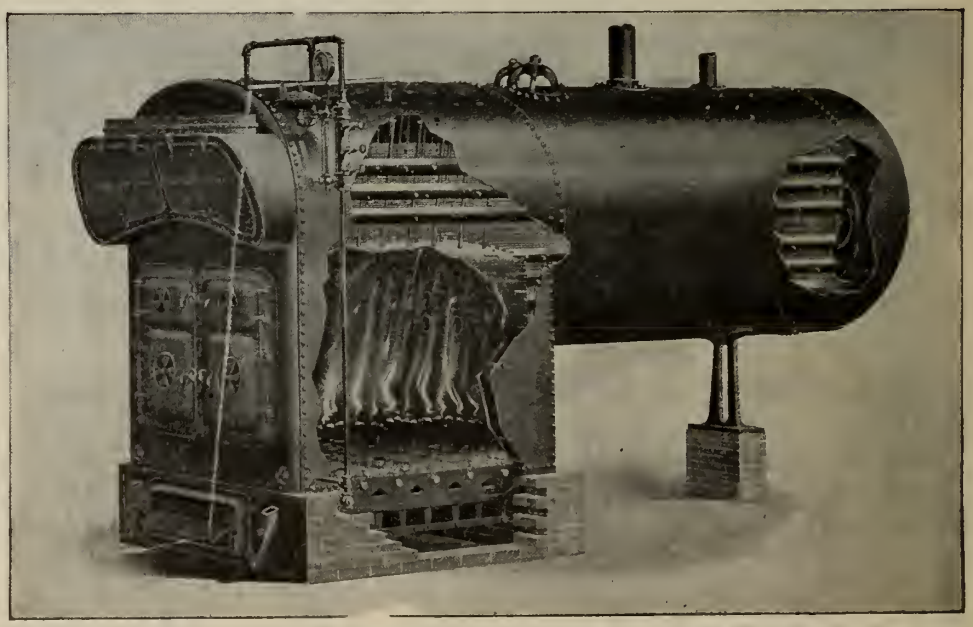

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It has been proven by many railroads that on the modern locomotive

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applied to the "wearing parts" listed above, produces a substantial economy by—

REDUCTION IN REPAIR TIME
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INCREASE IN REVENUE MILES OF LOCOMOTIVE OPERATION

You should surely avail yourself of the opportunity of establishing these economies on your road.

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Made only by

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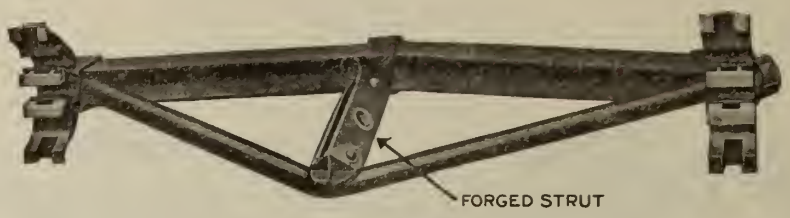

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Two Dry Docks
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EQUIPPED TO
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Day or Night
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MARINE and LAND

Improved — "Clothel" System — Patented
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Some recent orders:—

S.S. "Canadian Cruiser" and "Constructor"
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"Safe Railway Oil Storage Systems"

There is a Bowser system for every requirement. Our Engineers will be glad to take a survey of your needs. They are at your service.

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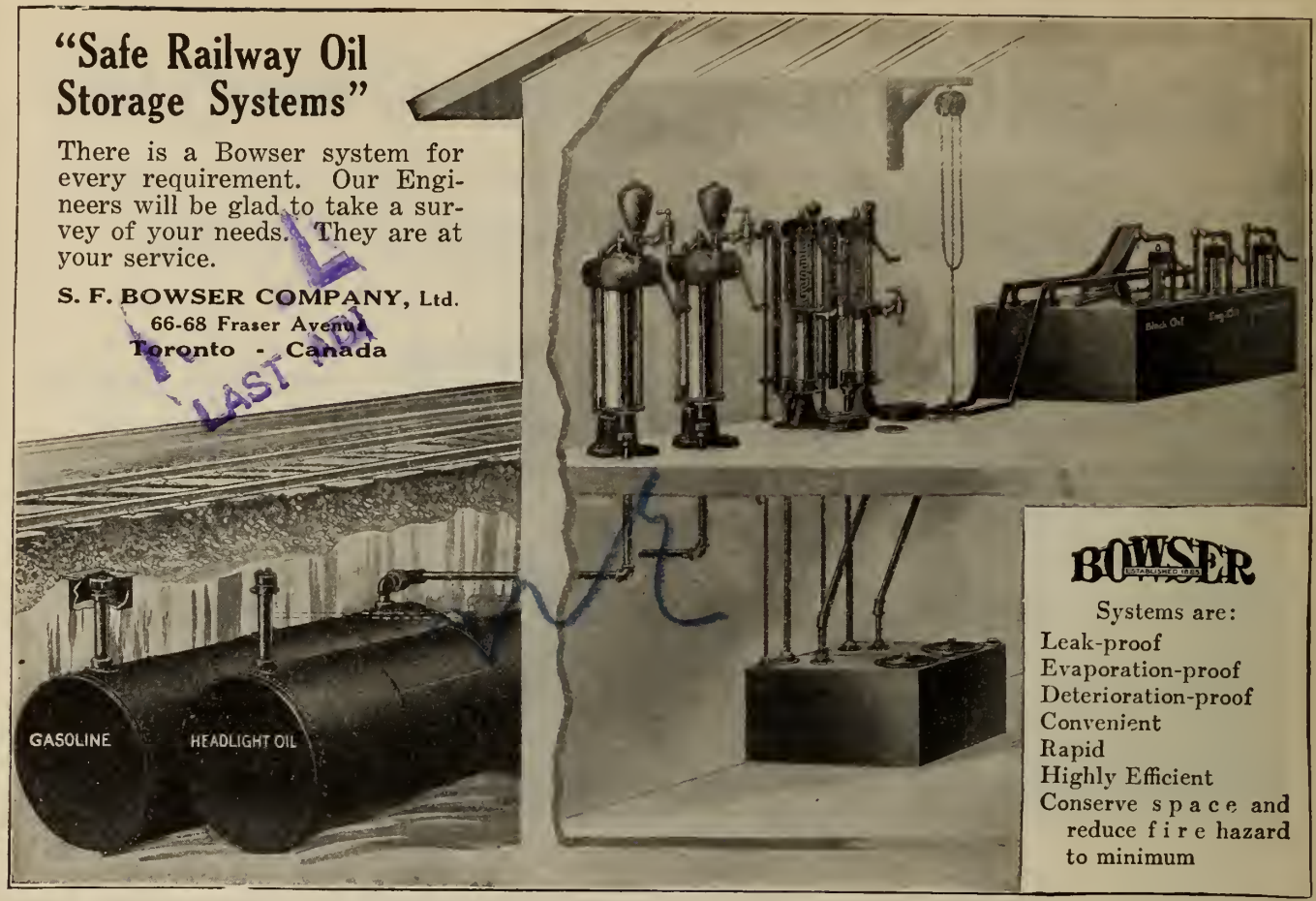

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Systems are:
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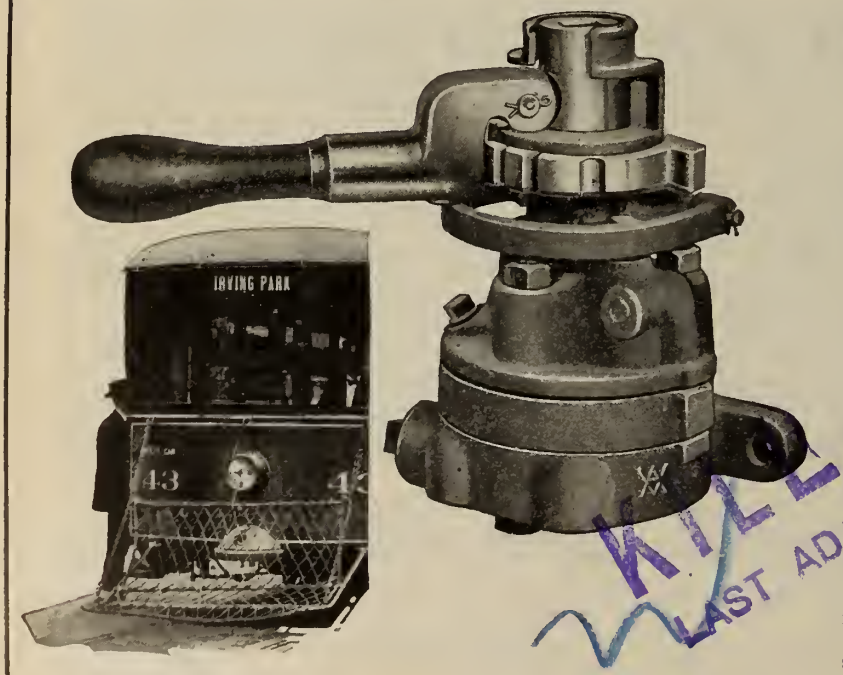
Conserve space and reduce fire hazard to minimum



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Many traction officials refer to the present as the "Safety Car Era," because of the revolutionary effect this type of car has had on the entire street railway industry.

Safety Cars

mean more car miles, less power consumption, increased revenue, decreased operating expenses.

The name "Safety Car" is properly applied only when the car is equipped with Westinghouse standard automatic laborless apparatus so interlocked that, in an emergency, regardless of the illness or distraction of the operator, the power will be cut off instantaneously, the air brakes and sander applied, and the door unlatched for safe and easy exit.

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Tubular Poles

NEAT, UNIFORM AND ORNAMENTAL
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GREAT DURABILITY, STIFFNESS AND STRENGTH
make them ideal for
ELECTRIC LIGHT AND POWER
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DISSOLVED ACETYLENE

provides ship builders with the purest cutting and welding gas in easily portable, instantly accessible and highly convenient cylinders.

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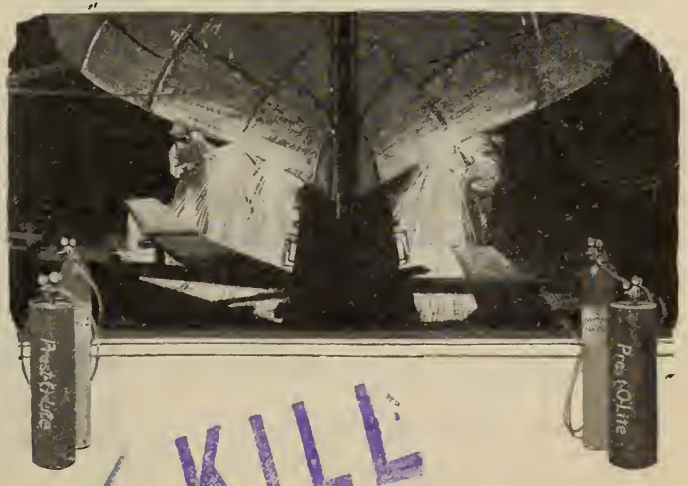

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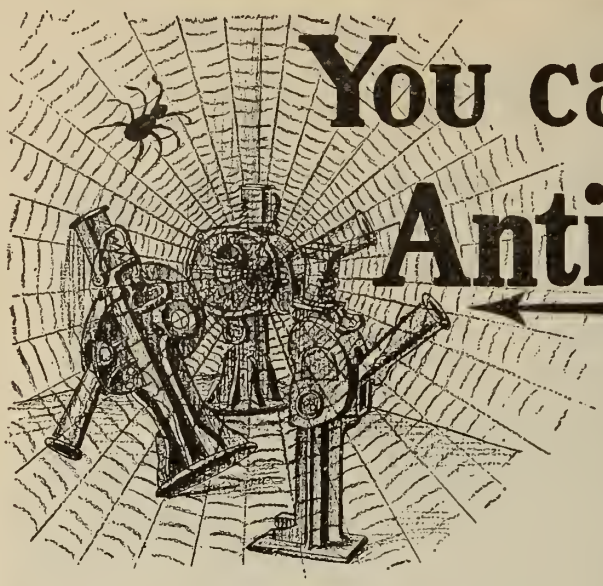

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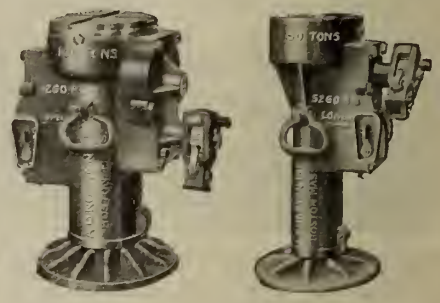
Norton Self-Lowering Jacks

The Highest Class Lifting Jack in the World



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Complete Equipment

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Complete Apparatus

Coasts, Harbors, and Rivers,

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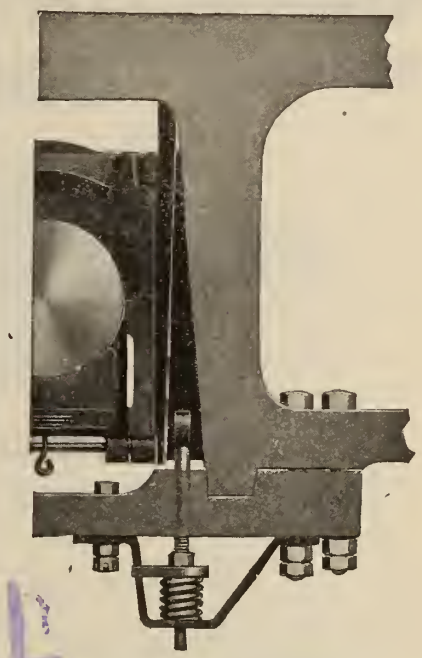
UNIFORMLY SELF-ADJUSTING

Driving box wedge adjustment must be kept uniform.

Any variation causes rapid wear and premature shopping.

Franklin Automatic Wedges are uniformly self-adjusting, mile by mile as the engine works.

Their use means fewer bearing renewals, less frame breakage, less maintenance labor and greater mileage between shoppings.



Franklin Automatic Wedge
soon saves its cost in brass alone

Franklin Railway Supply Co.
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Speed, Safety and Durability

These are the characteristics of YALE SPUR GEARED CHAIN BLOCKS that make them popular in machine shops.

Big fellows for placing machinery in position and little fellows swung from jibs for feeding the machines, are all made on the same high standard. With a continuous hand chain guide, the hand chain won't gag or foul from side pull or high speed.

YALE blocks will give you service.

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Small sizes with bronze bearings, two ton and over with roller bearings and with four wheels set at the correct angle. An easy running, safe, durable trolley and fit to be used with YALE chain blocks.

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"Canada's Departmental House for Mechanical Goods"

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St. John	Toronto	Windsor	Regina	Edmonton
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Locomotive and Car Wheel Tires
Steel Tired Wheels of all kinds

Works:
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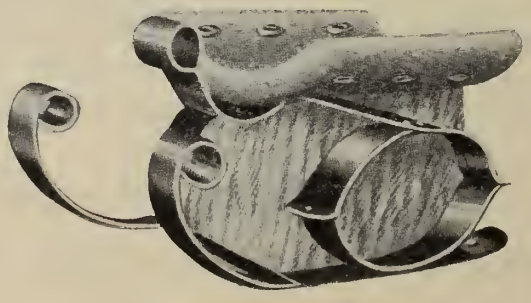
The Armstrong Oiler Co., Limited
Oilers For Journal Boxes

Steam and Electric Railway Systems



The most scientific and satisfactory method of packing journal boxes. Any one of these Oilers guaranteed to run at least 100,000 miles and give perfect service. Saving 75% Oil and at Least 200% cost of Wool Waste per Year.

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BRYDGES LIMITED
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The Canadian Nathan Limited "Klinger" Reflex Water Gauge

This is a Safety Device because the glass will not explode.
Advantages quick and reliable observation of the water level.
Simplest, strongest and most reliable Water Gauge on the market.
Made all sizes to meet conditions.

Descriptive Material Furnished on Request

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RAILWAY APPLIANCES

MANUFACTURED IN CANADA

CANUCK SUPPLY CO., Ltd.
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ROLLING ROCKER SIDE BEARINGS

IDEAL SAFETY HAND BRAKES

EFFICIENT FRICTION DRAFT GEARS

W. H. MINER CHICAGO

THESE DEVICES ARE VERY EXTENSIVELY USED

PEDLAR'S "PERFECT" TONCAN METAL CULVERTS

The Standard for Railway Drainage

THERE is no Culvert problem which cannot be satisfactorily solved by the use of Pedlar's Culverts. Their record of service under railway roadbeds throughout Canada is impressive evidence of their superior strength, convenience and durability. Made in diameters from 8 to 84 inches and in lengths up to 40 feet, they can be made up into units of any desired length by using the special coupling bands, which are supplied free.

Write for Culvert Booklet R. M.

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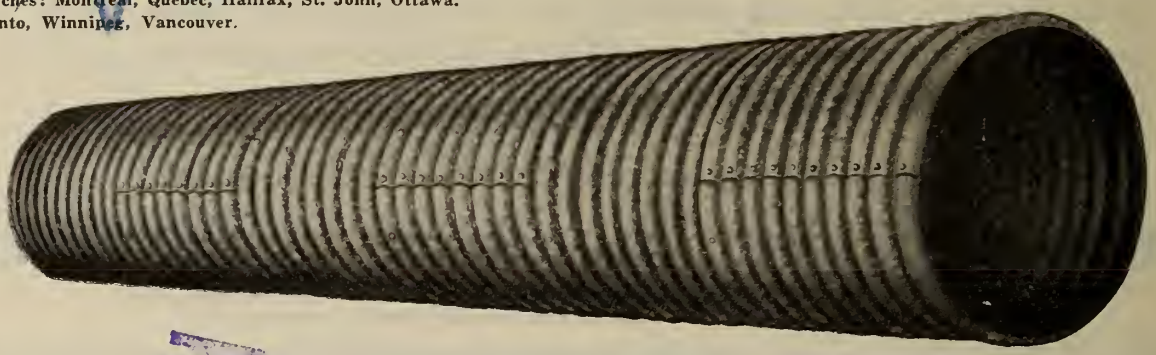

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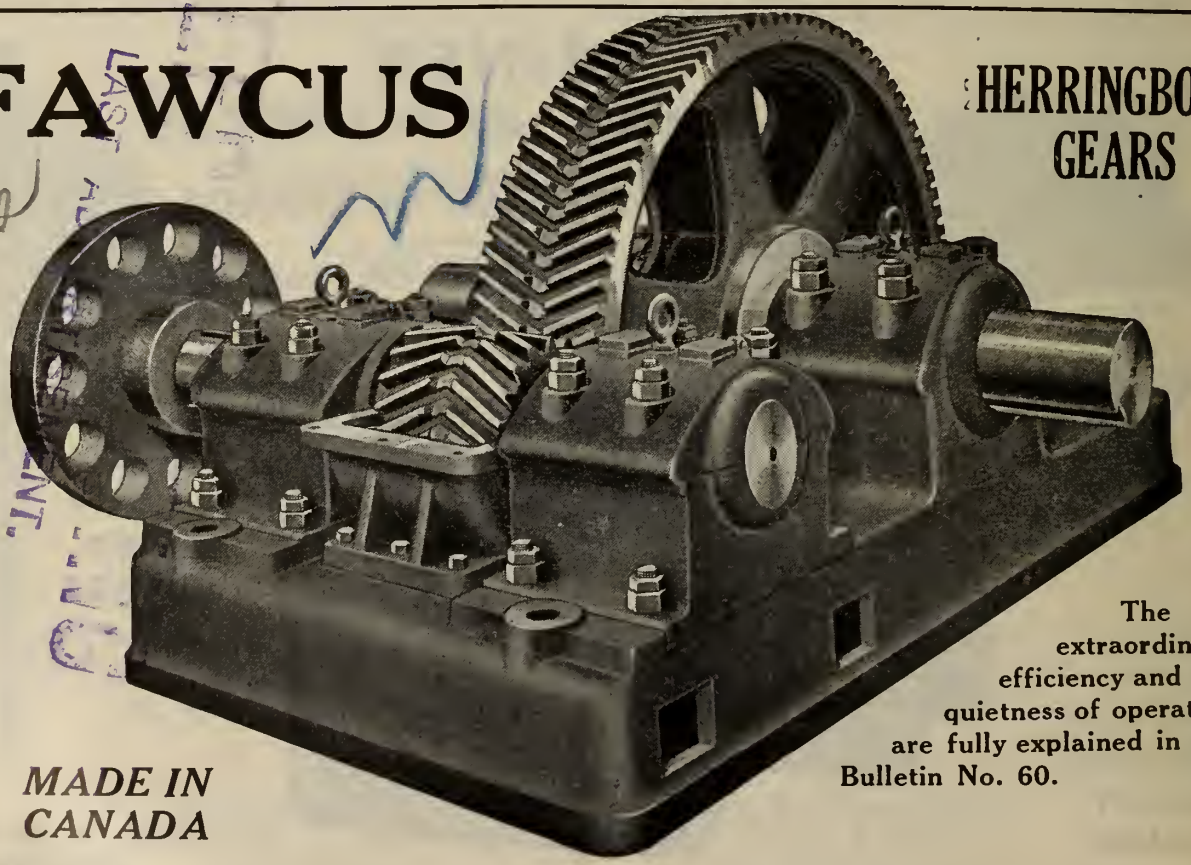

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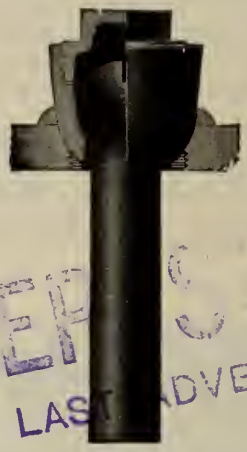

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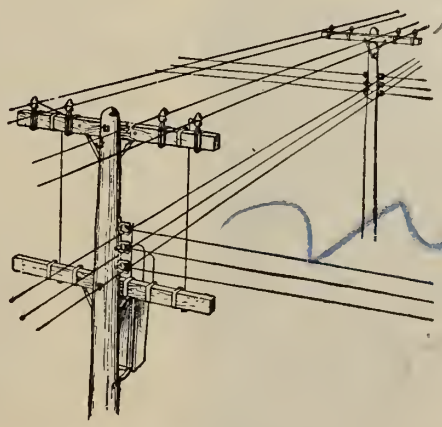

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Canadian Railway and Marine World

November, 1921

Train Dispatching by Telegraph, versus Telephone.

By W. J. Camp, Assistant Manager, Canadian Pacific Railway Telegraphs.

A brief resume of a portion of telegraphic history might be a suitable introduction to this paper.

The word telegraph, strictly defined, means, "To write afar off," and in the most remote times various methods were employed for communicating intelligence to a distance, such as signal fires, waving of tree branches, etc. The ancient Greeks erected towers on hilltops, and had an ingenious arrangement of water, in a tube alongside a scale, showing the letters of the alphabet. The letter to be transmitted was indicated by raising or lowering the surface of the water or liquid. Towards the latter part of the 18th century the semaphore system of telegraph was introduced, the term semaphore signifying "A sign I bear." Numerous other systems were employed at various periods, but time will not permit detailed mention.

An electric telegraph was constructed by Lesage, of Geneva, consisting of 24 wires (one for each letter of the alphabet) there being but 24 letters in that country's language. About 1815 an alphabetical telegraph was invented by Ronalds, which consisted of a dial at each end, operated by clockwork in unison. As the letter appeared in a slot, an electrical impulse was sent over the wire. Of course, should the dials not be revolving in unison the message would be unintelligible. In 1839 a system requiring 10 wires was devised by De Hee, the receiving operator detecting the signal by a shock through his thumb and finger coming in contact with the proper pair of wires. Many discoveries were made regarding electric batteries and apparatus for various purposes between 1774 and 1837. In the latter year Morse invented the electric telegraph, on the principle now generally used. His first receiver weighed over 300 lb., and when he succeeded in making a relay that only weighed 75 lb., it was thought that the height of improvement had been reached. Compare this with the telegraph relay now in general use, which weighs 3 lb., and this miniature instrument which I have actually used, weighed only 1 3/5 oz.

The first telegraph line on this continent was between Washington, D.C., and Baltimore, Md., and the first telegram over the line read: "What hath God wrought?" The signals were embossed on a paper tape, by the electric receiver. But, in a comparatively short time, telegraph operators discovered that they could read the signals by sound. This practice was, however, prohibited by the different telegraph companies for some years, until it was found that receiving by sound was far more rapid than by tape, and that there were actually less errors, and sound reading is now universal, except for very high speed automatic, and the printing telegraph.

The automatic, or high speed telegraph is only suitable for use between points where there is a very heavy traffic. Briefly described, it is a system in which operators punch combinations of holes in a paper tape. This tape is fed into a transmitter, which forwards the signals over the wire at high speed. The signals are received on a paper tape and the tape transcribed on telegram forms. This system is employed by the British Pacific Cable Board, on a wire leased from the C.P.R. between Halifax, N.S., and Bamfield, on the southwest coast of Vancouver Island, B.C., where the cable system from Australia ends, a total distance of 4,004 miles. The circuit is worked duplex, i.e., in both directions simultaneously, and is, I believe, the longest commercial telegraph circuit in the world.

On through traffic between Australia and Great Britain, the telegram is not written out at any point. For example, the cable operator in Australia punches a tape, with an apparatus having a keyboard similar to a typewriter. The receiving tape at the first relay station is gummed on a blank and the sending operator on the next section repunches another transmitting tape from the received one, and so on to London, where the receiving apparatus is arranged to punch holes somewhat similar to the transmitting tape. This tape is then fed into a typewriter combination and automatically typed. The message from start to finish not being written out. On the cable sections, the receiving tape shows a wavy line, but on the land sections, marks dots and dashes. Here are some specimens of the land line section, showing the receiving tape at different speeds, 75, 175, 260, 422 and 624 letters a minute. The latter is the highest speed for which the apparatus here is arranged. The highest speed attained on the Halifax-Bamfield circuit for perfect work is 300 letters a minute. The regular average is 125 letters a minute. On short press circuits in Great Britain a speed is attained of 1,500 to 2,000 (?) letter a minute, punching and transcribing being distributed amongst several operators.

Some years ago experiments were made with an automatic repeater which passed landline signals on to the cable and at the distant end to landlines again. Perfect work was performed between Bamfield, Vancouver and Victoria, B.C., and London, England, but the system is of no great practical value, because the only city in Canada which has sufficient cable traffic to keep one trans-Atlantic cable working to capacity is Montreal, and the cable traffic passing through this city is divided between several companies, the Anglo, Commercial, Western Union, Direct, Imperial and Marconi Wireless. I understand Montreal is the largest cabling city on this continent outside of New York.

The printing telegraph came into use in Europe somewhere about 1865. On this continent the stock ticker has been in use since about 1870. I have not the dates on which printers were first used in North America for general telegraph work. The first printer circuit installed on the C.P.R. lines was in Aug. 1912, between Montreal and Toronto. Printer circuits are now worked from Vancouver to Winnipeg; Winnipeg to Toronto; Winnipeg to Montreal; Montreal to Halifax; and many shorter circuits. All the circuits are worked duplex. By some printer systems, as many as eight messages can be transmitted simultaneouly, four in each direction.

Prof. Graham Bell conceived the idea of the telephone in 1874. At that time he lived part of the year at Brantford, Ont., and the balance of the year at Boston, but his summer residence, for many years back, has been at Baddeck, Cape Breton. The first telephone message was on June 2, 1875, from Prof. Bell to his assistant in the next room, "Watson, come here, I want you." The first long distance line was from Brantford, Ont., to Paris, Ont., eight miles, in Aug. 1876.

In the early days the receiving telephone was also used as a transmitter, and it was considered a tremendous improvement when some intelligent genius conceived the idea of having two telephones connected in series, one held to the ear by one hand and the other to the mouth by the other hand.

Controlling trains by means of telegraph, generally termed dispatching, originated with Chas. Minot, Superintendent of the Erie Rd. This system spread rapidly, and in a short time practically all trains on this continent were controlled by telegraph. Although dispatching trains by telephone is generally regarded as of very recent origin it is a matter of fact that the long distance telephone was used for this purpose almost from its inception. For example, in the early eighties between the locomotive house and station at Quebec, nearly two miles, light locomotives were moved on "line clear" orders transmitted over a telephone circuit.

At the Association of Railway Telegraph Superintendents annual meeting in 1884, Chas. Selden, Superintendent of Telegraphs, The Baltimore & Ohio Rd., recommended the use of the telephone for train dispatching, and in 1894 he read a paper to the Association on this subject, and suggesting the methods to be followed, such as spelling out the words, etc. The discussion of this paper and also of papers read in succeeding years, brought out the fact that many of the railways on this continent were using the telephone to a certain extent in the handling of trains. In some cases of short terminal systems, the trains were moved entirely by telephoned orders. In 1901, the Baltimore & Ohio Rd. was using the telephone for 51 miles. A regular telephone train dispatching circut was not, however, put into service until Oct. 2, 1907, when the New York Central Rd. opened a circuit between Albany and Fonda, 44 miles. This section of line has four tracks. On Dec. 11, 1907, the Chicago, Burlington & Quincy Rd. put in operation a circuit from Aurora, 46 miles, doubletrack. This was

followed by a circuit of 106 miles, single track, of the same road on Mar. 19, 1908. The first circuit on the C.P.R. was opened for operation June 20, 1908, on single track.

The nine hour law came into effect in the United States in 1907, which prevented any telegraph operator remaining on duty for longer than nine hours, no matter how light his duties should be. This forced either the employment of an additional operator at a very large number of stations, or closing such stations during a portion of the 24 hours. As there were not telegraph operators in the country to fill the places, many telegraph stations were closed for a time, until telephone circuits could be installed. This condition caused many roads to adopt the telephone over parts of their systems, but perhaps the greatest factor in the development of the use of the telephone was because it was found that a far greater amount of traffic could be handled and in a much more satisfactory manner by the use of the telephone instead of the telegraph.

The following shows the miles of railway operated by the two systems at the beginning of this year:—

	By telegraph	By telephone	Per cent. by telephone
United States	133,317	122,022	47.8
Canada:—			
Canadian Pacific Ry.	7,031	7,522	51.7
Grand Trunk Ry.....	2,110	1,447	40.7
Caandian National Ry., west	3,715	2,671	41.8
Canadian National Ry., east	6,605	3,694	35.9
Michigan Central Rd.	62	298	82.8
Pere Marquette Rd...	197	.....	.....
Timiskaming & N.O. Ry.	.....	324	100.0
Total on above in Canada	19,720	15,956	44.7

Some Comparisons Between the Two Systems.

CALLING.

Telegraph.

Each station has a call consisting of one or two letters. This call is repeated again and again until the attention of the operator is attracted.

Sometimes the first call is sufficient, on other occasions considerable time is lost.

Telephone.

Each station is equipped with an electric bell and a selective device which only operates on a certain combination of electric impulses. By this means the dispatcher can start the bell ringing at any station. As the bell only rings when a station is wanted it is at once noticed even should the operator be on the platform or in another room.

ORDERS.

The dispatcher compiles it mentally while transmitting to the several stations concerned, and writes down the order when the leading station repeats it back, then checks it off as each successive station repeats. Transmitting by telegraph is only at same speed as handwriting.

The dispatcher writes the order at the same time as he is speaking into the telephone and thus gauges the speed to suit handwriting. In repeating the order back, however, each station operator speaks rapidly, thus saving considerable time.

INCIDENTAL COMMUNICATION.

Conversations or obtaining information slow, being practically the same as two men writing to each other all they wish to say.

As fast as a man speaks, and as a great deal of the dispatcher's work consists in obtaining information another saving in time is effected.

CO-OPERATION.

On account of the slower communication, much of the personal element is absent.

All communication between dispatcher and trainmen must pass through a third party at slow speed.

Being able to speak directly to each other, more cordial relations are established between dispatcher and operators, resulting in greater co-operation.

Every train is equipped with a telephone apparatus, and in case of being stalled between stations, the trainmen can get into immediate communication with the dispatcher.

The conductor or locomotive driver can get into personal contact with the dispatcher and rapidly explain any difficulties encountered.

The wireless system has been experimented with to some extent on the Delaware, Lackawanna & Western Ry., principally with moving trains, but has not resulted in any practical application.

I have omitted any other reference to the wireless as I have not had time to gather data. This system has proved to be of great value in providing a means of communication with shipping and isolated points, such as islands in the Pacific Ocean, where laying of cable is impracticable, either on account of heavy expense, or unfavorable conditions in the bed of the ocean.

I have refrained from any technical description of apparatus, as most of those attending these meetings have not made a study of electrical matters, and I have also condensed this paper.

The foregoing paper was read before the Canadian Railway Club in Montreal recently.

Sydney & Louisburg Railway Given Running Rights Over Section of Canadian National Railways.

A tentative agreement has been entered into between the Canadian National Rys.' directors and the Sydney & Louisburg Ry. Co., under which the latter, which is a subsidiary of the British Empire Steel Corporation, and which operates a line from Sydney to Louisburg, N.S., 40 miles, with two short branches, will have its tracks connected with the Intercolonial Ry. tracks at Sydney Jct., and the British Empire Steel Corporation's tracks connected with the I.R.C. tracks at Sydney Mines, and will use the I.R.C. tracks between those points, and also the spur tracks at Point Edward quarry, and Leitches Creek, jointly with the C.N.R. The distance between Sydney and Sydney Mines is 18 miles, between Sydney and Point Edward quarry 6 miles, and between Sydney and Leitches Creek, 10.33 miles.

The S. & L.R. is not to act as a common carrier over the joint lines, but is limited to train load movements of goods and materials owned wholly by British Empire Steel Corporation, including coal, coke, ingots, scrap, silica, rock, limestone, and other materials and supplies used in connection with its business. The C.N.R. will operate S. & L.R. trains over the joint lines, with the C.N.R. crews, which will while so engaged be deemed to be exclusive S. & L.R. employes. If it can be arranged that the movements will be made by S. & L.R. employes, the C.N.R. will consent. The S. & L.R. is to pay the C.N.R. monthly for all payments made by the latter to employes engaged in S. & L.R. train movements, and in addition the S. & L.R. is to pay the C.N.R., $2 a train mile. C.N.R. trains will have precedence over S. & L.R. trains. All train movements over the joint section will be governed by C.N.R. rules. Maintenance, repairs, and renewals of joint tracks, etc., will be done by the C.N.R., under its officials' sole direction. If any interlocking plants or other protective facilities should be ordered by the Board of Railway Commissioners, to be installed at the junction of the joint premises or at any point thereon, the C.N.R. will install them at the S. & L.R.'s expense. With regard to liability for accidents on the joint section, the provisions of the agreement between the Canadian Pacific and the Canadian Northern Ontario Ry. companies, sections 12 to 20 both inclusive, as contained in the Dominion Statutes, 1916, chap. 38, schedule A, shall apply.

The tentative agreement will remain in force until an agreement is entered into between the King, as represented by the Minister of Railways, and the S. & L.R. Co., which will embody the tentative agreement's provisions, and any other provisions approved by the Governor in council. The term of the agreement is for five years from Sept. 1921, and thereafter, unless then cancelled, from year to year, subject to 6 months notice by either party.

The traffic to be carried under this agreement will be that of the Dominion Iron & Steel Co. and the Nova Scotia Steel & Coal Co., both of which have been merged in the British Empire Steel Corporation. The Dominion Iron & Steel Co. has blast furnaces, steel mills, etc., at Sydney on the east side of the southern extremity of the harbor. Point Edward is near the extremity of the peninsula, dividing the harbor into the south arm and the northwest arm. It has extensive limestone quarries, the spur to the quarries leaving the I.R.C. at mile 6.03 from Sydney. The Nova Scotia Steel & Coal Co. has coal mines and iron furnaces at Sydney Mines, 17.76 miles by Canadian National Rys. from Sydney, and its piers and other shipping facilities are at North Sydney, which is on the west side of Sydney harbor and 15.14 miles from Sydney by the I.R.C. By the arrangement with the C.N.R., the British Empire Steel Corporation will be enabled to take coal from Sydney Mines to Sydney direct by rail. Limestone will be hauled from Point Edward to Sydney, and a return movement of coke from the Dominion Iron & Steel plant at Sydney will be handled to Sydney Mines.

Proposed Consolidation of United States Railways into Large Systems.

The United States Interstate Commerce Commission has announced a tentative plan for the consolidation of U.S. railways into 19 large systems, based upon a report to the Commission by Prof. W. Z. Ripley, of Harvard University, a recognized authority on railway economics.

The question of the consolidation of U.S. railways of the United States has been discussed for a considerable time. Since railway regulation was first adopted as a permanent institution in that country, the feeling has existed, despite laws to prevent mergers and monopolies, that a combination of the numerous individual railways into a few large groups would go far toward reducing the cost of transportation to the public, by removing the effects of excessive competition, and other economic wastes in transportation. The U.S. has been beset for years with the so-called "strong and weak road problem," which has always constituted a barrier to the effiicent regulation of railways. It was, and apparently still is, impossible to prescribe a scale of rates within any one of the several grand traffic divisions of the country which would give the "weak" roads adequate earnings, without giving the "strong" roads earnings which will be absolutely excessive, or which would give the "strong" roads adequate earnings without driving the "weak" roads into bankruptcy. The reasons for the existence of the elements of strength or weakness in U.S. railway properties are many. Some properties are financially handicapped, because of poor location, because their existence is not economically justified. Others have been driven into a position of financial weakness, because of an improper relationship as between capitalization and value, and others again by a combination of the two foregoing causes. Others are confronted with handicaps in the way of adverse operating conditions, while still others have weakened themselves in over indulgence in a fierce competition in service. It is a fact that strong and weak roads will be found paralleling each other through the same portion of a rate territory, the one property thriving on the rates prescribed, the other continually on the verge of bankruptcy. To remove this barrier to efficient regulation, and to a desirable uniformity in rates, to promote an equalization of opportunity to earn a satisfactory return, and to remove the economic losses in transportation caused by competition which is too excessive, and by a too great duplication of organization, this consolidation plan was formulated, and has steadily increased in importance in the minds of those entrusted with the regulation of the railway industry. Prof. Ripley says that "one of the larger aspects of the proposed consolidation plan is that it offers a third choice, in place either of completely unified regional ownership and operation, with its lack of incentive, on the one hand; or of the economic wastes which are incident to helter-skelter competition between a heterogeneous congeries of more or less imperfectly developed properties, on the other. One alternative threatens stagnation; the other has driven U.S. railroads to the verge of bankruptcy."

It being felt advisable that an explanation such as the above be given, before proceeding merely to set forth the Interstate Commerce Commission's proposals as to what roads are to be included in the various groups, it is similarly felt advisable to outline briefly the legislation on which the consolidation proposal is based, and to summarize briefly the main considerations entering into any programme having to do with the consolidation plan. The Transportation Act, 1920, deals with the consolidation of railways into systems by an amendment of the Interstate Commerce Act, 1887, sec. 5, paragraph 4, making it read as follows: "The commission shall, as soon as practicable, prepare and adopt a plan for the consolidation of the railway properties of the continental United States into a limited number of systems. In the division of such railways into such systems under such plan, competition shall be preserved as fully as possible and, wherever practicable, the existing routes and channels of trade and commerce shall be maintained. Subject to the foregoing requirements, the several systems shall be so arranged that the cost of transportation as between competitive systems, and as related to the values of the properties through which the service is rendered, shall be the same, so far as practicable, so that these systems can employ uniform rates in the movement of competitive traffic, and, under efficient management, earn substantially the same rate of return upon the value of their respective railway properties."

The Interstate Commerce Act, 1887, was further amended as to procedure in effecting consolidation by the following paragraphs of sec. 5: "When the Commission has agreed upon a tentative plan, it shall give the same due publicity, and, upon reasonable notice, including notice to the governor of each state, shall hear all persons who may file or present objection thereto. The Commission is authorized to prescribe a procedure for such hearings, and to fix a time for bringing them to a close. After the hearings are at an end, the Commission shall adopt a plan for such consolidation and publish the same; but it may at any time thereafter, upon its own motion, or upon application, re-open the subject, for such changes or modifications as, in its judgment, will promote the public interest. The consolidation herein provided for shall be in harmony with such plan. It shall be lawful for two or more carriers, by railroad, subject to this act, to consolidate their properties, or any part thereof, into one corporation, for the ownership, management, and operation of the property theretofore in separate ownership, management, and operation, under the following conditions:

"A. The proposed consolidation must be in harmony with, and in furtherance of, the complete plan of consolidation mentioned in paragraph 5, and must be approved by the Commission.

"B. The bonds at par of the corporation which is to become the owner of the consolidated property, together with the outstanding capital stock, at par, of such corporation, shall not exceed the value of the consolidated properties as determined by the Commission. The value of the property sought to be consolidated shall be ascertained by the Commission under section 19 (a) of this act, and it shall be the duty of the Commission to proceed immediately to the ascertainment of such value, for the properties involved in a proposed consolidation, upon the filing of the application for such consolidation.

"C. Whenever two or more carriers propose a consolidation under this section, they shall present their application therefor to the Commission, and thereupon the Commission shall notify the governor of each state in which any part of the property sought to be consolidated is situated, and the carriers involved in the proposed consolidation, of the time and place for the public hearing. If after such hearing, the Commission finds that the public interest will be promoted by the consolidation, and that the conditions of this section have been and will be fulfilled, it may enter an order approving and authorizing such consolidation, with such modifications and upon such terms and conditions as it may prescribe, and thereupon such consolidation may be effective, in accordance with such order, if all the carriers involved assent thereto, the law of any state, or the decision or order of any state authority to the contrary notwithstanding."

The spirit and intent of this legislation, as well as the manner in which it was anticipated that its ends would be attained, are significant. The sections above cited do not stand alone. They are integrally related to section 15 (a), paragraph 2, of the Act to Regulate Commerce, as amended, which prescribes a new statutory rule of rate-making as follows: "In the exercise of this power to prescribe just and reasonable rates, the Commission shall initiate, modify, establish, or adjust such rates, so that carriers as a whole (or as a whole in each of such rate groups or territories as the Commission may from time to time designate) will, under honest, efficient, and economical management, and reasonable expenditure for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation."

While the Transportation Act, as it now stands, does not make consolidation compulsory, it is felt that the new statutory power of rate-making will encourage the plan.

The considerations entering into the consolidation problem are made abundantly clear in Prof. Ripley's report. As indicated by the legislation quoted above, the first requirement is that a proper measure of competition be preserved; the second is that existing routes and channels of commerce be not disturbed, and the third is that the element of financial strength in the proposed new systems be given due consideration. Practically, the third requirement is the most important of the three, for it is easily seen that uniformity in rates and in the degree of financial success enjoyed by the consolidated properties would be no more possible than it is now, if they were not arranged to give approximately the same degree of earning power and financial strength to each group within each great territorial rate division of the country. The difficulties connected with the proposed consolidation plan are obvious.

The Interstate Commerce Commission

in presenting its tentative plan says:— "Under our direction Prof. W. Z. Ripley, of Harvard University, has prepared a report to us, which is given as an appendix. In some respects our tentative plan does not follow his recommendations, but presents alternatives thereto for like consideration. We indicate the main differences. We have sought to minimize dismemberment of existing lines or systems. This tentative plan is put forward in order to elicit a full record upon which the plan to be ultimately adopted can rest, and without prejudgment of any matters which may be presented upon that record. Whenever we refer to a property, the properties controlled thereby, under lease, stock ownership, or otherwise, should be understood as included, unless otherwise indicated."

The consolidated systems as tentatively proposed by the Commission are as follows:—

System 1, New York Central, includes New York Central (with Pittsburgh & Lake Erie; Rutland; Michigan Central; Chicago, Kalamazoo & Saginaw; Cleveland, Cincinnati, Chicago & St. Louis; Cincinnati Northern); Western Maryland; Fonda, Johnstown & Gloversville; Lake Erie & Pittsburgh; Central Indiana; Pittsburgh, Chartiers & Youghiogheny; Monongahela; Boston & Maine; Maine Central; Bangor & Aroostook; and all railway properties controlled by the above, except Lake Erie & Western, and Toledo & Ohio Central, (both now controlled by N.Y.C.), Zanesville & Western and Kanawha & Michigan (both now controlled by Toledo & Ohio Central), and the Indiana Harbor Belt. The Boston & Maine, Maine Central, and Bangor & Aroostook may be included in system 7, New England, or system 7 (a), New England-Great Lakes. Prof. Ripley rejects the trunk line treatment of the New England roads, but the Commission presents this alternative with a view to developing the siutation upon a future hearing.

System 2, Pennsylvania, includes Pennsylvania (with West Jersey & Seashore; Long Island; Baltimore, Chesapeake & Atlantic; Cumberland Valley; Maryland, Delaware & Virginia; New York, Philadelphia & Norfolk); Pittsburgh, Cincinnati, Chicago & St. Louis (with Waynesburg & Washington); Grand Rapids & Indiana; Cincinnati, Lebanon & Northern; Ohio & Western; Louisville Bridge & Terminal; Wheeling Terminal; Toledo, Peoria & Western; Lorain, Ashland & Southern; Lake Erie & Pittsburgh; Central Indiana; Pittsburgh, Chartiers & Youghiogheny; Monongahela, and all other railway properties controlled by any of the above, except the Norfolk & Western and railway properties controlled by it, which may be included in system 9, which includes the Norfolk & Western.

System 3, Baltimore & Ohio, Baltimore & Ohio (with Sandy Valley & Elkhorn; Staten Island Rapid Transit); Reading System; Cincinnati, Indianapolis & Western; Chicago, Indianapolis & Louisville; New York, New Haven & Hartford (with Central New England); Lehigh & New England; Lehigh & Hudson. The New York, New Haven & Hartford; Central New England; Lehigh & New England; and Lehigh & Hudson may be included in system 7 or system 7 (a).

System 4, Erie, Erie (with Chicago & Erie; New Jersey & New York; New York, Susquehanna & Western); Delaware & Hudson; Delaware, Lackawanna & Western; Ulster & Delaware; Bessemer & Lake Erie; Buffalo & Susquehanna; Pittsburgh & Shawmut; Pittsburgh, Shawmut & Northern; Lorain, Ashland & Southern; Wabash Lines east of the Missouri River. The Delaware & Hudson; Delaware, Lackawanna & Western; Ulster & Delaware; Pittsburgh & Shawmut; and Pittsburgh, Shawmut & Northern may be included in system 7 (a). The Bessemer & Lake Erie may be included in system 5, Nickel Plate-Lehigh Valley.

System 5, Nickel Plate-Lehigh Valley, Lehigh Valley; New York, Chicago & St. Louis; Toledo, St. Louis & Western; Detroit & Toledo Shore Line; Lake Erie & Western; Wheeling & Lake Erie; Pittsburgh & West Virginia; Bessemer & Lake Erie. Prof. Ripley recommends the Lackawanna as the main stem in this system. In this tentative plan it is replaced for that purpose by the Lehigh Valley, and made available for either system 7 (a), or system 4. He also includes Buffalo, Rochester & Pittsburgh and Wheeling & Lake Erie in this system. The Bessemer & Lake Erie may be included in system 4.

System 6, Pere Marquette, Pere Marquette; Detroit & Mackinac; Ann Arbor; Detroit, Toledo & Ironton; Boyne City, Gaylord & Alpena.

System 7, New England, New York, New Haven & Hartford (with New York, Ontario & Western; Central New England); Boston & Maine; Maine Central; Bangor & Aroostook; Lehigh & Hudson River; Lehigh & New England.

System 7 (a), same as system 7, with addition of the following, which otherwise, with the exception of Buffalo, Rochester & Pittsburgh, may be included in system 4, Erie. That carrier may be included in system 5, Nickel Plate-Lehigh Valley, Delaware & Hudson; Ulster & Delaware; Delaware, Lackawanna & Western; Buffalo, Rochester & Pittsburgh; Pittsburgh & Shawmut; Pittsburgh, Shawmut & Northern.

System 8, Chesapeake & Ohio, Chesapeake & Ohio (with Hocking Valley); Virginian.

System 9, Norfolk & Western, Norfolk & Western; Toledo & Ohio Central (with Zanesville & Western; Kanawha & Michigan; Kanawha & West Virginia).

System 10, Southern, Southern (with Alabama Great Southern; Georgia, Southern & Florida; Mobile & Ohio; Southern Railway in Mississippi; Northern Alabama; Cincinnati, New Orleans & Texas Pacific); New Orleans Great Northern; Alabama & Vicksburg.

System 11, Atlantic Coast Line-Louisville & Nashville, Atlantic Coast Line (with Atlanta & West Point; Charleston & Western Carolina; Louisville & Nashville, including Nashville, Chatanooga & St. Louis, and Louisville, Henderson & St. Louis); Western Ry. of Alabama; Richmond, Fredericksburg & Potomac; Norfolk Southern; Atlanta, Birmingham & Atlantic; Winston-Salem Southbound; Roanoke to Winston-Salem branch of Norfolk & Western; Florida East Coast; Carolina, Clinchfield & Ohio; Georgia & Florida; Gulf, Mobile & Northern; Mississippi Central.

System 12, Illinois Central-Seaboard, Illinois Central (with Yazoo & Mississippi Valley; Central of Georgia); Seaboard Air Line; Lynchburg, Va., to Durham, N.C., branch of Norfolk & Western; Gulf of Ship Island; Tennessee Central; Carolina, Clinchfield & Ohio.

System 13, Union Pacific-Northwestern, Union Pacific (with St. Joseph & Grand Island; Oregon Short Line; Oregon-Washington Rd. & Navigation Co.; Los Angeles & Salt Lake); Chicago & North Western (with Chicago, St. Paul, Minneapolis & Omaha); Lake Superior & Ishpeming; Wabash Lines west of Missouri River.

System 14, Burlington-Northern Pacific, Chicago, Burlington & St. Louis; Spokane, Portland & Seattle. Prof. Ripley recommends extension of this system to the Pacific coast, by including the Denver & Rio Grande and the Western Pacific. The Spokane, Portland & Seattle may be included in system 15, Milwaukee-Great Northern.

System 15, Milwaukee-Great Northern, Chicago, Milwaukee & St. Paul; Great Northern; Chicago, Terre Haute & Southeastern; Duluth & Iron Range; Duluth, Missabe & Northern; Green Bay & Western; Spokane, Portland & Seattle; Butte, Anaconda & Pacific. The Spokane, Portland & Seattle may be included in system 14, Burlington-Northern Pacific.

System 16, Santa Fe, Atcheson, Topeka & Santa Fe (with Gulf, Colorado & Santa Fe); Colorado & Southern (with Fort Worth & Denver City); Denver & Rio Grande; Western Pacific; Utah Ry.; Northwestern Pacific; Nevada Northern.

System 17, Southern Pacific-Rock Island, Southern Pacific Co.; Nevada Northern; Chicago, Rock Island & Pacific (with Chicago, Rock Island & Gulf); Arizona & New Mexico; El Paso & Southwestern; San Antonio & Aransas Pass; Trinity & Brazos Valley; Midland Valley; Vicksburg, Shreveport & Pacific; Chicago, Peoria & St. Louis.

System 18, Frisco-Katy-Cotton Belt, St. Louis San Francisco; St. Louis Southwestern; Louisiana Ry. & Navigation Co.; Chicago & Alton; Missouri, Kansas & Texas; Trinity & Brazos Valley; San Antonio, Uvalde & Gulf.

System 19, Chicago-Missouri Pacific, Chicago & Eastern Illinois; Missouri Pacific; Kansas City Southern; Kansas City, Mexico & Orient; Kansas, Oklahoma & Gulf; Texas & Pacific; Fort Smith & Western; Louisiana & Arkansas; Gulf Coast Lines; International & Great Northern.

The report of the Commission further states: "Certain lines, such as the Minneapolis, St. Paul & Sault Ste. Marie and the Central Vermont, which are controlled by Canadian carriers, have not been specifically included in this tentative plan, because these lines form part of through transcontinental Canadian systems, in active competition with systems above set forth. The carriers included in this tentative plan comprise most of the class 1 steam railways, but very few of those in class 2 or class 3. Those not so included, whether industrial common carriers, terminal carriers, interurban electric railways operated as a part of general steam railway systems of transportation or engaged in the general transportation of freight, 'short lines,' or others, will be considered at the hearings to be hereafter assigned, so that in the plan to be ultimately adopted provision can be made for their inclusion in the systems. We have not specifically mentioned water carriers. Where these carriers are now controlled by carriers by rail, they will be considered as being included tentatively in the systems in which the controlling rail carrier has been included."

At the time of writing (Oct. 10) no dates for hearings have been announced.

Birthdays of Transportation Men in November.

Many happy returns of the day to:—

J. O. Adams, General Eastern Freight Agent, Canadian National-Grand Trunk Rys., New York, born at London, Ont., Nov. 21, 1872.

J. O. Apps, General Agent, Mail, Baggage and Milk Traffic, C.P.R., Montreal, born at Tara, Ont., Nov. 9, 1877.

H. E. Beasley, General Superintendent, Esquimalt & Nanaimo Ry., Victoria, B.C., born at Hamilton, Ont., Nov. 10, 1862.

W. C. Blake, Division Accountant, Canadian National-Grand Trunk Pacific Rys., Winnipeg, born at Liverpool, Eng., Nov. 28, 1865.

C. C. Bonter, Assistant to President and Assistant Treasurer, Canada Steamship Lines, Montreal, born at Toronto, Nov. 13, 1884.

G. B. Burchell, Managing Director, Bras d'Or Coal Co., Little Bras d'Or, N. S., Nov. 1, 1877.

J. R. Cameron, Assistant General Manager, Western Lines, Canadian National-Grand Trunk Pacific Rys., Vancouver, B. C., born at Truro, N.S., Nov. 5, 1865.

F. H. Clendenning, Foreign Freight Agent, C.P.R., Vancouver, B.C., born at Montreal, Nov. 9, 1881.

F. Conway, City Freight and Passenger Agent, C.P.R., Kingston, Ont., born at Ernestown, Ont., Nov. 19, 1850.

W. L. Crighton, General Advertising Agent, Canadian National Rys., Toronto, born at Derby, Eng., Nov. 9, 1871.

E. C. P. Cushing, Purchasing Agent, C.P.R., Calgary, Alta., born at Ottawa, Ont., Nov. 13, 1886.

W. R. Davidson, General Superintendent, Western Lines, G.T.R., Chicago, Ill., born at Everton, Mo., Nov. 8, 1871.

W. R. Devenish, C.E., General Superintendent, Ontario District, Canadian National Rys., Toronto, born in County Tipperary, Ireland, Nov. 21, 1882.

A. C. Douglas, Assistant General Purchasing Agent, C.P.R., Montreal, born there, Nov. 10, 1881.

W. Downie, ex-General Superintendent, Atlantic Division, C.P.R., now of Whitby, Ont., born at Rock Currie, Ireland, Nov. 12, 1850.

Jos. Dubrule, President, Prescott & Ogdensburg Ferry Co., and General Manager Canadian Pacific Car & Passenger Transfer Co., Prescott, Ont., born at Spencerville, Ont., Nov. 14, 1872.

R. L. Fairbairn, Assistant Passenger Traffic Manager, Eastern Lines, Canadian National Rys., Toronto, born at Stillwater, Minn., Nov. 24, 1880.

J. E. Gibault, Division Engineer, Canadian National Rys., Levis, Que., born at St. Jerome, Terrebonne County, Que., Nov. 16, 1887.

G. N. Goad, Superintendent, Nipissing Division, Ontario District, Canadian National Rys., Capreol, Ont., born at Toronto, Nov. 26, 1884.

Grant Hall, Vice President, C.P.R., Montreal, born there, Nov. 27, 1863.

J. A. C. Kelman, Telegraph Traffic Supervisor, Central and Western Division, Grand Trunk Pacific Ry., born at Bowmanville, Ont., Nov. 1, 1886.

W. E. Ladley, Superintendent of Motive Power, Reid Newfoundland Co., St. John's, Nfld., born at Leeds, Eng., Nov., 1875.

J. McMillan, Manager of Telegraphs, C.P.R., Montreal, born at Liverpool, Eng., Nov. 2, 1866.

A. B. McNaughton, Superintendent, Portland Division, Eastern Lines, G.T. R., Portland, Me., born at Arnprior, Ont., Nov. 10, 1877.

H. R. Mallison, Purchasing Agent and Secretary to President, Montreal Tramways Co., Montreal, born at Toronto, Nov. 14, 1873.

C. Murphy, General Manager, Western Lines, C.P.R., Winnipeg, born at Prescott, Ont., Nov. 20, 1865.

G. H. Nowell, Master Mechanic, Lethbridge Division, Alberta District, C.P.R., Lethbridge, born at Montreal, Nov. 13, 1885.

G. Pelletier, Assistant Superintendent, Canadian National Rys., Levis, Que., born at Isle Verte, Que., Nov. 28, 1872.

W. J. Quinlan, District Passenger Agent, Canadian National-Grand Trunk Pacific Rys,. Winnipeg, born at Montreal, Nov. 21, 1883.

J. J. Rose, Robert Reford Co., General Agents, Cunard, Anchor and Anchor-Donaldson Steamship Lines, Toronto, born there, Nov. 22, 1878.

G. H. Shaw, ex-General Traffic Manager, Canadian Northern Ry., Toronto, born at Smiths Falls, Ont., Nov. 25, 1859.

P. D. Sutherland, General Agent, Passenger Department, Ocean Traffic, C.P. R., Hong Kong, China, born at Toronto, Nov. 2, 1879.

L. C. Thomson, General Storekeeper, Eastern Lines, Canadian National Rys., Toronto, born at Kingston, Ont., Nov. 25, 1882.

H. P. Timmerman, Industrial Commissioner, Eastern Lines, C.P.R., Montreal, born at Odessa, Ont., Nov. 6, 1856.

Guy Tombs, ex-Assistant Freight Traffic Manager, Eastern Lines, Canadian National Rys., now Traffic Manager, Canadian Export Paper Co., Montreal, born near Lachute, Que., Nov. 22, 1877.

T. D. Utley, Car Foreman, C.P.R., Weyburn, Sask., born at Leytonstone, London, England, Nov. 1, 1890.

T. W. White, District Engineer, Canadian National Rys., Edmonton, Alta., born at Clinton, Ont., Nov. 29, 1880.

John Whitsell, Manager, Winnipeg Electric Ry., Winnipeg, born in Iowa, Nov. 30, 1868.

H. E. Whittenberger, General Manager, Western Lines, G.T.R., Detroit, Mich., born at Peru, Ind., Nov. 9, 1869.

W. A. Whyte, District Freight Agent, Canadian National Rys., Vancouver, B.C., born at Hornsey, Eng., Nov. 24, 1890.

The C.P.R. Social and Athletic Club, Victoria, B.C., opened its winter season with a dance and card party at the Empress Hotel, Sept. 30. In addition to the athletic and other club features, the winter's programme includes a semi-monthly social gathering. The officers for the year are:—Patron, E. W. Beatty, K.C.; Honorary Presidents, Capt. Troup and H. E. Beasley; Honorary Vice Presidents, Dr. Grant, J. H. Taylor, and H. J. Wilson; President, A. M. Anderson; Vice President, J. Jackson; Secretary, F. Neild; Treasurer, Captain C. D. Newrotsos.

Transportation Patents. — The Commissioner for Patents states in his report for the year ended March 31 that applications for patents connected with transportation were again prominent. There was a decrease in patents for aeronautical appliances, but an increase in those dealing with track members and couplings.

The Perfect Package Movement.

All trades and industries have been asked to co-operate in the Perfect Package Movement to be inaugurated by the railways, steamship lines and express companies in Canada and the United States, in November, which has been designated as Perfect Package Month. The purpose is to stimulate public interest in good packing of shipments, and to enable carriers to improve the transportation service. During November, an examination of all shipments sent by freight or express, will be conducted, to obtain information as to the best shipping methods carried on by the various trades and industries. In every city and town, the railway and express people will form campaign committees, to cooperate with local shippers' associations, in carrying out the plans announced. Exception reports will be made out for all faulty shipments discovered, and will be sent to the shippers' associations for tabulation, to ascertain how high a percentage for perfect packages, the shippers of that place have attained. Comparisons of the records made by the various places during November will be announced at the conclusion of the drive. The entire working forces of the railway and express carriers, comprising some 2,000,000 men, will aid in the movement. The railways, through the American Railway Association, composed of nearly all of the railways in North America, are pushing the campaign, as a means of raising the standard of the service, and the express agents are getting ready to interest shippers in the undertaking.

G.T.R. Apprentices' Prizes for Drawing.

G.T.R. apprentices won seven out of 10 prizes, offered at the Canadian National Exhibition, Toronto, recently, for mechanical drawing, taking first and second place in electrical, structural, hydraulic and pneumatic drawing, their names being W. Grandison, F. Taylor, K. Murray and H. Bailey, Stratford, Ont., shops; W. Minton, Montreal shops; F. Gooch, Toronto shops, and R. Harvey, London car shops.

There are more than 800 apprentices in the G.T.R. motive power and car shops, and W. D. Robb, Vice President, Transportation, Construction and Maintenance, who inaugurated the apprenticeship system, takes the keenest interest in maintaining the highest possible standard of instruction, which is carried out under a supervisor of apprentices. At shops where 50 or more apprentices are employed there is a permanent class instructor, and at smaller shops and at locomotive houses instruction is given weekly by a travelling instructor. In addition there is an apprentice examiner. The boys are moved from one machine, or class of work, to another, as their skill develops.

Ancient C.P.R. Tickets. — There were recently presented to the C.P.R. District Passenger Agent at Winnipeg, with a request for a refund, two unused tickets, one from Keewatin to Rat Portage, dated Aug. 3, 1887, and one from Keewatin to East Selkirk, dated March 25, 1895. They both had on them the name of D. McNicol, then General Passenger Agent.

Railway Men's Employment and Pay for 1919 and 1920.

The accompanying table has been compiled by the Dominion Bureau of Statistics, Transportation Branch, from reports made by steam railways for the calendar year 1920, with a comparison of the average hourly compensation for 1919.

The total pay roll for 1920 was $290,510,517, against $233,323,074 for 1919, an increase of 24.5%. The average number of employes increased from 173,728 in 1919 to 185,177 in 1920, or 6.6% . The average hourly compensation of all employes increased from 52.3c. in 1919 to 64.4c. in 1920, or 19.3%. The pay roll for 1920 included this increase for only 8 months, so that the average hourly compensations would not represent the wages in effect after the general increase. Where the time of the employes was reported in days, it has been converted into hours on a basis of 8 hours a day for 1920 and 10 hours a day for 1919.

In comparing the figures, it must be remembered that on May 1, 1920, the railways granted increases to employes, following similar action by United States railways, due to the U.S. Railroad Labor Board's Chicago award. This increased the annual pay roll of the railways approximately 21%.

Abbreviations are used in the table as follows:—6. "M.W. and S. foremen"—Maintenance of way and shop foremen. 8. "General foremen, M.E. Department"—General foremen, Mechanical Engineering Department.

The Pacific Great Eastern Ry. expenditures of $547,049.61, for salaries and wages, are included in the total for 1920, but are not distributed.

No.	Class	Calendar year 1920 Average no.	Hours on duty	Total pay	Average hourly compensation 1919	1920
1.	General officers	802	$1,788,469	$4,254,699.33	.....	.....
2.	Division officers	1,205	3,004,543	3,625,423.94	.....	.....
3.	Clerks	16,317	35,274,067	22,472,469.37	.458	.637
4.	Messengers and attendants	499	1,147,313	443,850.37	.242	.387
5.	Assistant engineers and draftsmen	619	1,430,219	1,026,541.47	.491	.718
6.	M.W. and S. foreman (excluding nos. 7 and 25)	793	2,082,798	1,600,857.02	.639	.769
7.	Section foremen	6,033	16,802,718	10,297,851.90	.529	.613
8.	General foremen M.E. Department	182	500,650	526,236.00	.686	1.051
9.	Gang and other foremen, M.E. Department	1,798	4,659,264	4,381,707.86	.791	.940
10.	Machinists	5,413	12,174,358	9,878,426.00	.708	.811
11.	Boiler makers	1,483	3,496,825	2,872,366.89	.694	.821
12.	Blacksmiths	834	1,867,456	1,512,861.00	.709	.810
13.	Masons and bricklayers	96	219,917	175,781.44	.603	.799
14.	Structural iron workers	32	79,045	46,509.42	.508	.588
15.	Carpenters	7,083	15,711,933	11,622,850.93	.627	.740
16.	Painters and upholsterers	1,826	3,841,599	2,872,248.32	.670	.748
17.	Electricians	630	1,553,098	1,210,079.96	.718	.780
18.	Air brake men	298	707,453	540,903.27	.636	.764
19.	Car inspectors	1,086	2,995,781	2,287,009.17	.674	.763
20.	Car repairers	5,261	12,868,364	9,331,068.32	.593	.725
21.	Other skilled labor	6,009	14,622,035	9,811,846.43	.574	.671
22.	Mechanics' helpers and apprentices	10,761	23,940,206	13,883,757.45	.472	.580
23.	Section men	24,085	61,264,033	28,146,366.81	.407	.459
24.	Other unskilled labor	14,117	34,096,495	15,089,376.23	.387	.443
25.	Foremen of construction gangs and work trains	340	1,000,765	754,534.86	.644	.754
26.	Other men in construction gangs and work trains	6,025	15,650,342	6,644,076.96	.360	.425
27.	Travelling agents and solicitors	329	965,838	741,854.33	.621	.768
28.	Employes in outside agencies	101	212,355	226,094.40	.838	1.065
29.	Other traffic employes	1,425	4,042,187	1,538,563.31	.428	.381
30.	Train dispatchers and directors	554	1,471,978	1,612,344.75	1.084	1.095
31.	Telegraphers, telephoners, and block operators	1,949	5,389,416	3,609,993.48	.706	.670
32.	Telegraphers and telephoners operating interlockers	550	1,486,091	1,040.680.55	.467	.700
33.	Levermen, non-telegraphers	585	1,627,207	856,621.06	.458	.526
34.	Telegrapher, clerks	423	1,085,673	618,114.15	.616	.569
35.	Agent-telegraphers	2,968	8,392,696	6,197344.54	.805	.738
36.	Station agents, non-telegraphers	929	1,636,070	1,234,317.61	.576	.754
37.	Station masters and assistants	138	364,174	204.545.83	.371	.562
38.	Station service (except nos. 3, 34, 35, 36 & 47)	10,846	26,915,350	12,914,571.19	.469	.480
39.	Yardmasters	276	846,086	706,628.28	.840	.835
40.	Yardmaster's assistants (not yard clerks)	197	547,079	513,858.88	.744	.939
41.	Yard locomotive men and motormen	1,362	3,816,173	3,300,256.68	.729	.865
42.	Yard firemen and helpers	1,450	3,839,233	2,581,472.71	.531	.672
43.	Yard conductors	1,385	4,432,327	2,899,730.82	.705	.654
44.	Yard brakemen	2,925	7,036,802	5,478,987.06	.656	.779
45.	Yard switch tenders	535	1,445,149	774,248.20	.486	.536
46.	Other yard employes	360	927,987	377,919.24	.331	.407
47.	Hostlers	944	2,248,226	1,428,109.41	.556	.635
48.	Locomotive house watchmen and laborers	5,232	14,417,063	7,135,315.46	.431	.495
49.	Road freight locomotive men and motormen	3,742	10,394,457	10,687,615.02	.869	1.028
50.	Road freight firemen and helpers	4,133	10,429,586	8,157,053.63	.639	.782
51.	Road freight conductors	2,809	8,795,814	7,798,565.62	.713	.887
52.	Road freight brakemen and flagmen	6,066	18,020,344	12,502,758.44	.545	.694
53.	Road passenger locomotive men and motormen	1,144	3,082,894	3,830,234.16	1.091	1.242
54.	Road passenger firemen and helpers	1,193	3,062,253	2,941,718.90	.831	.961
55.	Road passenger conductors	860	2,609,912	2,487,207.88	.846	.953
56.	Road passenger baggagemen	772	2,307,456	1,659,514.75	.586	.719
57.	Road passenger brakemen and flagmen	1,206	3,432,552	2,369,054.13	.592	.690
58.	Other road trainmen	32	61,541	34,169.14	.427	.555
59.	Crossing flagmen and gatemen	827	2,254,673	998,861.35	.389	.443
60.	Drawbridge operators	101	265,234	139,693.81	.450	.527
61.	Floating equipment employes	1,986	5,488,926	2,339,171.22	.205	.426
62.	Express service employes	1,066	2,807,207	1,417,471.33	.426	.505
63.	Policemen and watchmen	759	2,043,136	1,137,018.60	.385	.557
64.	All other transportation employes	982	2,667,084	1,422,951.04	.443	.534
65.	All other employes	8,409	21,818,507	8,739,136.46	.343	.400
	Total	185,177	465,466,482	290,510,517.75	.523	.624

The Canadian Air Board is reported to have approved of a draft course of instruction in aerial navigation for university students. It is expected that the first course will be opened at Camp Borden, Ont., May 1, 1922, and that the number of students will be limited to 30, all of whom must be undergraduates of Canadian universities who have taken only their first year's examinations.

The Toronto Viaduct Question.

Following a fatal accident at the foot of George St., Toronto, in July, the Mayor wrote the Chief Railway Commissioner in Ottawa, in reference to it, and to the viaduct question, to which Mr. Carvell replied, Sept. 9, in part, as follows:—"The important part of your letter is contained in the last paragraph, in which you urgently request that the Board issue an order immediately for the construction of a viaduct on the Esplanade. I fear you are laboring under a misapprehension as to the facts of the whole viaduct question. In 1915 an agreement was entered into between the city, the Harbor Commissioners, and the Canadian Pacific and Grand Trunk Ry. Companies providing for the construction of a viaduct. This agreement was approved of by an order of this Board, which has never been rescinded, and which stands today just as effectually as it did the day it was issued. Some months ago, the railway companies applied to the Board for an order granting them an extension of time within which to commence the construction and a further time for the completion of the work. Two hearings were held, but, up to the present, no decision has been reached."

Imperial service medals have been awarded to the following employes on Canadian Government Rys.: Intercolonial Ry., I. Barrow, locomotive inspector, Truro, N.S.; W. W. Brownell, gang foreman, Dorchester, N.B.; R. J. Fraser, section foreman, Valley, N.S.; R. Gormerley, pump man, Beaver Brook, N.B.; E. Kain, section foreman, Millerton, N.B.; E. R. Lockhart, section foreman, Petitcodiac, N.B.; D. McDonald, section foreman, Stellarton, N.S.; P. A. McDonald, painter, Moncton, N.B.; M. McGrath, locomotive wiper, St. John, N.B.; K. McIntosh, car foreman, Truro, N.S.; J. McNeil, section foreman, Iona, N.S.; E. Parsons, locomotive man, Chaudiere Jct., Que.; N. Samson, machinist, Riviere du Loup, Que.; B. Walker, conductor, Riviere du Loup, Que.; Prince Edward Island Ry., M. McCarey, stationary engine man, Charlottetown; G. McMahon, station agent, Kensington; Patrick McQuaid, ex-foreman blacksmith, Charlottetown.

Electrification in Australia.—Progress on the electrification of the Victoria Government Rys. suburban system at Melbourne, the capital of Victoria, was interfered with to such an extent by the war and the industrial difficulties which followed, that the work will not be completed until 1923. The lines already in operation, and others to be put in service this year will comprise about half the suburban system. The Railways Commissioners state that the electric services have given satisfaction and that the complete scheme will provide a greatly improved system of rapid transit, which will enable additional services to be afforded at less cost than for steam operation.

Fort William Wants a C.P.R. Hotel—A delegation of Fort William, Ont., people waited on E. W. Beatty, K.C., President, C.P.R., on his visit to that city, Sept. 9, and urged the erection of a hotel there by the company, but did not obtain any promise.

A C.P.R. train with 27 passenger cars and a van, which arrived at Port Arthur, Ont., recently, with about 1,450 passengers, is said to have been the heaviest ever handled there.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 346. Sept. 23.—Striking out Sec. 1832 of Regulations for Transportation of Explosives and Other Dangerous Articles by Freight, authorized by general order 204, Aug. 11, 1917, and substituting therefor a clause permitting shipment of phosphorus in metal containers.

31,424. Aug. 20.—Authorizing Grand Trunk Pacific Branch Lines Co. to move station agent at Lovett, Alta., to mile 47, Alberta Coal Branch.

31,425. Aug. 19.—Declaring that for the present, C.P.R. crossing south of Gibbs, Sask., is protected to the Board's satisfaction.

31,426. Aug. 23.—Extending to Aug. 1, 1922, time within which G.T.R. may complete spur for Crane Ltd., Toronto, as authorized by order 29,612, May 6, 1920.

31,427. Aug. 23.—Approving British Columbia Telephone Co.'s bylaw, Aug. 8, authorizing Gordon Farrel, Secretary, Jas. Hamilton, Auditor, to issue tariffs of tolls.

31,428. Aug. 18.—Amending order 31,292, July 21, authorizing Canadian National Rys. to open for traffic its Hanna-Medicine Hat Branch from near Bonar, mile 0 to 58.8, by substituting the word Alberta for Manitoba.

31,429. Aug. 19.—Approving agreement between Bell Telephone Co. and St. Ours Telephone Co., Richelieu, St. Hyacinthe and Vercheres Counties, Que.

31,430. Aug. 24.—Extending for six months time within which Esquimalt & Nanaimo Ry. may build spur for Wells Lumber Co., Vancouver Island, B.C., as authorized by order 30,934, Apr. 25.

31,431. Aug. 18.—Approving G.T.R. plan of bridge to be rebuilt at Main St., Toronto.

31,432. Aug. 25.—Authorizing New York Central Rd. to rebuild bridge 23A over Castor River, near Embrun, Ont.

31,433. Aug. 25.—Authorizing C.P.R. to remove station agent at Adelard, Ont.

31,434. Aug. 25.—Declaring that for the present C.P.R., crossing at mile 20.5, Chalk River Subdivision, 3 miles west of Carleton Place, Ont., is protected to Board's satisfaction.

31,435. Aug. 25.—Declaring that for the present Michigan Central Rd. crossing near Shedden station, Ont., is protected to Board's satisfaction.

31,436. Aug. 25.—Authorizing Canadian National Rys. to build spur for W. F. Hamlyn in Mayo Tp., Ont., mile 5.8 Bessemer Branch, Ottawa Division.

31,437. Aug. 24.—Amending order 31,037, May 18, authorizing Canadian National Rys. crossing in Sec. 4, Tp. 11, Range 14, west 4th meridian, Sask.

31,438. Aug. 25.—Approving plans of proposed change of location of C.P.R. and G.T.R. tracks leading to interchange tracks and Galt Stove & Furnace Co., also position of diamond, also protecting G.T.R. main line north of Dundas St., Galt, Ont.

31,439. Aug. 23.—Dismissing application of Nukol Fuel Co., Toronto, against cancellation of commodity rates on coal briquettes from Toronto.

31,440. Aug. 26.—Ordering Dominion Atlantic Ry. to build station at Round Hill, N.S., by June 30, 1922, and improve present platform facilities there.

31,441. Aug. 27.—Extending to Nov. 1, date when man or men in charge of the interlocking plant at crossing of Pointe aux Trembles Ry. by Canadian Northern Quebec Ry. at Pointe aux Trembles, be appointed, on condition that during extended period the Harbor Commissioners' trains be allowed to operate over crossing.

31,442. Aug. 25.—Authorizing Esquimalt & Nanaimo Ry. to build spur for Genoa Bay Lumber Co. in Lot 104, Chemainus District, Vancouver Island, B.C.

31,443. Aug. 27.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Armstrong Supply Co., Hamilton, Ont.

31,444. Aug. 26.—Authorizing C.P.R. to build spur for Thomas Fuel & Cartage Co., Calgary, Alta.

31,445. Aug. 25.—Rescinding order 26,749, Nov. 19, 1917, directing Great Northern Ry. to establish train service between Cloverdale and Clayton, B.C.

31,446. Aug. 26.—Authorizing C.P.R. to build spur for Canadian Fairbanks-Morse Co., Winnipeg.

31,447. Aug. 25.—Extending to Nov. 24, time within which C.P.R. may build spur for St. Maurice Paper Co., Cap de la Madeleine, Que., authorized by order 30,362, Nov. 24, 1920.

31,448. Aug.27.—Extending to Aug. 9. 1922, time within which Toronto, Hamilton & Buffalo Ry. may build spur for Frost Steel & Wire Co., Hamilton, Ont., authorized by order 30,627, Feb. 9, 1921.

31,449. Aug. 29.—Ordering Canadian National Rys. to appoint caretaker agent at Hepburn, Sask., and to enlarge waiting room from 10 x 14, to 10 x 24 ft.

31,450. Aug. 27.—Exempting C.P.R. from maintaining fences, gates and cattle guards at certain points on its Lardo Subdivision.

31,451. Aug. 29.—Declaring that C.P.R. crossing at mile 89 MacTier Subdivision, Ont., near Eady station, Ont., is protected to Board's satisfaction.

31,452. Aug. 29.—Declaring that for the present Canadian National Rys. Byers crossing, mile 1, near Southwestern Jct., Chester Subdivision, N.S., is protected to Board's satisfaction.

31,453. Aug. 29.—Ordering Canadian National Rys. to appoint station agent at Rowley, Alta., and to erect a no. 3 station there.

31,454. Aug. 29.—Authorizing C.P.R. to build spur for Ontario Reformatory at mile 29.02 Hamilton-Goderich Subdivision, Guelph Tp., Ont.

31,455. Aug. 27.—Authorizing Canadian National Rys. to build spur for Continental Wood Products Co., at mile 34.9 from Foyeyet, Ont.

31,456. Aug. 29.—Authorizing C.P.R. to divert and close within limits of right of way road allowance on north boundary of Sec. 31, Tp. 20, Range 29, west first meridian, Man.

31,457. Aug. 30.—Approving revised location of Canadian National Rys. standard 4th class station building at Notre Dame de Lourdes, Man., and rescinding order 30,943, March 23.

31,458. Aug. 23.—Authorizing St. Agathe municipality, Que., to make a highway crossing over C.P.R. about 500 ft. north of Belisle Mills station.

31,459. Aug. 20.—Ordering C.P.R. to reopen farm crossing at mile 127.3 Three Rivers Subdivision, Que., on J. Langlois' property.

31,460. Aug. 27.—Authorizing C.P.R. to install automatic bell and wigwag signal, instead of gates, at King St. crossing, Woodstock, N.B.

31,461. Sept. 1.—Ordering C.P.R. to appoint grain agent at Amazon, Sask., from Sept. 15 to Dec. 31, and a caretaker agent from Jan. 1, 1922.

31,462. Aug. 30.—Extending to May 6, 1922, time within which G.T.R. may complete spur for Crane Ltd., Toronto, authorized by order 26,829, May 6, 1920.

31,463. Aug. 29.—Authorizing G.T.R. to close station at Hawkesbury, Ont., and to use Canadian National Rys. station there.

31,464. Sept. 1.—Authorizing Brantford Municipal Ry. to lay tracks across Lake Erie & Northern Ry. on Morrell St., Brantford, Ont.

31,465. Aug. 31.—Approving location of Brantford Municipal Ry. Terrace Hill-Holmedale extension along St. Pauls Ave., from Dundas to Burwell St., along Burwell St. from St. Pauls Ave. to Morrell St., and along Morrell St. from Burwell to West Mill Sts., Brantford, Ont.

31,466. Sept. 1.—Amending order 31,357, ordering Canadian National Rys. among other things to keep cars 100 ft. from street line crossing at 7th Avenue, Regina, Sask.

31,467. Aug. 31.—Approving location of Brantford Municipal Ry. Eagle Place extension along Market St. to Ontario St., along Ontario St. from South Market to Port Sts., and on Port St. from Ontario St. t oErie Ave., Brantford, Ont.

31,468. Aug. 31.—Authorizing Dominion Atlantic Ry. to build spur for Sissiboo Pulp & Power Co. (Becker & Co. o America, Ltd.) at mile 39.77, Yarmouth Subdivision, N.S.

31,469. Aug. 31.—Declaring that for the present the G.T.R. crosisng on ninth line near Oakville, Ont., is protected to Board's satisfaction.

31,470. Sept. 1.—Authorizing G.T.R. to build spur for Canadian Libbey-Owens Sheet Glass Co., Hamilton, Ont.

31,471. Aug. 31.—Authorizing Grand Trunk Pacific Ry. to carry highway over its tracks between Secs. 35 and 36 and to divert road in n.e. ¼ Sec. 35, Tp. 44, Range 23, west 3rd meridian, at mile 43.7, Hillsdale rural municipality 440, Sask.

31,472. Extending to June 15, 1922, time within which C.P.R. may build spur for British Columbia Spruce Mills Co., Wattsburg, B.C.

31,473. Sept. 2.—Authorizing C.P.R. to open or traffic portion of its Lanigan Northeasterly Branch, mile 0 to 49.34, Sask.

31,474. Sept. 2.—Declaring that C.P.R. Matte public crossing, about 3½ miles west of Ste. Therese, Que., is protected to Board's satisfaction.

31,475. Sept. 2.—Rescinding order 31,341, July 26, made on complaint of J. G. Thynne, Otter Valley, B.C., against flooding of his lands by Vancouver, Victoria & Eastern Ry. & Nacigation Co. (G.N.R.).

31,476. Sept. 7.—Authorizing Quebec & Lake St. John Ry. to build spur for Metabetchouan Sulphite & Power Co., at mile 181.92 Jonquiere Subdivision, Que.

31,477. Sept. 9.—Authorizing Grand Trunk Pacific Ry. to make highway crossing over its tracks at Cow Bay, Prince Rupert, B.C.

31,478. Sept. 8.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to take certain lands in Vancouver, B.C.

31,479. Sept. 9.—Extending to Sept. 15 time within which Canadian National Rys. may build one-care stock pen at Brancepeth, Sask., authorized by order 31,354, July 29.

31,480. Sept. 9.—Ordering C.P.R. witihin 60 days to install wigwag signal in addition to automatic bell at crossing o Dundas St., Woodstock, Ont., by Woodstock, Thames Valley & Ingersoll Ry. and C.P.R.

31,481. Sept. 9.—Approving diversion of Windsor, Essex & Lake Shore Rapid Ry., from Main St., opposite Lot 7, crossing portion of Main, Pearl and Mill Sts., and portion o Lansdowne Ave., to connection with its track on Lansdowne Ave., Kingsville, Ont.

31,482. Sept. 6.—Amending order 13,572, May 2, 1911, re crossing of G.T.R. and Georgian Bay & Seaboard Ry. (C.P.R.) at Atherley Jct., Ont.

31,483. Sept. 7.—Authorizing Canadian Northern Pacific Ry. to building across highway in Lot 21, s.w. ¼ Sec. 23, Tp. 20, Osoyoos Division, Yale District, B.C.

31,484. Sept. 8.—Authorizing G.T.R. to build spur for R. C. Bustard, York Tp., Ont.

31,485. Sept. 8.—Declaring that for the present the G.T.R. crossing of Haggerty St., Newbury, Ont., is protected to Board's satisfaction.

31,486. Sept. 8.—Ordering C.P.R. to appoint grain agent at Red Jacket station, Sask., from Sept. 15 to Dec. 31.

31,487. Sept. 9.—Authorizing Spallmucheen Tp., B.C., to make highway crossing over Shuswap & Okanagan Ry. (C.P.R.) between Secs. 13 and 24-7, Osoyoos Division, Yale District.

31,488. Sept. 12.—Authorizinf C.P.R. to build spur for Midland Grain Co., Calgary, Alta.

31,489, 31,490. Sept. 12.—Approving Bell Telephone Co. agreements with Verona & Frontenac Telephone Co., Frontenac County, Ont., and Lennox Telephone Co., Lennox and Addington County, Ont.

31,491. Sept. 14.—Ordering Grand Trunk Pacific Ry. to provide waiting car and 75 ft. platform, as well as a one-pen stock yard at St. Louis, Sask.

31,492. Sept. 13.—Approving revised location (Saskatchewan Land Survey) of portion of C.P.R. Moose Jaw Southwesterly Branch, Assiniboia to Consul, mile 190.78 to 237.34.

31,493. Sept. 14.—Approving changes in layout of Toronto, Hamilton & Buffalo Ry. tracks in Bridgeburg yard and in location of Michigan Central Rd. Niagara Branch.

31,494, 31, 495. Sept. 15.—Amending orders 13,282, re Canadian Northern Ry. and C.P.R. crossing at Conquest, Sask., and order 8,436, re Canadian Northern Ry. and C.P.R. crossing at Carlyle, Sask., by providing that watchmen be appointed by C.N.R. instead of C.P.R.

31,496. Sept. 15.—Amending order 3,824, Oct. 23, 1907, re crossing of Grand Trunk Pacific Ry. and C.P.R. on Lots 16 and 17, Headingly Parish, Man.

31,497 to 31,499. Sept. 15.—Amending orders 9,072, Dec. 29, 1909; 8,890, Dec. 13, 1909; 8,176, Sept. 24, 1909, re Canadian Northern Ry. crossing of C.P.R. near Midale, Sask., near Bienfait, Sask., and at Camrose, Alta., respectively, by providing that watchmen be appointed by C.N.R. instead of C.P.R.

31,500. Sept. 15.—Amending order 18,572, Jan. 23, 1913, re Winnipeg & Northern Ry. (Canadian Northern Ry.) crossing of C.P.R. in St. Pauls Parish, Man., by providing that watchmen be appointed by C.N.R. instead of C.P.R.

31,501. Sept. 15.—Authorizing British Columbia Public Works Department to make highway crossing over Morrissey, Fernie & Michel Ry. at Coal Creek, B.C.

31,502. Sept. 15.—Authorizing British Columbia Public Works Department to make highway across Kettle Valley Ry. (C.P.R.) at mile 79 3,075 ft.

31,503. Sept. 15.—Authorizing G.T.R. to build spur for Toronto Transportation Commission, west of Coxwell Ave., Toronto.

31,504. Sept. 15.—Approving agreement between Bell Telephone Co. and North Gosfield Municipal Telephone System, Essex County, Ont.

31,505 to 31,510. Sept. 15.—Amending orders 3,470, Aug. 14, 1907; 983, Mar. 12, 1906; 18,274, Dec. 7, 1912; 19,155, Apr. 30, 1913; 11,264, Sept. 13, 1910; 16,597, May 23, 1912, re Canadian Northern Ry. crossing of C.P.R. near Brandon, Man., Hartney, Man., Estevan, Sask., in s.w. ¼ Sec. 9, Tp. 26, Range 4, west 2nd meridian, Sask., near Forward, Sask., and at Strathcona, Alta., respectively, by providing that watchmen be appointed by C.N.R. instead of C.P.R.

31,511, 31, 512. Sept. 14. 15.—Approving Bell Telephone Co. agreements with Magnetawan Municipal Telephone System, Parry Sound District, Ont., and Fingal Telephone Co., Elgin County, Ont.

31,513. Sept. 16.—Authorizing G.T.R. to build

spur for Waterloo Water & Light Commission, across Herbert St., Waterloo, Ont.

31,514 to 31,517. Sept. 15.—Amending orders 13,724, May 23. 1911; 7,844. Aug. 18, 1909; 867, Jan. 11, 1906; 3,493, Aug. 14, 1917; re crossings of Canadian Northern Ry. and C.P.R. at Matsqui, B.C., Maryfield, Sask., at Carberry, Sask., and Morris, Man., respectively, by providing that the watchmen be appointed by C.N.R. instead of C. P.R.

31,518. Sept. 16.—Approving Canadian Northern Ry. location of freight and passenger shelter at Wardlow, Alta.

31,519. Sept. 16.—Approving location of Canadian National Rys. freight and passenger shelter at Scottsburgh, Sask.

31,520, 31, 521. Sept. 16.—Approving location of Canadian National Rys. standard 4th class stations at Neidpath and Bateman, Sask.

31,522. Sept. 15.—Declaring that for the present the C.P.R. crossing at Letellier St., just south of station, in Tp. 2, Range 2, Man., is protected to Board's satisfaction.

31,523. Sept. 16.—Approving location of Canadian National Rys. 3rd class station at Hodgeville, Sask.

31,524. Sept. 19.—Authorizing G.T.R. and Grand River Ry. to operate over crossing near intersection of Dundas and Beverley Sts., Galt., Ont., without first stopping trains.

31,525. Sept. 17.—Approving location of Canadian Northern Saskatchewan Ry. 4th class station at Scapa, Sask.

31,526 to 31,529. Sept. 17.—Approving location of Canadian Northern Western Ry. freight and passenger shelter at Learmonth, Alta.; 4th class station at Tide Lake, Alta., and freight and passenger shelters at Princess and Dinosaur, Alta.

31,530. Sept. 19.—Approving change in location of C.P.R. spur for Jos. Dufresne, at mile 175.40, Montreal.

31,531, 31,532. Sept. 19, 17.—Approving Canadian Northern Saskatchewan Ry. proposed freight and passenger shelters at Beechy and Dudley, Sask.

31,533. Sept. 19.—Authorizing C.P.R. and Quebec Ry., Light, Heat & Power Co., to operate over crossing at Crown St., Quebec, without first stopping trains.

31,534. Sept. 17.—Approving location of Canadian Northern Western Ry. proposed 4th class station at Sinesen, Alta.

31,535. Sept. 17.—Approving Canadian Northern Saskatchewan Ry. proposed freight and passenger shelter at Tullis, Sask.

31,536. Sept. 17.—Approving Canadian Northern Western Ry. proposed standard freight and passenger shelter at Gilburn, Alta.

31,537. Sept. 19.—Authorizing British Columbia Public Works Department to make overhead crossing of C.P.R. near mile 19.15 west of Revelstoke, B.C.

31,538, 31,539. Sept. 17.—Approving Canadian Northern Western Ry. proposed 4th class stations at Steveville and Kalbeck, Alta.

31,540 to 31,542. Sept. 19.—Approving location of Canadian Northern Western Ry. proposed freight and passenger shelters at Pennymac, Alta., St. Kilda, Sask., and Rochfort Bridge, Alta.

31,543. Sept. 19.—Declaring that for the present G.T.R. first public crossing east of Sturgeon St., Omemee, Ont., is protected to Board's satisfaction.

31,544. Sept. 20.—Authorizing Grand Trunk Pacific Ry. to build across Government trail in s.w. ¼ Sec. 21, Tp. 45, Range 1, west 6th meridian, Jasper Park, mile 161.1, Brule Subdivision, Alta.

31,545. Sept. 20.—Authorizing Canadian Northern Ry. to build spur for Imperial Oil Co., Oyen, Alta.

31,546 to 31,548. Sept. 20.—Approving plans showing Canadian Northern Ontario Ry. proposed spans on bridge renewals at Cold Creek, mile 7.7 at Squire's Creek, mile 18.5, and at Squire's Creek, mile 20.9 Maynooth Subdivision, Ont.

31,549. Sept. 17.—Approving location of Canadian Northern Western Ry. proposed freight and passenger shelter in n.w. ¼ Sec. 7, Tp. 14, Range 6, west 4th meridian, Alta.

31,550. Sept. 20.—Declaring that for the present C.P.R. crossing two miles east of Fincastle station, Alta., is protected to Board's satisfaction.

31,551. Sept. 12.—Ordering C.P.R. to operate over first crossing east of Blairmore, Alta., at not more than 6 miles an hour.

31,552. Sept. 14.—Authorizing C.P.R. to build spur for Port Arthur Coal & Wood Co., Port Arthur, Ont.

31,553. Sept. 14.—Authorizing Interior Department to make crossing over C.P.R. at Anthracite, Alta.

31,554. Sept. 14.—Authorizing G.T.R. to build two spurs for Toronto Transportation Commission, Toronto.

31,555. Sept. 13.—Approving agreement between Bell Telephone Co. and McKellar Municipal Telephone System, Parry Sound District, Ont.

31,556. Sept. 17.—Approving location of Canadian Northern Western Ry. proposed standard freight and passenger shelter at Bemister, Alta.

31,557. Sept. 22.—Authorizing Canadian Northern Ry. to open for traffic its second track between mile 315.6 and 322.7. Drumheller Subdivision, Alta.

31,558. Sept. 21.—Authorizing C.P.R. to build two spurs for St. Maurice Lumber Co., Three Rivers, Que.

31,559. Sept. 21.—Authorizing C.P.R. to build two spurs for W. W. Powell, Nakusp, B.C.

31,560. Sept. 21.—Approving agreement between Bell Telephone Co. and Erin Municipal Telephone System, Wellington County, Ont.

31,561. Sept. 22.—Authorizing G.T.R. to build three additional tracks across highway in Ste. Rosalie Parish, Que.

31,562. Sept. 21.—Extending to Sept. 15 time within which C.P.R. may build standard 4 station at Hande, Sask., required by order 30,905, Apl. 15.

31,563. Sept. 21.—Approving Canadian National Rys. proposed standard freight and passenger shelter at Daylesford, Sask.

31,564. Sept. 22.—Authorizing City of Courtenay, B.C., to lay water main across Esquimalt & Nanaimo Ry. from Union St. to Lake Trail Road.

31,565. Sept. 22.—Amending order 12,067, Oct. 22, 1910, re C.P.R. crossing of Canadian Northern Ry. in Sec. 35, Tp. 24, Range 27, west 4th meridian, by providing that watchmen be appointed by C.N.R. instead of C.P.R.

31,566. Sept. 21.—Authorizing City of Hull, Que., to open St. Etienne St., under C.P.R.

31,567 to 31,573. Sept. 22.—Amending orders 14,310, July 18, 1911; 24,018, July 23, 1915; 14,527, Aug. 5, 1911; 12,785, Jan. 18, 1911; 13,633, May 16, 1911; 2,605, Feb. 28, 1907; 14,321, July 21, 1911; re C.P.R. crossings of Grand Trunk Pacific Branch Lines Co.'s tracks at Frobisher, Sask.; Canadian Northern Ry. in Portage la Prairie Parish, Man.; G.T.P.B.L. at Druid, Griffin and Regina, Sask., near Forrest, Man., and in Calgary, Alta., by providing that watchmen be appointed by C.N.R. or G.T.P.B.L. Co. instead of C.P.R.

31,574. Sept. 23.—Authorizing Canadian Northern Ry. to build spur for Duglas Fuel Co., St. Boniface, Man.

31,575. Sept. 22.—Amending order 11,505, Aug. 31, 1910, re C.P.R. crossing of Grand Trunk Pacific Branch Lines Co.'s lines at Oban, Sask., by providing that watchman be appointed by G. T.P.B.L. Co. instead of C.P.R.

31,576. Sept. 22.—Authorizing Canadian Northern Ry. to build Y connecting its Eston Southwest Branch with its MacRorie Westerly Branch in s.w. ¼ Sec. 28 and n.w. ¼ Sec. 21, Tps. 21-25, Range 20, west 3rd meridian, Sask.

31,577 to 31,579. Sept. 22.—Amending orders 14,420, July 26, 1911; 11,627, Sept. 9, 1910; and 4,090, Dec. 12, 1907, re C.P.R. crossings of Grand Trunk Pacific Branch Lines Co.'s tracks at Regina, Colonsay, Sask., and Nokomis, Sask., by providing that watchmen be appointed by G.T.P. B.L. Co. instead of C.P.R.

31,580. Sept. 22.—Ordering that for the present Canadian National Rys. crossing four poles south of Haultain, Sask., is protected to Board's satisfaction.

31,581. Sept. 24.—Authorizing C.P.R. to build spur for Watson & Perley, at mile 53.5 Shogomac Subdivision, in Lot 43, Woodstock Parish, N.B.

31,582. Sept. 26.—Authorizing Quebec Central Ry. to open for traffic portion of its railway from Scotts to Diamond Jct., Que.

31,583. Sept. 26.—Authorizing Grand Trunk Pacific Ry. to build branch for Cadomin Coal Co. in s.w. ¼ Sec. 14, Tp. 49, Range 21, west 5th meridian, Alta.

31,584. Sept. 26.—Declaring that for the present second crossing two miles south of Granby, Que., over Central Vermont Ry. is protected to Board's satisfaction.

31,585. Sept. 26.—Authorizing C.P.R. to remove regular agent from station at Grondines, Que., caretaker agent to be appointed.

31,586. Sept. 26.—Declaring that for the present Niagara, St. Catharines & Toronto Ry. crossing, at stop 64, Niagara Tp., Ont., is protected to Board's satisfaction.

31,587. Sept. 27.—Authorizing Canadian Northern Ry. to build spur for T. A. Burrows Lumber Co., at mile 149.7, in s.w. ¼ Sec. 18, Tp. 44, Range 26, west principal meridian, Man.

31,588. Sept. 27.—Authorizing C.P.R. to build extension to Delorimier Ave. shops spur for Quebec Liquor Commission, Montreal.

31,589. Sept. 27.—Approving proposed rearrangement of Canadian Northern Quebec Ry. location of station tracks at mile 21.30, and automatic signal protection at Hervey Jct., Que.

31,590, 31,591. Sept. 29.—Authorizing Canadian National Rys. to divert road allowances between Secs. 16 and 21, and Secs. 15 and 22, Tp. 5, Range 8, west 1st meridian, and between Secs. 23 and 26, and 24 and 25, Tp. 5, Range 10, west principal meridian, Man.

31,592. Sept. 29.—Limiting to two successive weekly publications, notice of C.P.R. application for authority to build branch from its Langdon North, Acme to Empress Branch, to connection with Canadian National Rys. in s.e. ¼ Sec. 9, Tp. 29, Range 20, west 4th meridian, Alta.

31,593. Sept. 29.—Authorizing Canadian National Rys. to divert road allowance between Secs. 18 and 19, Tp. 5, Range 8, and Secs. 13 and 24, Tp. 5, Range 9, west principal meridian, Man.

31,594. Sept. 29.—Authorizing Edmonton, Dunvegan & British Columbia Ry. (C.P.R.) to connect with Canadian Northern Ry. in Edmonton, Alta., by track from C.P.R. Mackenzie Ave. spur in Block 15, at grade across 116th St., Mackenzie (104th) Ave., 117th and 118th Sts., to the C.N.R. in Block 19.

31,595. Oct. 1.—Authorizing C.P.R. to open for traffic portion of its Langdon North Branch, Acme to Empress, from mile 38.88 to 74.29, Alta.

31,596. Oct. 3.—Authorizing Toronto, Hamilton & Buffalo Ry. to lower grade of portions of its spur for Banwell-Hoxie Wire Fence Co., Hamilton, Ont.

31,597. Oct. 3.—Ordering that Montreal Tramways Co. be made party to C.P.R. application for order directing City of Montreal to make repairs to subway at Forsyth St., so as to relieve C.P.R. from putting restrictions on use of some of its heaviest locomotives.

31,598. Oct. 3.—Declaring that for the present, third public crossing east of Prescott, Ont., at mile 110, over G.T.R. is protected to Board's satisfaction.

31,599. Sept. 20.—Authorizing C.P.R. to remove agent from Lorette, Que.

31,600. Sept. 23.—Refusing C.P.R.'s application to remove station agent at Belair, Que.

31,601. Sept. 23.—Authorizing Village of St. James, Que., to extend a street across Canadian National Rys.

31,602. Sept. 23.—Authorizing Guelph Radial Ry. and C.P.R. to operate trains over crossing at C.P.R., mile 32, without first stopping.

31,603. Sept. 23.—Extending to July 31, 1922, time within which Canadian National Rys. may make proposed changes in interlocking plant at connection between St. Maurice & Allenby Subdivisions, mile 5.6 St. Lawrence Division, Que., at Allenby Junction, required by order 30.488, Dec. 28, 1920.

31,604. Oct. 3.—Rescinding order 13,322, March 29, 1911: in so far as it authorizes construction of westerly 286 ft. of Canadian Northern Ry. branch from Rue de Meuron to College St., St. Boniface, Man.

31,605. Sept. 29.—Authorizing C.P.R. to build spur for Shannon & Hedberg, at mile 59.9, Langdon North Branch, Acme to Empress, Alta.

31,606. Oct. 3.—Authorizing C.P.R. to build spur for City Coal Co., Winnipeg.

31,607, 31,608. Oct. 3.—Approving Bell Telephone Co. agreements with Bromptonville Telephone Co., Richmond and Sherbrooke Counties, Que., and Burnt River Telephone Co., Victoria and Peterborough Counties, Ont.

31,609. Oct. 3.—Authorizing Quebec Roads Department to make highway crossing over Quebec Central Ry. on Lot 93, St. Francois de Beauce Parish, Que.

31,610, 31,611. Oct. 3.—Approving Bell Telephone Co. agreements with Dummer Municipal Telephone System, Peterborough County, Ont., and Havelock-Cordova Telephone Co., Peterborough and Hastings Counties, Ont.

31,612. Sept. 29.—Ordering Canadian National Rys. to appoint station agent at Eldersley, Sask., by Oct. 17.

31,613. Oct. 4.—Rescinding orders 9,361, Jan. 24, 1910, and 18,221, Dec. 4, 1912, authorizing building of sidings for Kirkfield Portland Cement Co., Bexley Tp., Ont., by G.T.R.

31,614. Oct. 4.—Declaring that for the pressent Canadian National Rys. crossing at milepost 788, Vegreville Subdivision, near Lamont, Alta., is protected to Board's satisfaction.

31,615. Oct. 4.—Authorizing G.T.R. to build spur for Warren Bituminous Paving Co., Downie Tp., Ont.

31,616. Oct. 4.—Authorizing Canadian Northern Ry. to build spur for McColl Bros., Regina, Sask.

31,617. Oct. 4.—Authorizing the British Columbia Public Works Department to build highway over C.P.R. near Nicholson, B.C.

31,618. Oct. 4.—Extending to May 31, 1922, time within which G.T.R. may build station at Allanburg, Ont., approved by order 30,560, Jan. 14, 1921.

31,619. Oct. 4.—Authorizing Canadian National Rys. to close station at Brighton, Ont.

31,620. Oct. 6.—Ordering City of Montreal to repair Forsyth St. subway, so as to relieve C.P.R. from putting restrictions on use of some of its heaviest locomotives, question of cost of work reserved.

31,621. Oct. 6.—Ordering City of Montreal to repair Ontario St. subway, to enable C.P.R. to operate without present restriction on its traffic, cost to be paid by City of Montreal.

31,622. Oct. 4.—Authorizing Town of Capreol, Ont., to make highway crossing over Canadian National Rys. at Dennie St.

31,623. Oct. 5.—Extending for three months, time within which G.T.R. may rebuild bridge on Main St., Toronto, as required by order 29,923, July 3, 1920.

31,624. Sept. 23.—Authorizing City of Montreal to extend Sherbrooke St. across C.P.R. overhead.

Railway Mechanical Methods and Devices.

Apparatus for Washing Locomotives.

The practice of washing off locomotives with oil, water and compressed air, either after they have left the ash pit on their way into the house, or after they have been turned out, is now a fairly common one. A departure from the usual practice is apparatus shown in the accompanying illustration, which is used at the G.T.R. locomotive terminal at Mimico, near Toronto, and which uses crude oil in combination with water and steam.

Oil is placed in the vertical cylinder through the funnel A. The pipe B, running underground, conveys water, under pressure, from the line in the house. A connection is made from this pipe to the bottom of the cylinder, controlled by valve D. The pressure of the water keeps the cylinder full of water below the oil, the dividing line being seen by the gauge E. The flow of water is also controlled by valves C, C. Steam from the stationary plant is carried through pipe F, and is controlled by valves H, H. The pipe J,

Apparatus for Washing Locomotives.

leading under the platform to another set of tracks, connects to a hose used in washing off the locomotives, there being a similar connection at the other side of the cylinder.

In operation, the oil valve K is opened slightly, the valve C to the right is also opened slightly to provide water under pressure, and the valve H, at the right, is opened for steam supply. All being under pressure, a jet of combined oil, water and steam, possessing high velocity, is formed, flowing through pipe J, to be directed against the locomotive to be washed off.

We are advised that the results secured by this installation are much superior to where compressed air is used, the fact of the compound being hot, and at high pressure, having a lot to do with the quick removal of grease, etc. We are indebted to H. J. Hague, Locomotive Foreman, G.T.R., Mimico, for this information.

Good and Bad Hub Liners.

The accompanying illustrations show two hub liners as applied to the driving wheels of a passenger locomotive. Both of these are cast iron liners, put on in two sections when the wheels were on the axle, and reinforced with countersunk set screws or studs.

The liner on the axle on which is mounted the eccentrics for the Stephenson valve gear was in bad shape, and had been cutting, the grease on the inside of the wheel center and spokes being copper-colored. The dividing line between the two halves of the liner is apparent, and it will be noted that a good even joint was not made. The heads of the countersunk studs were over a quarter inch in from the face of the liner.

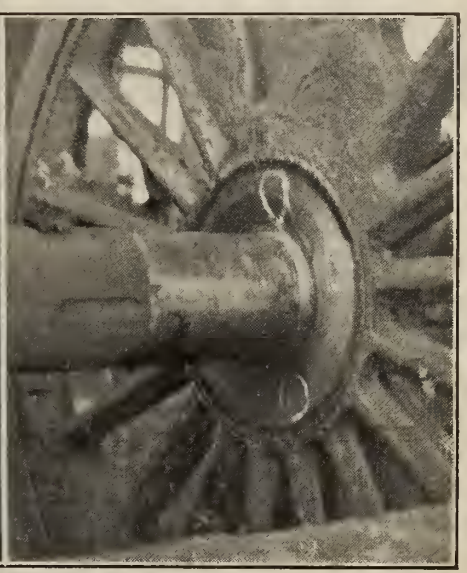


Fig. 1. Hub Liner in bad shape. Fig. 2. A good hub liner.

In the liner on the axle on which there are no eccentrics, however, the joint between the two halves is not apparent in the illustration, and was scarcely evident at all, while the heads of the reinforcing studs were practically flush with the face of the liner. The result is that this hub liner is in good shape, and no cutting has been taking place.

A Handy Addition to a Freight Car Repair Yard.

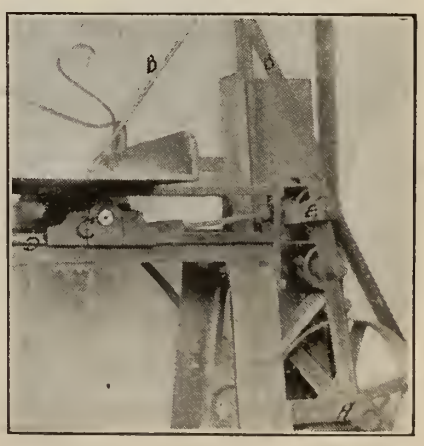
The accompanying illustration shows a small wood saw used in the freight car repair yard of the Canadian National Rys. Leaside shops, Toronto. It is housed at one end of the freight car blacksmith shop, and is furnished power from a motor driven line shaft, which is extended through the wall to afford a connection for the saw. The saw is 16 in. in diameter, and the table, of ½ in. steel, is 18 in. by 4 ft.

The belt from the line shaft drives shaft A, by a pulley not shown in the illustration, and the saw is driven from shaft A, by the compound system of belting shown. The work is placed on the table, and, by pulling handle B, the saw is drawn through the work, through a ⅝ in. opening across the table. The illustration shows the saw as pulled forward for cutting. The saw frame, one end of which is shown at C, and which is rigidly attached to the pulley frame E, slides along the ways D, so that when the saw is pulled forward for the cut, the inter-relation of all pulleys and transmission of power by belting is unchanged. The uprights supporting the saw table are of metal also.

This saw is used for cutting decking, enough of which for a car can be cut up in 15 minutes, and all kinds of lumber used in car repairs, and is a handy addition to car repair equipment. For information concerning it we are indebted to W. Gouge, Freight Car Foreman, Leaside shops.

Stand for Rivet Shearing Tool.

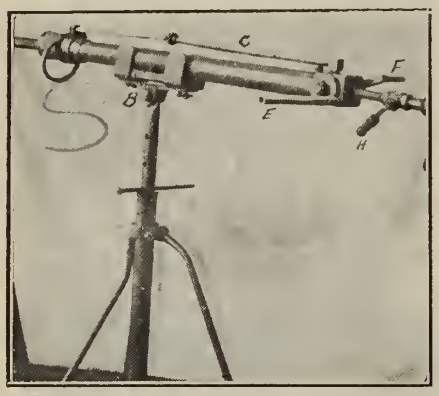
The illustration on page 576 shows an air operated device, used for shearing



Arrangement of Saw for Freight Car Repair

the heads off rivets, a necessity frequently arising in car repair work; also a stand or support, which has been devised to support the front end of the machine when it is being used. The stand is on

a tripod, and consists of two sections of pipe, of different diameter, arranged as shown, together with the supporting bracket to accommodate the "barrel" of the "gun." The manner in which the support can be adjusted for height is evident. The stand is easily adjustable for angle with the horizontal, by reason of the supporting bracket being pivoted on the pin B. The use of this stand permits of the operation of the rivet cutter



Stand for Rivet Shearing Tool.

by two men, by precluding the necessity of having an extra man to guide the front end, and place the point of the chisel against the rivet.

The operation of the rivet cutter is simple. H controls a valve to shut off air when desired. F controls the operating valve; one position admits air to operate the plunger driving the cutting chisel, while another position admits air, through the small pipe C, to force the plunger back, and allows the air admitted previously to exhaust. E is a handle to facilitate operation.

The rivet cutter and stand are used in the C.P.R. West Toronto car shops, in charge of Wm. Forrest, Assistant Car Foreman, under Jas. Bannon, General Car Foreman, and are capable of operation, through the stand being used, by two men instead of three. Being light, and easily transported, and available for

A Portable Tire Heater.

work at any point of the shop, the combination is a handy addition to car shop equipment.

A Portable Tire Heater.

The accompanying illustration shows a tire heating apparatus used in the G.T.R. locomotive house at Mimico, near Toronto, in connection with the shimming and changing of locomotive driving, locomotive truck, and tender truck wheel tires, features of it being a construction which makes it portable and easy to move around, and a preheater used in connection with it. The fuel oil tank is mounted on a 2-wheel truck, the wheels being of 10 in. diameter and 2 in. tread. For use, the tank is filled with crude oil, and a hose connection to the air connection at the top is made, with the compressed air line in the house. The fuel oil under pressure comes through the armored hose as shown by the arrows, and enters the preheater A, which consists of a long coil of pipe, suspended over a fire trough, made out of an old cylinder, in which a bright charcoal fire is kept burning during the tire shimming or changing operation. This preheating tends to make the oil enter a gaseous state before arriving at the burner B, with the result that a better and brighter flame is secured at the burner. On being ignited at the burner, the flame is directed around the circumference of the tire in the usual manner. For information concerning the above equipment we are indebted to H. J. Hague, Locomotive Foreman, G.T.R., Mimico.

Reclaiming tie plates.

Reclaiming Tie Plates.

Tie plates, which have become bent and worn in main line service, are sent to the scrap dock at the West Toronto shops, C.P.R., and are sorted out from among the other scrap material in the car, and stored in a separate section of the dock. From there they are taken to the blacksmith shop, and straightened by means of a medium sized steam hammer, as shown in the accompanying illustration. Two tie plates may be laid on the block at the same time, the flanges of one fitting into the spaces between the flanges of the other, and a single blow of the hammer will straighten them up and render them fit for further service. At the time the photograph was taken, 16,000 plates were on hand to be reclaimed.

Support for Shop Lighting Units.

The accompanying illustration shows a type of supporting frame as made and used at the G.T.R. shops in connection with circular flood lights of the same kind as the one shown mounted in the frame. The base of the frame is of sheet iron, and the upright support, of pipe, A, is rigidly secured to the base. As shown in the illustration, the vertical pipe section is in one piece, but in many frames two pieces of pipe, of different diameter are used, one telescoping within the other, height adjustment being maintained by a set screw. The cord enters the

Support for Shop Lighting Unit.

upright through the coupling B, and is carried through it to the top. The hooks C, C, are to hang the slack in the cord, when the light is used on a job near the current connection. The U frame, D, is of ½ x 1½ in. iron, secured to the vertical pipe section as shown, and drilled

for the studs E, E, threaded into the circular wall of the light casing. The outward pressure due to the spring of the U frame against the nuts E, E, has the effect of causing the lamp to keep any position given by turning it about E, E, as axis. This feature enables the operator to set the frame so that the rays of light are in any desired direction, making the device of value in any work where artificial light is a necessity. We are indebted to W. Trainor, chief engineer of the boiler and power house at the shops, for this information.

Transportation Men in the Dominion General Elections.

J. M. Campbell, President, Kingston Navigation Co., has been chosen as the Liberal candidate for Kingston, Ont.

Thos. Cantley, of New Glasgow, N.S., formerly President, Nova Scotia Steel & Coal Co., and subsequently Chairman of the Board, has resigned from the Canadian National Rys. directorate, having been chosen as the Government candidate for Pictou, N.S.

M. P. Finn, C.P.R. conductor, has been chosen by the Dominion Labor Party as candidate for Lethbridge, Alta.

G. B. Nicholson, who represented Algoma East, in the last Dominion Parliament, has been again chosen as the Government candidate. He was at one time a locomotive fireman on the C.P.R., subsequently becoming a tie and timber contractor, and is a member of the firm of Austin & Nicholson, railway tie dealers, etc., Chapleau.

Jas. Murdock, who has been chosen as the Liberal candidate for South Toronto, was born at Brighton, Eng., Aug. 15, 1871, of Scottish parentage. He came to Canada in 1875, and was brought up on a farm in Kent County, Ont., until the spring of 1890, after which his record was as follows:—April 18, 1890 to Sept. 1, 1890, ballast pit laborer, C.P.R., London, Ont.; Sept. 15, 1890 to June 12, 1902, freight brakeman, C.P.R., London, Ont.; June 12, 1902 to July 31, 1905, freight conductor, C.P.R. His labor union record is as follows:—1895 to July 31, 1905, local and general chairman for C.P.R. employes, represented by Brotherhood of Railroad Trainmen; Aug. 1, 1901 to July 31, 1905, member board of trustees for Brotherhood of Railroad Trainmen (international organization); Aug. 1, 1905, to date, Vice President, Brotherhood of Railroad Trainmen. On Aug. 7, 1918, he was appointed a member of Canadian Board of Adjustment No. 1, which deals with disputes between railways and their employes, in regard to wages, working conditions, etc. In Sept. 1920 he was appointed a member of the Dominion Board of Commerce, resigning some six months later.

W. G. Ross, formerly General Manager, Montreal Tramways Co., who has been President of the Montreal Harbor Commission for several years, has been selected as the Government candidate for St. Antoine, Montreal.

Edward E. Sheppard, a Timiskaming & Northern Ontario Ry. conductor, at North Bay, Ont., has been selected as the Government candidate for Timiskaming, Ont.

D'Arcy Scott, barrister, Ottawa, formerly a member of the Board of Railway Commissioners, and now Secretary of the National Dairy Council, was a candidate for the Liberal nomination for Wright, Que., recently, but did not receive any votes at the convention at Aylmer on Oct. 17.

Hon. J. A. Stewart, K.C., Minister of Railways and Canals, who represented Lanark, Ont., from a by election in May 1918 until the recent dissolution, is again the Government candidate. He is a member of the law firm of Stewart, Hope & O'Donnell, Perth, Ont., is President of Henry K. Wampole Co., pharmaceutical manufacturers, of Andrew Jergens Co., soap and perfume manufacturers, of Perth Shoe Co., women's shoe manufacturers, and of Perth Improvement Ltd., Perth, Ont., and is a director of Frost & Wood, Ltd., agricultural implement manufacturers, Smiths Falls, Ont. He was Mayor of Perth for 1900, 1903 and 1904, and subsequently Chairman of its Board of Education. He was High Chief Ranger of the Canadian Order of Foresters for 14 years.

P658

Hon. J. A. Stewart, K.C.,
Minister of Railways and Canals.

Couldn't Hold It.

The station master, hearing a crash on the platform, ran out of his room just in time to see the express disappearing around the curve and a dishevelled young man sprawled amid several overturned milk cans and the contents of his travelling bag.

"Was he trying to catch the train?" asked the station master of a small boy who stood by admiring the scene.

"He did catch it," said the boy, happily, "but it got away again."—Chicago Herald and Examiner.

U.S. Steel Rail Prices.—A New York press dispatch of Oct. 22 said the U.S. Steel Corporation had announced a cut in steel rail prices from $47 a ton to $40, in reference to which President Gary said: "Present costs of production do not justify this action, but it is hoped an expected reduction in freight rates and otherwise, together with larger operations, will soon have a beneficial effect upon our costs."

McGill University's New Chancellor and Centennial.

The Governors of McGill University, Montreal, announced Oct. 3 that E. W. Beatty, K.C., President, C.P.R., had been elected Chancellor, succeeding the Right Hon. Sir Robert Borden, whose resignation was tendered in 1920. Mr. Beatty has been a member of the McGill University governing body for some years, and in 1919 was, with its consent, elected Chancellor of Queen's University, Kingston, to succeed the late Dr. James Douglas. When Mr. Beatty was asked to accept the McGill Chancellorship, negotiations were entered into between the governing bodies of the two universities, with the result that Queen's approved of the arrangement, and it is understood that Mr. Beatty will be the titular head of both universities. Mr. Beatty was installed at McGill on Oct. 13, when he spoke of the history of chancellors, and of the aim of universities. The installation ceremony formed part of the gathering held in connection with the celebration of the University's centennial.

A large number of honorary degrees were conferred by the new Chancellor, among the recipients being Phelps Johnson, ex President, Dominion Bridge Co.; G. H. Duggan, D.Sc., LL.D., President, Dominion Bridge Co., Montreal; and G. F. Porter, Chief Engineer, Canadian Bridge Co., Walkerville, Ont.; all of whom were officials of the St. Lawrence Bridge Co., and were engaged in the designing and erection of the Quebec bridge; and W. W. Colpitts, consulting engineer, New York, N.Y., who were given the honorary LL.D. degree and were afterwards entertained at luncheon at the C.P.R. Windsor St. station by the Engineering Institute of Canada's Montreal branch.

At a gathering of Toronto University graduates in Montreal, Oct. 15, there were present, among others, E. W. Beatty; H. Rolfe, President, Montreal branch, Toronto University Engineering Alumni; G. H. Duggan, W. C. Chisholm, K.C., General Solicitor, G.T.R., and W. F. Tye, formerly Chief Engineer, G.P.R. The latter was elected Vice President of the Association.

Notices of Proposed Freight Rate Changes.—The Board of Railway Commissioners is of the opinion that it should have available each day a condensed statement of proposed rate changes in freight tariffs as filed. Railways have therefore been requested to file in triplicate, with the filing advice, a statement which shall show, in connection with schedules which advance or reduce rates formerly in effect, the following information:—The C.R.C. number of the tariff or supplement. The effective date. The commodity affected (if published under an item number, proper reference thereto to be given). The points from, to or between which the rates apply. The amount of increase or decrease. A concise statement of the reason for the rate changes. If changes are made in regularly scaled class tariffs, a statement of the increase or decrease in the first class rate will be sufficient. If there is a general revision of class rates, such as those resulting from consolidation of railways, shortening of lines, new routes, etc., a general statement will be sufficient. These statements should be headed "Freight Rate Changes," and should be numbered consecutively.

The Railway Wages Question in Canada and the United States.

In the review of wages and working conditions in Canadian Railway and Marine World for October, on pg. 527, the formation of a board of arbitration to deal with the dispute between the Canadian railways and the locomotive men, firemen, telegraphers, conductors and trainmen, was noted. Mr. Justice Maclennan, of Montreal, was appointed chairman of the board; the employes' organizations being represented by D. W. Campbell, barrister, Regina, Sask., and the railways by Isaac Pitblado, K.C., Winnipeg. The board's sittings began Sept. 28, in Montreal. The C.P.R. was represented by Geo. Hodge, Assistant to Vice President, Eastern Lines; the G.T.R. by C. F. Needham, Assistant to Superintendent of Motive Power; and the Canadian National Rys. by A. J. Hills, Assistant to the President. The brotherhoods were represented by Ash Kennedy, Vice President, Brotherhood of Locomotive Engineers; S. N. Berry, of the Order of Railway Conductors; W. J. Babe, Deputy President, Brotherhood of Railroad Trainmen; W. G. Chester, Chairman of the brotherhood's conference committee, and General Chairman, Order of Railway Conductors, C.P.R. Lines; W. G. Atkinson, of the Brotherhood of Locomotive Firemen and Enginemen, and Secretary of the brotherhood's conference committee, and G. K. Wark, Vice President, Brotherhood of Locomotive Firemen and Enginemen.

The main argument for the brotherhoods was presented by Mr. Wark, who claimed that the pre-war wage scales for railway employes were entirely inadequate, and that therefore they should not be taken as a standard. He also pointed out the hazardous nature of the work of the men he represented, and the magnitude of their responsibility. It was also contended by the employes' representatives generally that the railways had violated the Lemieux Act by putting the wage cut of July 16 into effect while the dispute re wages remained undecided.

Mr. Hodge, on behalf of the C.P.R., met this latter argument by stating that the application for a board under the Lemieux Act was unnecessary, and that the joint conference committee formed by the brotherhoods had not been recognized by the C.P.R., which always made a practice of settling its wage problems with its own employes. He claimed that the railways, having adopted the wage scales put into effect in the U.S., were following a reasonable course in adopting the reductions put into effect there. He pointed out that the reductions were tentative in nature, in any event, and that the company was obliged to adopt them to protect itself, in the same way that the employes had been protected in respect to retroactive dates for increased pay. He submitted figures to show that the cost of living in Canada from July, 1917 to July 1921, had increased only 17%, while in the U.S. it had increased 24%. He also pointed out that representatives of 37.7% of the employes had accepted the reductions, and that the reductions had been applied to an additional 40% of them without protest, and he considered it only reasonable that the remaining employes, who received 30% of the total wages paid, should accept the same rate of reduction.

Argument, and the presentation of evidence, for both sides, were completed on Sept. 30, when Justice Maclennan suggested that the railway representatives meet a committee of employes' representatives in an effort to come to an agreement without the necessity of the board functioning further. It was agreed that this should be done, and a sub-committee of the vice presidents of the brotherhoods was appointed to meet the above noted railway representatives. The conference began on Oct. 3. It was hoped that an agreement would be reached on that or the following day, but such was not the case. Extension of time to include Oct. 5 was then ordered by the board of arbitration, but conference on that date failed to bring about an agreement also. On receiving a report that the conference had failed, Justice Maclennan asked the representatives of both sides to further discuss the matter with him, and as a result of discussion, an agreement was finally reached on the evening of Oct. 8, by which the employes agreed to accept reduced wages tentatively.

The Agreement.

Agreement entered into between the railways and the classes of employes as specified herein, at the suggestion of the Board of Conciliation appointed under the Disputes Investigation Act, 1907:

At the suggestion of the Board of Conciliation, it is agreed between the railways and their engineers, firemen, conductors, trainmen, yardmen and telegraphers, including all employes governed by the respective schedules thereof, as follows:—

1.—Effective July 16 (Aug. 1 for Grand Trunk engineers and firemen), 1921, the railways will apply and the employes will accept tentatively the following changes in rates of pay as compared with rates of pay in effect at June 30, 1921:—

Engineers and Firemen.

	Decrease of Per mile cents	Per day dollars
Passenger service.		
Engineers	.48	$0.48
Firemen	.48	$0.48
Freight service.		
Engineers	.64	$0.64
Firemen	.64	$0.64
		Per day dollars
Yard service.		
Engineers		$0.64
Firemen		$0.64
		Per day dollars
Hostler service.		
Hostlers		$0.64

Conductors and Trainmen.

	Per mile cents	Decrease of Per day dollars	Per mth. dollars
Passenger service.			
Conductors	.4	$0.60	$18.00
Baggagemen	.4	$0.60	$18.00
Brakemen	.4	$0.60	$18.00

Through and regular freight service.	Per mile cents	Per day dollars
Conductors	.64	$0.64
Brakemen	.64	$0.64
Way freight service.		
Conductors	.64	$0.64
Brakemen	.64	$0.64
		Per day dollars
Yard service.		
Foremen		$0.64
Helpers		$0.64
Switch tenders		$0.64

Telegraphers.

	Decrease in aggregate the equivalent of Per hr.	Per month
Agents and operators	.6	$12.24
Assistant agents	8	16.32
Train dispatchers	.8	16.32
Linemen	.8	16.32

Based on the number of positions, the amount arrived at in the aggregate will be applied to adjust the rates for the same number of positions of agents and operators, assistant agent and train dispatchers, respectively, on each general superintendent's district, as may be agreed upon mutually by the district officers and representatives of the employes. For linemen the rates will be similarly adjusted between the superintendents of telegraphs and representatives of the employes.

2.—Within 15 days after notice has been given by either the railways or the employes to the other respectively, the representative of both will collectively confer further in regard to rates of pay, and, except as may be otherwise mutually agreed, any rates of pay finally agreed upon will be effective July 16, 1921, any necessary adjustments to be made accordingly, provided, however, that any such adjustments will not operate to bring about any reclaim from employes of any amounts, which prior to the date of any final agreement may have been paid to them or any of them, pursuant to the terms of this tentative agreement. Should such conferences fail to bring about an agreement in regard to rates of pay, the present board of conciliation is to again meet upon 21 days notice from either party, or such earlier date as may be possible, and is to hear again the parties on the question of rates of pay, and after such hearing is to make a report thereon in accordance with the provisions of the Industrial Disputes Investigation Act, 1907, in the same manner and to the like effect as if the dispute in regard to such rates of pay was the original dispute in connection with which the board of conciliation was established. If no notice is given to the present board of conciliation prior to July 15, 1922, asking that it should again meet and hear the parties, it is understood that the services of the board of conciliation are no longer required on the question of rates of pay.

There will be no changes made effective in schedule rules before 30 days after Jan. 1, 1922. At any time hereafter any party desiring a change in existing schedule rules may, on giving not less than 30 days notice to the other party, call upon the other party to confer with respect to such rules, and any proposed changes therein, and negotiations shall then be carried on in the usual manner. In the event of failure to come to an understanding with respect to such rules, the parties will, unless otherwise mutually agreed, within 10 days of such failure, jointly apply to the Department of Labor for the appointment of a board of conciliation and investigation with regard thereto; provided, however, that this understanding does not prejudice the right of either party to apply on its own behalf for a board.

In the event of there being a revision of schedule rules between any of the railway companies and any class of its employes represented in this agreement prior to July 15, 1922, and in the event that the date on which such revised rules are to become effective remains in dispute, that question shall be submitted to and decided by the members of the present board. A decision of a majority of the members of the said board shall be binding on the railway company and its employes concerned.

The agreement was signed by G. Hodge, for Canadian Pacific Ry.; Ash Kennedy, for the engineers; A. J. Hills, for Canadian National Rys.; G. K. Wark, for

firemen and enginemen; S. N. Berry, for conductors; W. J. Babe, for trainmen; C. F. Needham, for Grand Trunk Ry. lines in Canada; J. M. Mein, for telegraphers; W. G. Chester, chairman of committee; F. S. Maclennan, chairman, board of conciliation.

It is evident that the fact of an agreement being finally reached was due in very large part to the tact and patience of Justice Maclennan, to whose work in the proceedings a warm tribute has been paid by Senator G. D. Robertson, Minister of Labor, who has pointed out that the late amendment to the Judges' Act prevents a judge being compensated for such work, and he characterized this as a matter for regret, and stated that Justice Maclennan's public spirit should merit much appreciation. A great national advantage is evident in the agreement, as it precludes the possibility of any interruption in Canadian transportation at this time, a happening otherwise within the bounds of possibility due to the present situation in the U.S.

Canadian National Railways Arbitration.

Concerning the dispute between the Canadian National Rys. and the Canadian Brotherhood of Railway Employes, the board of mediation and conciliation appointed under the Act respecting Conciliation and Labor, consisting of H. P. Hill, Chairman, Geo. D. Kelley, for the railways, and Harold Fisher, for the employes, held some sittings, and then asked the company and the labor organization to try and come to an agreement themselves. The discussion between the C.B.R.E. representatives, led by A. R. Mosher, and F. P. Brady, for the railways, was not productive of result, although, in addition to wage rates, there were discussed such matters as overtime, vacations, work done on holidays, length of working day, and working conditions generally. The C.B.R.E.'s claim is that the lower paid men in the railway service, who make up a large proportion of the C.B.R.E. membership, have had their pay reduced by too great an amount, considered in relation to the reduction affecting the higher paid employes. The board of conciliation met in Ottawa on Oct. 3 to consider the dispute, but in the absence of F. P. Brady, nothing was done. At a subsequent meeting, the board again referred the matter back to the principals, but in a further discussion, no agreement was reached, although Mr. Brady, on behalf of the railway, agreed to a withdrawal of all consideration of working conditions, but would not consider any change in the wage scale put into effect. In view of this, it was decided to follow the terms of the act under which the board of conciliation was constituted, and to replace that board with a board of arbitration. Mr. Hill being unable to act further, the new board was constituted with the same representatives for the railway and the employes' organization, but with Rev. Byron Stauffer of Toronto as chairman. The new board began its sittings in Ottawa on Oct. 20, when the Canadian National Rys. were represented by F. P. Brady, A. C. Egan, Auditor of Agencies, and A. E. Crilly, Assistant to General Manager, Eastern Lines. The employes were represented by A. R. Mosher, C. E. Cole, and R. Dykes, officials of the C.B.R.E. Mr. Mosher stated that the members of his organization were willing to accept a reasonable reduction in wages to help the railway to make a better financial showing, even though he did not consider a reduction justified, and in his opinion the proposed reduction would make the wages of his membership so low that the men and their families could not exist in comfort and decency. Mr. Egan, for the railway, pointed out that passenger rates were back on the same basis as in 1915, that reight rate reductions had also gone into effect, and indicated the decrease in commodity values generally. Hearings were continued on Oct. 22, and then adjourned to Oct. 27.

Grand Trunk Railway Arbitration.

In the dispute between the G.T.R. and the Canadian Brotherhood of Railway Employes, the arbitrators named were J. M. Godfrey, K.C., Toronto, chairman; H. H. Vaughan, C.E., Montreal, for the railway, and Peter Bercovitch, K.C., Montreal, for the men. This board was granted under the Lemieux Act, and held its first sitting in Montreal Oct. 19. C. F. Needham, representing the G.T.R., asked that employes who were not in the C.B.R.E. membership, but who were engaged in similar work in the company's employ, should be represented at the hearing also. The sittings were adjourned to get representatives of these other employes. On Oct. 20, the sittings were resumed, when there appeared representatives of the International Brotherhood of Railroad Stationmen, the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, and of the Brotherhood of Stationary Firemen and Oilers, which organizations have members employed on the G.T.R. in the same kind of work as men who are members of the C.B.R.E. The representatives of these organizations, who, it is said, have but little use for the C.B.R.E., told the board that they did not want to be a party to the proceedings, and then withdrew, to be called as witnesses if needed. After the presentation of argument on behalf of both sides, the chairman suggested that they try to come to an agreement by themselves. Accordingly, a meeting between G.T.R. representatives and C.B.R.E. representatives was called for Oct. 24. No agreement was arrived at at this meeting, but on Oct. 25 the employes finally agreed to accept the reductions tentatively, the agreement being subject to a re-opening of the whole question on 15 days notice from either side. It was also provided that no change would be made in rules or working conditions until 30 days after Jan. 1, 1922, unless mutually agreed upon. The organizations mentioned above, in addition to the Canadian Brotherhood of Railway employes, were parties to the agreement.

The United States Situation.

In the U.S., 90% or more of the membership of the Big Four organizations voted in favor of a strike against the wage reduction of July 1, as did also the members of the Switchmen's Union. The Association of Railway Executives met in Chicago, Oct. 16, and decided to petition the Labor Board for another reduction in railway wages, sufficient to remove the remainder of the increase made by the Board's decision of July 20, 1920. During the time the railway executives were in Chicago, the labor leaders were also there, and they requested and were accorded a meeting with a committee of the railway executives. Messrs. Stone, Carter, Lee, Sheppard and Cashen, leaders of the organizations of the locomotive men, locomotive firemen and enginemen, conductors, trainmen, and switchmen, respectively, met W. W. Atterbury, Vice President, Pennsylvania Rd.; J. Gorman, President, Chicago, Rock Island & Pacific; Carl Gray, President, Union Pacific; C. H. Markham, President, Illinois Central, and Ralph Budd, President, Great Northern. The labor leaders asked that the wage cut of July 1 be cancelled, that time and one-half for overtime service be continued, and that no further wage reductions be sought. The executives flatly refused these demands, and notified the labor leaders that a further wage reduction would be sought. The labor leaders immediately announced plans for a general railway strike to begin Oct. 30 at 6 a.m. For strike purposes, they divided the U.S. railways into four groups, the strike to begin on the roads in the four groups 48 hours apart.

Group 1, on the roads in which the strike was scheduled to begin Oct. 30, included the Kansas City Southern, Missouri Pacific, St. Louis Southwestern, International & Great Northern, Texas & Pacific, Southern Pacific, Santiago & Arizona, Chicago and Northwestern, Chicago, Milwaukee & St. Paul, Northern Pacific, Southern Ry., Seaboard Air Line, Virginia, Chicago Greatwestern, and Chicago, Rock Island & Pacific.

Group 2, on the roads in which the strike was scheduled to begin Nov. 1, 6 a.m., comprised the New York, New Haven & Hartford, Delaware & Hudson, Chicago & Eastern Illinois, St. Louis & San Francisco, Louisville & Nashville, Nickel Plate, Erie, Santa Fe, Atlantic Coast Line, Buffalo, Rochester & Pittsburgh, Delaware, Lackawanna & Western, Lehigh Valley, Nashville, Chattanooga & St. Louis.

Group 3, on the roads in which the strike was scheduled to begin Nov. 3 at 6 a.m., comprised the Minneapolis & St. Louis, Burlington System, Chesapeake & Ohio, New York Central Lines, Boston & Albany, Baltimore & Ohio, Western Pacific, Denver & Rio Grande, Chicago & Alton, Illinois Central, Yazoo & Mississippi Valley, Minneapolis, St. Paul & Sault Ste. Marie, Great Northern, Lake Erie & Western, Cleveland, Cincinnati, Chicago & St. Louis.

Group 4, on which the strike was scheduled to begin Nov. 5, comprised the Pennsylvania, Boston & Maine, and some other roads.

Chicago press dispatches stated that the federated shop trades, including the Railway Carmen of America, International Brotherhood of Electrical Workers, International Association of Machinists, International Brotherhood of Blacksmiths, Drop Forgers and Helpers, Amalgamated Sheet Metal Workers, and International Brotherhood of Boilermakers, Iron Shipbuilders and Helpers of America, had voted not to join the strike. Later reports stated that some of the above organizations would join a strike if it took place, and the dispatches as a whole are very contradictory. It is stated that the Brotherhood of Stationary Firemine and Oilers have decided to strike in protest against the wage reduction, but have set no date, the same applying to the maintenance of way employes. It is also stated that the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes have decided not to join a strike. It is said that the telegraphers will join the train service employes in a strike but that the signalmen will not.

The Railway Labor Board summoned the labor leaders for a conference on Oct. 20, but nothing came of it. The Government intimated that it will leave matters in the Labor Board's hands for the time being. The Board summoned the labor leaders and 500 general chairmen of unions, together with a large number of railway executives, for a conference in Chicago on Oct. 26. The public members of the Labor Board are said to have suggested that the matter could be straightened up by the railways translating the wage reduction of July 1 into lower rates to the public, deferring their application for a further reduction, and by the train service brotherhoods recalling their strike order. In view of the fact that rate reductions of large magnitude have already been made, and that even with the July wage reductions in effect, the railways are not yet able to earn the 6% return to which they are entitled under the Transportation Act, this proposal seems like an invitation to the railways to commit financial suicide, and the relationship of the proposals to a definite settlement of the wage question appears, from this distance, to be very remote, to say the least.

A strike was called on the International & Great Northern, a small road in Texas, which was calculated to be in the nature of a test. Its trainmen walked out on Oct. 22, but on the same day enough applications for work were received to man the road several times over, and it is continuing business without interruption.

In Aug. 1920, the number of employes on U.S. railways was 2,197,824; in June of this year, it was 1,586,143, a reduction of 611,681. At present, the number is a little larger, but it is probable that 600,000 railway employes are still without work in that country.

The dispute between the Pennsylvania Rd. and the Labor Board was given in detail in Canadian Railway and Marine World for October. On Sept. 26 the railway refused to appear before the Board, saying that the Board wanted to deal with matters over which it had no jurisdiction. The company does not question the Board's jurisdiction to hear and decide disputes which fall within the purview of the Transportation Act, but it points out that the U.S. Railroad Labor Board is not managing the Pennsylvania Rd. What action the Board intends to take in this matter has not been announced.

Since the above was written, a Chicago press dispatch of Oct. 27 stated that the leaders of the Big Four brotherhoods and switchmen had decided to call off their strike. The dispatch said that B. W. Hooper, public representative of the Labor Board, attended a meeting of the brotherhood chiefs and presented copies of the Board's recent resolutions not to consider wage reduction petitions for any class of workers until rules and working conditions for that class had been settled. At the conclusion of Mr. Hooper's statement, the unions held individual conferences, and then went into joint conference, with the result noted above.

C.P.R. Steel Rail Orders.—The C.P.R. has ordered 32,000 tons 100 lb. steel rails from Algoma Steel Corporation, the manufacture of which will be gone on with immediately after the completion of the 25,000 tons ordered previously, as mentioned in our October issue.

Gasoline Motor Car Trial on Canadian National Railways.

The Canadian National Rys. management is trying a gasoline driven motor car between Westport and Brockville, Brockville Subdivision, Ottawa Division, Ontario District, 44.4 miles, the car being operated in regular passenger service and making four round trips daily. It leaves Westport at 7 a.m., 11 a.m., 3 p. m., and 7 p.m., as trains 78, 80, 82 and 84 respectively, and leaves Brockville at 9 a.m., 1 p.m., 5 p.m. and 9 p.m., as trains 77, 79, 81 and 83 respectively, the run each way occupying 1¾ hours. The motor car service was begun Oct. 3, previous to which date service was provided by a mixed train each way daily except Sunday, and this service has been retained. The motor car remains at Westport over night.

The car was constructed by Ledoux, Jennings Ltd., Montreal, and has been handed to the C.N.R. for trial purposes. As shown in the accompanying illustration, a 4-wheel leading truck has been used, and the chassis of what would otherwise be a large motorbus has been modified to suit the requirements. The length over all is 21½ ft.; height, rail to roof, 9 ft.; length of body, 18 ft.; width of body 7½ ft. There are two entrance doors, one on each side, near the front. The seating capacity is 20, in addition to the operator, the seats being finished in rattan. There is one transverse seat across the rear, accommodating 6 passengers, 2 one-pasenger longitudinal seats, one on each side, and 3 seats arranged transversely on each side of the central aisle, each accommodating two passengers. The car is equipped with 6 dome electric lights, 3 on each side of the central aisle. On each side of the engine hood, which is 36 in. long, baggage carriers are arranged. The engine is of Reo manufacture.

Gasoline Passenger Motor Car, on trial on Canadian National Railways.

The maximum speed which can be attained by the car is 40 m.p.h., which may be said to be more than sufficient for equipment of such light weight. Twelve miles per gallon of gasoline is being obtained, and the service the car has given to date is said to be satisfactory.

The Canadian National Rys. is reported to have made a record trip with a special train for a doctor from Vancouver, B.C., to Edmonton, Alta., 759.5 miles, in 21 hours, recently, or an hour less than the regular running time between the two points.

United States Grain Rates Reduced.

The Interstate Commerce Commission has granted the application of U.S. railways extending to Galveston, Texas, and other Gulf ports, to reduce rates on grain from central western territory to Gulf ports by 5½c. per 100 lb. on five days notice. Eastern trunk line and New England roads have been authorized to reduce, on 10 days notice, domestic rates on grain and grain products between points in Virginia, Delaware, Maryland, New Jersey, Pennsylvania, New York and the New England States. The reduction will be 12½% on the average. In this reduction, and in reductions in rates to Gulf ports, the lower rates will apply for the remainder of 1921 only.

The state railway commissions of the western states applied to the Interstate Commerce Commission for lower rates on grain and grain products. The reductions were opposed by the western railways; hearings were concluded on Sept. 1 and oral arguments were heard on Sept. 2 and 3. No formal decision of the Commission has been announced; but we are informed, however, that reduced rates have been applied generally since the middle of September, and that a reduction of 4½c. per 100 lb. has been made on grain and grain products from Chicago to the Atlantic seaboard. The grain traffic in the U.S. has been much heavier to date this year than in 1920, over 86% as much grain having been carried in the first 8 months of 1921 as in the whole of 1920.

Since the above was written a Washington press dispatch has stated that the Commission has ordered a reduction in western grain and hay rates of 16%, which removes one-half of the increase granted on these commodities by the general rate increase of Aug. 26, 1920. It is estimated that this reduction will mean a total reduction of $32,000,000 in the revenue of the carriers affected. The dispatch also states that reductions in rates on coal, lumber, and other basic products are being considered.

News Privileges on Timiskaming & Northern Ontario Ry.—Arthur Stevens, of the Stevens Catering Co., Ltd., Cochrane, Ont., has been given the privilege of selling, on T. & N.O.R. trains, newspapers, books, periodicals, publications, nuts, fruits, confections, cigars, stationery, fancy goods, and other articles usually sold on trains.

Mainly About Railway People Throughout Canada.

J. Abrams, wharf agent, C.P.R., Vancouver, was reported to have been drowned in the Fraser River near New Westminster, towards the end of September. It is stated that he had been in the sanitarium there for some time, suffering from morbid insanity, and it is feared that he committed suicide. A portion of his clothing was found but the body was not recovered.

Augustus Brostedt, who has been appointed General Traffic Agent, Canadian National Rys., Shanghai, China, was born in Sweden in 1877, and entered railway service in 1898, since when he has been, to 1901, operator, cashier and agent, Great Northern Ry., Moosehead, Minn.; 1901 to 1903, Travelling Passenger Agent, same road, Philadelphia, Pa.; 1903 to 1905, District Passenger Agent, same road, Pittsburgh, Pa.; 1905 to 1907, Northern Passenger Agent, same road, Duluth, Minn.; 1907 to 1913, District Freight and Passenger Agent, same road, Winnipeg; 1913 to 1915, District Freight Agent, Canadian Northern Ry., Calgary, Alta.; 1915 to 1917, District Freight and Passenger Agent, same road, Vancouver, B.C.; 1919 to Aug. 31, 1920, Assistant Freight and Passenger Agent, Canadian National Rys., Vancouver, B. C. On Sept. 1, 1920, he was appointed General Freight Agent, Canadian National-Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., and in Feb. 1921 he was assigned to special duty, and sailed from Vancouver, Feb. 10, to look into trade conditions in China, Japan, Philippines and Straits Settlements, returning to Canada in September. He will sail for the Orient within the next few weeks.

Sir George Bury, formerly Vice President, C.P.R., returned to Canada, from England, by the s.s. Metagama, Oct. 7.

Francis Ferguson Busteed, Assistant Engineer, C.P.R., Vancouver, B.C., died suddenly of heart disease, at Vancouver, Oct. 2. He was born at Battery Point, Que., Oct. 10, 1858, and entered railway service in 1879, since when he had been, to 1881, chainman; 1881 to 1883, transit man; 1883 to 1887, assistant engineer in charge of construction; 1887 to 1889, in charge of location, and Division Engineer of Construction, all with the C.P.R.; 1890, locating and Division Engineer of Construction, Alberta Ry. & Coal Co.'s extension from Lethbridge, Alta., to a junction, at the International Boundary, with the Great Falls & Canada Ry.; 1890 to 1892, City Engineer, Bristol, West Virginia; 1892 to July 1904, in C.P.R. service, successively, as Roadmaster, Assistant Engineer, Resident Engineer, Engineer of Maintenance of Way and Structures, Division Engineer, and Superintendent at Nelson, B.C.; July 1904 to Feb. 1907, Assistant Chief Engineer, Western Lines, C.P.R., Winnipeg; Feb. 1907 to June 1910, General Superintendent, Pacific Division, C.P.R., Vancouver; June 1910 to Jan. 1912, General Superintendent, British Columbia District, C. P.R., Vancouver; Jan. 1912 to 1915, Engineer in charge of revision and double tracking, west of Calgary, Alta., C.P.R., Kamloops, B.C., and from 1915, Assistant Engineer, C.P.R., Vancouver, B.C.

Hubert Victor Caldwell, whose appointment as District Passenger Agent, Canadian National-Grand Trunk Rys., Liverpool, Eng., was announced in a recent issue, was born there, Oct. 4, 1883, and entered G.T.R. service Nov. 3, 1907, since when he has been, to July 1908, clerk, Liverpool, Eng.; July 1908 to Jan. 1910, clerk, London, Eng.; Jan. 1910 to Dec. 1915, Travelling Passenger Agent, Liverpool, Eng.; Dec. 1915 to Feb. 1919, Publicity Agent, London, Eng.; Feb. 1919 to Aug. 1921, Passenger Agent, London, Eng.

C. S. Cameron, Secretary-Treasurer, British Empire Steel Corporation, was presented with a silver cigar box by the Royal Cape Breton Yacht Squadron and a gold watch by the Dominion Iron & Steel Co.'s staff at Sydney, N.S., Oct. 13, and Mrs. Cameron was presented with a silver tray on their removal to Montreal. Mr. Cameron was for 22 years Comptroller, Dominion Iron & Steel Co.

Thomas Cantley, of New Glasgow, N.

Francis Ferguson Busteed, C.E.,
Who died at Vancouver, B.C., October 2.

S., a former Canadian National Rys. directors, has been unanimously nominated as National Liberal-Conservative candidate for Pictou, N.S. He entered the Nova Scotia Steel & Coal Co.'s service in 1885, as a sales agent, gradually rising to the position of President, and afterwards was Chairman of the Board of Directors.

D. C. Coleman, Vice President, Western Lines, C.P.R., spent a few days in Minneapolis, Minn., in October.

G. C. Conn, Director of Traffic, Buick Motor Co., Flint, Michigan, who read a paper on "A shipper's view of the evolution of transportation, and its effect on steam railways," before the Western Railway Club, in Chicago, recently, was in railway service for a number of years, having been General Freight Agent, Minneapolis, St. Paul & Sault Ste. Marie Ry., Freight Tranffic Manager, and subsequently Vice President in charge of freight, Pere Marquette Rd.

George E. Cowie, whose appointment as General Freight Agent, United Kingdom Traffic, Canadian National Rys., London, Eng., was announced in our last issue, was borne at Iowa City, Ia., Apr. 30, 1883, and entered transportation service in Nov. 1902, since when he has been, to Feb. 1904, clerk, Merchants Line of Canada, Liverpool, Eng.; March 1904 to Apr. 1910, clerk, Canadian Northern Ry., Liverpool, Eng.; May 1910 to Nov. 1912, District Agent, C.N.R. and Canadian Northern Steamships, Liverpool, Eng.; Dec. 1912 to July 1916, Assistant General Freight Agent, same companies, London, Eng.; Aug. 1916 to Dec. 1918, General Freight Agent, Canadian Northern Ry., London, Eng.; Jan. 1919 to Aug. 1921, General Freight Agent, Canadian National Rys., London, Eng.

John Deed, whose appointment as City Agent, Freight and Passenger Departments, Canadian National Rys., London, Eng., was announced in our last issue, was born at Kensington, London, Eng., Oct. 12, 1887, and entered transportation service in June 1903, since when he has been, to May 1910, clerk, Lunhan & Moore, freight brokers, insurance and forwarding agents, London, Eng.; May 1910 to Apr. 1912, freight clerk, Canadian Northern Ry. and Canadian Northern Steamships, London, Eng.; Apr. 1912 to Aug. 1914, chief clerk, same companies, London, Eng.; Aug. 1914 to June 1916, District Agent, same companies, Birmingham, Eng.; June 1916 to Jan. 1919, with British Expeditionary Force in France; Feb. 1919 to Aug. 31, 1921, District Freight Agent, Canadian National Rys., London, Eng.

Sir John Eaton, one of the C.P.R. directors, is assessed by the City of Toronto this year on $349,716 income, the highest income assessment in the city. Sir William Mackenzie, ex President, Canadian Northern Ry., is assessed on $165,289. Sir Edmund Osler, a C.P.R. director, on $120,765, and Sir Henry Pellatt, a Toronto Ry. director, on $66,006.

Thomas Evans, Freight Agent, Michigan Central Rd., London, Ont., was placed on the superannuation list, Sept. 30, after 34 years service.

J. M. R. Fairbairn, Chief Engineer, C. P.R., made an inspection trip over the Western Lines during October. He was accompanied by Mrs. Fairbairn.

Miss M. W. Foster, daughter of C. B. Foster, Assistant Passenger Traffic Manager, C.P.R., Montreal, was married at Vancouver, Oct. 5, to Gordon Russell.

Sir Eric Geddes, the British Minister of Transportation, has resigned that position in accordance with his statement some time ago that he would do so after the bill providing for the grouping of British railways had passed through Parliament.

Grant Hall, Vice President, C.P.R., visited the Maritime Provinces in October, accompanied by F. L. Wanklyn, General Executive Assistant; C. H. Temple, Chief of Rolling Stock and Motive Power; J. H. Walsh, General Manager, Quebec Central Ry., and V. G. R. Vickers, Vice President, The Holden Co., Montreal.

D. B. Hanna, President, Canadian National Rys., addressed the Toronto Rotary Club, Oct. 27, speaking optimistically in regard to the C.N.R.'s future.

Sir Arthur Harris, formerly of the C. P.R. Freight Traffic Department, and

Lady Harris, who spent the summer at Murray Bay, Que., have gone to Bermuda.

Frank H. Hopkins, President, F. H. Hopkins & Co., Ltd., Montreal, railway and marine supplies, was married at Brookline, Mass., October 8 to Miss P. M. Bostwick, of St. John, N.B.

Sir John Kennedy, C.E., who died at Montreal, Oct. 25, was the eldest son of the late Wm. Kennedy, founder of The Wm. Kennedy & Sons Co., Owen Sound, Ont. He was born at Spencerville, Ont., in 1838, and was educated privately at Bytown (Ottawa) High School and McGill University. He commenced his engineering career in 1853, under the late T. C. Keefer, and assisted in the construction of waterworks at Montreal and Hamilton, and also in railway and other engineering works. He was appointed Assistant City Surveyor of Montreal in 1863, and subsequently Deputy City Surveyor, resigning in 1867 on his appointment as Manager, Hull Iron Mining & Manufacturing Co.'s smelting works at Ironside, Que. In 1871 he was appointed Division Engineer on construction, Wellington, Grey & Bruce Ro., and subsequently became Chief Engineer, Great Western Ry., and as such built the Canadian Air Line and some minor branches, all of which are now part of the G.T.R. He also laid the first double track line in the Dominion, between Glencoe and Windsor, and resigned in 1875, on his appointment as Chief Engineer, Montreal Harbor Commissioners, which position he held until Feb. 1907, when he became Consulting Engineer. During his occupancy of the position of Chief Engineer, he deepened the ship channel between Quebec and Montreal, from 20 ft. to 27½ ft., and designed and carried out all improvements in the Montreal harbor undertaken in that period. On his retirement, the Montreal Harbor Commissioners placed on record their deep sense of his lengthened and devoted service, and of his faithful and zealous performance of the same. He was a member of the Royal commission, appointed in 1886, to enquire into the leasing of water power on the Lachine canal; a member of the Royal commission appointed the same year to enquire into the causes of floods in Montreal, and to suggest remedies therefor, and a member of the Royal commission appointed in 1888 to report upon the advisability of completing the Trent Valley canal system, and was often called upon to act as arbitrator or consulting engineer on important questions relating to railways, waterways, etc. He was one of the founders of the Canadian Society of Civil Engineers in 1887, and was a councillor during several years, Vice President in 1887, 1890 and 1891, President in 1892, and was elected an honorary member in 1907. He was also a member and councillor of the Institute of Civil Engineers, England, and a member since 1875 of the American Society of Civil Engineers. He was created a knight batchelor Jan. 1, 1916. He was totally blind was several years.

Louis Lavoie, General Purchasing Agent, Canadian National Rys., Toronto, spent a short holiday in New Brunswick in October.

E. H. Lingo has returned to Dallas, Texas, after spending the summer with his daughter, Mrs. H. G. Kelley, wife of the President, G.T.R.

Sir William Mackenzie, ex President, Canadian Northern Ry., and now President of Toronto Ry. Co., etc., returned to Toronto on Oct. 22, from England.

A. D. MacTier, Vice President, Eastern Lines, C.P.R., returned to Montreal towards the end of October, after a shooting trip in northern Saskatchewan.

Brigadier General F. S. Meighen, one of the C.P.R. directors, and Mrs. Meighen, left Montreal, Oct. 18, to spend six weeks in Europe.

P. Mooney, Assistant General Freight Agent, Canadian National Rys., Quebec, Que., addressed the local Kiwanis Club, Oct. 6, on Canadian railway traffic conditions.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., Vancouver, B.C., had a fornight's shooting trip in northern Alberta recently.

Edward Lawrence Roper, whose appointment as District Freight Agent, Canadian National-Grand Trunk Rys., Liverpool, Eng., was announced in a recent issue, was born there June 12, 1887, and entered transportation service in

Sir John Kennedy, C.E., who died at Montreal, Oct. 25.

1902, since when he has been, to 1911, clerk, Leyland Line, Liverpool, Eng.; 1911 to 1913, freight clerk, Manchester Liners Ltd., Manchester, Eng.; 1913 to 1914, Contracting Freight Agent, Canadian Northern Ry., London, Eng.; 1914 to Aug. 1921, District Agent, Canadian Northern Ry., latterly Canadian National Rys., Liverpool, Eng.

Hon. V. W. Smith, Minister of Railways for Alberta, sold his herd of pure bred live stock, at Camrose, recently for $25,000.

Hon. J. A. Stewart, who was M.P. for Lanark, Ont., from May 3, 1918, until Parliament was dissolved recently, and who was appointed Minister of Railways and Canals in September, has been renaminated as National Liberal-Conservative candidate for the same constituency.

Brig. Gen J. W. Stewart, C.B., railway contractor, Vancouver, B.C., while in Alberta during October, spent a few days shooting in the neighborhood of Kleskun Lake.

Hon. W. H. Taft, Chief Justice, U.S. Supreme Court, who represented the G. T.R. in the recent arbitration proceedings, as to the price, if any, to be paid by the Dominion Government for certain of its capital stocks, was re-elected President of the Unitarian General Conference at its meeting at Detroit, Mich., recently.

W. F. Taylor, Assistant General Storekeeper, Canadian National Rys., Moncton, N.B., died there, Oct. 15, after a short illness. He was born at Hillsboro, N.B., Aug. 20, 1855, and before moving to Moncton, Sept. 26, 1905, as General Storekeeper, Canadian Government Rys., was for some years in business at Hillsboro.

L. C. Tombs, only son of Guy Tombs, Traffic Manager, Canadian Export Paper Co., Montreal, has been appointed one of the night editors of McGill Daily, the McGill University Student Society's official organ. He is 18 years of age, and is in his second year at McGill.

Miss Irma A. Ussher, daughter of C. E. E. Ussher, Passenger Traffic Manager, C.P.R., was married at Montreal, Oct. 15 to E. S. Ibbotson.

John Mitchell Walker, whose appointment as District Agent, Canadian National Rys., Glasgow, Scotland, was announced in a recent issue, was born there, May 14, 1880, and entered transportation service in Aug. 1895, since when he has been, to Dec. 1907, in outward freight department, Allan Line; Dec. 7, 1907 to Aug. 31, 1921, General Agent, G.T.R., and agent, Canadian Express Co., all at Glasgow.

Mrs. F. L. Wanklyn, wife of the General Executive Assistant C.P.R., returned to Montreal recently, after spending the summer in Great Britain.

F. L. Wanklyn, General Executive Assistant, C.P.R., addressed the New England Railway Club at Boston, Mass., Oct. 13, on the work of the Canadian overseas railway corps in France. Among other C. P.R. officials present were: Grant Hall, Vice President; C. H. Temple, Chief of Motive Power and Rolling Stock, and J. H. Walsh, General Manager, Quebec Central Ry.

Cecil Wayne, Traffic Manager, of the Chinese Government's Nankin-Pekin Line, was a visitor in Vancouver early in October and returned to China by the C.P. R. s.s. Empress of Asia after having spent a holiday in England.

John Benjamin Windross, who has been appointed relieving Manager of Hotels, Canadian National Rys., Winnipeg, was born at Whitehaven, Eng., July 5, 1873, and has been at various times from Aug. 1907 to Feb. 1921, Assistant Manager, Chateau Louise, C.P.R., Lake Louise, Alta.; Assistant Manager, Chateau Frontenac, C.P.R., Quebec, Que.; acting Manager, Chateau Frontenac, C.P.R., Quebec, Que.; Manager, Empress Hotel, C. P.R., Victoria, B.C.; Assistant Manager, Davenport Hotel, Spokane, Wash.; Assistant Manager, Hotel del Coronado, California, and from Feb. to Sept. 1921, Manager, Macdonald Hotel, Canadian National Rys., Edmonton, Alta.

J. W. Wortman, Assistant Auditor of Traffic, Canadian Government Rys., Moncton, N.B., who has been granted six months leave of absence from Sept. 1, prior to superannuation, sailed from Vancouver, B.C., Oct. 9, for Australia, by the Canadian Government Merchant Marine s.s. Canadian Scottish.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta & Great Waterways Ry. — Track laying on the new location is reported to have reached Secs. 31 and 32, Tp. 28, Range 8, west 4th Meridian, approximately mile 285, or about 6 miles short of the intended terminus at McMurray. The location is close to the mouth of Deep Creek, where it is proposed to lay out a terminal yard. For this purpose a spur of about 0.75 mile will be laid on the flats alongside the Clearwater River, so that the river traffic may be taken care of. The grading for this piece of line is reported to have been completed Oct. 15, and the track work was expected to be finished by Nov. 1. Temporary shelters and other accommodation will be provided. The Deputy Minister of Railways for Alberta made an inspection of the work recently.

The grading of the 6 miles between the present track end and McMurray is reported to be well in hand. It will be completed and track laid next spring. (Oct., pg. 528.)

Burrard Inlet Tunnel & Bridge Co.— The Dominion Parliament will be asked at its next session to extend the time for the construction of the bridge, tunnel and connecting railways at the second narrows of Burrard Inlet, Vancouver, B. C., which the company was incorporated to construct. (Oct., pg. 528.)

Edmonton, Dunvegan & British Columbia Ry.—The Board of Railway Commissioners has authorized the construction of a connection between the E.D. & B.C. Ry. and the Canadian Northern Ry. in Edmonton, Alta., by a track from the C.P.R. Mackenzie Ave. spur in Block 15, at grade, across 116th St., Mackenzie Ave., 117th and 118th streets to the C. N.R. in Block 19. This connection is being made to enable E.D. & B.C. Ry. trains to use the C.P.R. station. (Oct., pg. 528.)

Greater Winnipeg Water District Ry. Ballasting between St. Boniface and Deacon, 6.5 miles, is reported to have been started Sept. 29. The track between these two points is being raised 18 in. and the work was expected to be completed by Oct. 31.

The Administrative Board on Oct. 13 authorized the purchase of 25,000 ties from settlers along the line, for use in 1922.

Hudson Bay Ry. — The Pas, Man., Board of Trade, on Oct. 13, in view of the forthcoming general election, passed a resolution calling upon the leaders of political parties in the field to declare a policy as to the railway from Pas to Port Nelson in order "that the people may know whether this railway is to be allowed to go to rot or to take its place in the national scheme of transportation."

Kettle Valley Ry.—E. W. Beatty, President, C.P.R., and party on their recent trip to the west, motored over the route of the extension southerly from Penticton into the new British Columbia irrigation lands. Grading is completed to the north end of Dog Lake, and preparations have been made for carrying the traffic by steamboat and barge to the south end of the lake. Surveys have been completed for a line from the south end of the lake to the irrigated lands, about 18 miles, and we are officially advised that a contract for grading has been let to A. E. Griffin & Co., Vancouver. Work is reported to have been started, the general contractors having sublet the work in two sections to Sharp & Leader, and D. B. Griffin & Co., respectively. The first named firm is reported to be working from Okanagan Falls to McIntyres, and the latter firm from McIntyres to the Demonstration Farm.

A press report states that the branch line, which was built in connection with the mining and smelting operations at Copper Mountain, is being repaired and put in order for the restarting of work.

Pacific Great Eastern Ry.—A press report states that instructions have been given by the British Columbia Railways Department to have a solid fill made on some trestle work on the line between North Vancouver and Whytecliffe, B.C., which is in unsatisfactory condition.

The B.C. Premier is reported to have stated that there was no truth in statements made recently that it was proposed to close down construction work on the line. (Oct., pg. 529.)

Squamish to Lake Alice Logging Railway.—A press report states that construction will be started at an early date on a logging railway from Squamish, B.C., northerly to Lake Alice, where it is reported that 2,000,000,000 ft. of logs are available for transportation. It is proposed to take over and operate in connection with the railway the old booming area of Squamish formerly operated by the old Howe Sound & Northern Ry.

Quebec Central Ry.—As stated briefly in Canadian Railway and Marine World for October, the Q.C.R. completed its extension from Scotts Jct., Que., to a connection with the Canadian National Rys. near the south end of the Quebec bridge The line was opened for traffic, Oct. 2. The new line, which is 19 miles long, leaves the Q.C.R. main line at Scotts Jct., and connects with the Canadian National Rys. at Diamond Jct. The stations on the new line are Bras, 6 miles; Ville Lambert, 10 miles, and Breakeyville, 16 miles, all these distances being from Scotts. A description of the line was given in Canadian Railway and Marine World for May, pg. 242. The general construction was done by J. T. and J. F. Davis, Montreal, and some special work, building of fences, etc., by Eastern Townships Construction Co., Sherbrooke. The work was under the charge of F. H. Hibbard, Resident Engineer, and J. T. Morkill, Chief Engineer.

The company is using the new piece of line as a part of its main line into Quebec City, and is using its old line from Scotts Jct. to Levis as a branch, with a mixed train service connecting with main line trains, and a local passenger train between Lake Frontier and Levis. The new main line therefore runs from Sherbrooke, via Scotts Jct., to Diamond Jct., whence traffic is operated over the Canadian National Rys. and the C. P.R. into the Palais station, Quebec, 16.9 miles. The route is: from Diamond Jct. to Joffre, formerly Chaudiere Jct., 2.26 miles; Joffre to Quebec Bridge, 3.48 miles; Quebec Bridge to Cadorna, 7.86 miles; thence over the C.P.R. tracks into Palais station, 3.30 miles. A very satisfactory and mutual agreement has been arrived at with the Canadian National Rys. for trackage rights between Diamond Jct. and Cadorna, and also with the C.P.R. for running rights into Quebec with terminal accommodation and facilities at the Palais station. (Oct., pg. 529.)

Timiskaming & Northern Ontario Ry. As a result of a conference between the Premier of Ontario and the Timiskaming & Northern Ontario Ry. Commission at North Bay, Sept. 27, it was decided to proceed with the construction of an extension from Cochrane, Ont., towards James Bay. We are officially advised that the extension will be from Cochrane to the vicinity of New Post, on the Abitibi River, about 70 miles. The route has not been definitely decided upon, but it was expected that the preliimnary surveys would be completed early in October, and that the location surveys would be pushed forward as rapidly as possible, so that the work may be put under contract by the end of the year. Tenders will probably be invited by Dec. 1. A press report stated that the Premier was expected to turn the first sod of the extension Oct. 29.

We are officially advised that the Commission has not at present under consideration any proposition for the development of electrical power on the Abitibi River, near the terminus of the proposed extension of the railway as stated in press reports.

A deputation from North Timiskaming waited on the Commission Oct. 11 and urged the construction of a branch line from Liskeard to the head of the lake. (Oct., pg. 529.)

Reduced Freight Rate for Fodder for Farmers' Live Stock in Quebec.—A press dispatch of Oct. 19 said that the Quebec Minister of Agriculture had announced that owing to the failure of the hay crop he had succeeded in getting the railways to give the following reductions in freight rates: 33% on corn forwarded from Montreal or from any ports of the Great Lakes to any station in the Province of Quebec; 33 1/3% on grain siftings forwarded from Port Arthur, Fort William, Westfort and Armstrong, to any point in the province; 25% on hay, which restores the rate in effect in Sept. 1920. The reductions on hay will only apply to points within the province. Only farmers and agricultural societies may get the benefit of these lower rates. All cars to be billed to the Quebec Department of Agriculture and to be delivered to buyers upon receipt of an order to the Department.

Railway Thieving.—Elie Martin, Longueuil, Que., was arrested Oct. 21, charged with stealing cigars and tobacco while in transit on the Quebec, Montreal & Southern Ry. He pleaded guilty, and was remanded for sentence. Thefts from the company's cars had been under investigation for some considerable time, and ultimately Martin was found to have been disposing of stolen goods. The detectives expect to be able to locate the actual thieves.

Railway Lands Patented.—Letters patent were issued during September for railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	24.29
Canadian Northern Saskatchewan Ry.	13.76
Canadian Northern Western Ry.	26.83
Canadian Pacific Ry.	12.254
Nicola, Kamloops & Similkameen Ry.	9.82
Total	86.954

Steel Rails and Car Repairing Ordered to Relieve Unemployment.

The following order in council, no. 3,800, was passed at Ottawa, Oct. 6:—"The committee of the Privy Council have had before them a report, dated Oct. 4, 1921, from the Minister of Railways and Canals, stating that he has discussed with the Canadian National Rys. management, and with the chief executives of the Grand Trunk Ry. Co. the question of unemployment in its relation to the railways now under Government control and operation. Serious consideration has been given to the possibility of the National Rys., including the Grand Trunk, so anticipating their requirements as to permit the placing in the immediate future of next year's orders for rails and accessories, and for the rebuilding and repair of freight equipment, in order that present unemployment may be relieved and work provided during the winter. Under normal conditions, it is the practice to place such orders during the early spring months, and to confine rebuilding and repair work, as far as possible, to system shops. The Minister believes that, in view of the present abnormal industrial situation, the usual practice might well be varied to the extent of placing, at an early date, next year's orders for rails and accessories, and, in addition to repair work now being done in railway shops, by arranging with the various equipment companies throughout Canada to participate in the rebuilding and repair of freight equipment. In doing so, however, it is only fair to the railways, that expenditures so incurred shall not be considered a charge against the current year's operation or financing, and while the management will make every effort to see that repair work undertaken outside the railway shops is done at fair and reasonable prices, any increased expenditure involved should not be a charge against the railways, but against such financial provision as may from time to time be made by the Government to deal with unemployment. And in order that there may be no question of considerations other than unemployment influencing the placing of these orders, the Minister suggests that the allocation of this business be on the concurrence of labor, whose departmental officials are closely in touch with conditions affecting labor throughout Canada, and whose officials shall cooperate with the Department of Railway's officials in dealing with this situation so far as it affects the railways under Government control.

"In order that the management may have a free hand, and that the business may be distributed to best advantage, it is considered advisable that the order in council to authorize the purchase of 40,000 tons of rails from the Algoma Steel Corporation for next year's delivery be cancelled, and that such new business as may be given the Algoma Steel Corporation be contingent upon the general situation as it may develop. The Minister, therefore, recommends, on the advice of the Deputy Minister of Railways and Canals, that order in council of Aug. 13, 1921, no. 2,861, granting authority to the management to order 40,000 tons of 85 lb. steel rails from the Algoma Steel Corporation for next year's delivery be and hereby is cancelled in so far as it relates to the 40,000 tons in question. That, having due regard to the unemployment situation, as well as to the requirements of the railways, the management of Canadian National Rys. and the management of the Grand Trunk Ry. be authorized to order on next year's account, and not exceeding next year's prices, a maximum of 75,000 tons of rails and necessary accessories, and to arrange for the rebuilding or repair of 2,000 cars at suitable points at fair and reasonable charges, and that the expenditure so incurred be provided for in the supplementary estimates to be brought down at the next ensuing session of Parliament. That in placing orders for the rebuilding and repair of freight equipment, the charges against the railways shall only be the fair and reasonable cost of the same in the company's shops, and that any extra expense involved be a proper charge against unemployment generally and regarded as such. That in neither case shall expenditures incurred this year, in anticipation of next year's requirements, be chargeable against current operation or finance.

"The committee concur in the foregoing recommendation and submit the same for approval."

Acting under the authority of the foregoing, the Canadian National Rys. management offered two orders, each for 20,000 tons of 85 lb. steel rails, to Algoma Steel Corporation, Sault Ste. Marie, Ont., and to Dominion Iron & Steel Co., Sydney, N.S., to be rolled this winter and delivered next spring. The Algoma Steel Corporation accepted the offer, but up to the time of writing, Oct. 29, the Dominion Iron & Steel Co. had not accepted, the matter of price being in controversy. Additional orders will follow, both for the C.N.R. and the G.T.R.

Under the further authority of the order in council the Canadian National Rys. management has given orders for general repairs, including the application of metal draft arms to 2,000 C.N.R. box cars, divided as follows: Canadian Car & Foundry Co., 500 at Amherst, N. S., and 500 at Montreal; Eastern Car Co., 500 at New Glasgow, N.S.; National Steel Car Co., 500 at Hamilton, Ont. Under authority from the Exchequer Court, on account of the Grand Trunk Pacific Ry. being in a receiver's hands, the C.N.R. management has also given an order to Canadian Car & Foundry Co. to similarly repair 1,000 G.T.P.R. box cars at Fort William, Ont.

Owen Sound Interswitching Committee.—The Owen Sound, Ont., City Council adopted a report recently authorizing its interswitching committee to negotiate with the railways entering the city and with the Dominion Government relative to the building of a lift bridge across the mouth of the harbor and as to the apportionment of the cost. A special committee of the local board of trade is co-operating in the matter.

E. Wilson, of the Laurentide Co.'s forestry division, Grand Mere, Que., in speaking at a luncheon at Ottawa, Oct. 10, is reported to have expressed his appreciation of the work done by the Canada Air Board in rendering aid to forestry engineers in their work in the direction of forest fire protection and forest patrol, and to have suggested that the whole of this kind of work should be taken over by the Board.

Failure of a Suit Against Canadian National Railways.

The Canadian National Rys., which was described in the writ as "a body corporate, having its head offices for the Province of Quebec in the City of Montreal," was recently sued by William Champ, an employe, to recover $6,000 damages for injuries received in the St. Malo, Quebec, shops, in 1920. The Canadian National Rys. in defence questioned the court's jurisdiction, and took exception to the form of the action. Mr. Justice Surveyor gave judgment, Oct. 12, dismissing the action. He pointed out that the St. Malo shops were built by the Dominion Government in connection with the National Transcontinental Ry., ad were used for purposes in connection with the Canadian Government Rys. Under the law affecting the N.T. Ry., actions of the present description, so far as the provincial courts are concerned, are limited to sums of $500 and under; actions for larger sums having to be brought in the Exchequer Court. When the Canadian Northern Ry. was taken over, and directors appointed, the duty of managing the Canadian Government Rys. was assigned to them. Under an order in council of Dec. 20, 1918, the directors were authorized to use as a collective or descriptive designation the name Canadian National Rys., with a reservation of all existing rights and liabilities as previously, notwithstanding designation. On June 6, 1919, an act for the incorporation of the Canadian National Railways Co. was passed, which provided that actions, suits or other proceedings in respect of the operation of the railways might be taken against the company before any court of competent jurisdiction in Canada. No appointment of directors, other than the maintenance in office of the Canadian Northern Ry. directors, has taken place, and no head office had been designated; in fact the Canadian National Ry. Co. has not begun to exist. The companies forming part of the Canadian Northern Ry. have never ceased to be ordinary companies and therefore subject to the jurisdiction of the provincial courts. The Canadian Government Railways were originally described as His Majesty the King, and as such were amenable solely to the Exchequer Court. Until the Canadian National Ry. Co. actually exists any action arising out of the operation of the National Transcontinental Ry., or the Intercolonial Rys. must be taken before the Exchequer Court of Canada, and not before any of the provincial courts. He had no power to refer the case to the Exchequer Court, but he hoped that the plaintiff would be so treated by the Government that he might receive a fiat nothwithstanding that the cause of action occurred more than a year ago. He dismissed the action without costs, inasmuch as the management of the railways by the use of the title Canadian National Railways, was instrumental in leading the plaintiff and his counsel into error.

The International Auto Ferry Co. is reported to have been formed with $250,000 authorized capital, to operate a ferry between Port Huron, Mich., and Sarnia, Ont., for the transfer of automobiles. It is expected that the erry will be in operation next summer.

Grand Trunk Railway Report for 1920.

The G.T.R. Co.'s annual report for the calendar year 1920 has been issued from Montreal, instead of from London, Eng., as formerly, being signed for the first time by Howard G. Kelley, President, whereas former reports were signed by the Chairman of the Board in England, and, prior to the creation of that office, by the President in England. The size and form of the report have been changed, and the figures are given in Canadian currency, instead of in sterling as formerly. Following are extracts from the report:—

Income Account, Condensed Statement.	Year 1920	Year 1919
Operating revenue	$81,442,647.32	$68,744,358.54
Operating expenses	76,213,815.16	60,374,431.53
Net operating revenue	5,228,823.16	8,369,927.01
Railway taxes and uncollectible railway revenue	1,303,067.25	1,170,850.31
Railway operating income	3,925,764.91	7,199,076.70
Non-operating income...	7,706,272.77	6,146,800.21
Gross income	11,632,037.68	13,345,876.91
Deductions from gross income	16,231,142.21	12,982,607.01
Net income transferred to profit and loss		$363,269.90
Net loss transferred to profit and loss	$4,599,104.53	

The operating revenues for the year (the largest in the company's history, were $81,442,647, an increase as compared with 1919 of $12,698,289 or 18.47%. Revenue from freight traffic was $58,102,053, an increase of $9,788,502 or 20.25%. Number of revenue tons carried, 26,322,423, an increase of 3,029,717, or 31.01%. Revenue tons carried one mile, 5,028,651,524, an increase of 448,305,090, or 9.79%. Average haul per revenue ton was 191.04 miles, a decrease of 2.85%. Freight revenue per train mile was $5.27, an increase of 76c., or 16.85%. Average revenue per ton was $2.20732, an increase of .13313, or 6.42%. Average revenue per ton mile was $0.01155, an increase of .00100, or 9.48%. Revenue from passenger traffic was $16,948,180, an increase compared with 1919 of $1,823,328, or 12.05%. Number of passengers carried was 12,206,977, an increase of 586,387, or 5.04%. Average revenue per passenger was $1.38840, an increase of 0.08685, or 6.67%. Average revenue per passenger mile was $0.03199, an increase of 0.00498, or 18.47%. Average haul per passenger was 43.40 miles, a decrease of 4.79 miles, or 9.94%. Revenue from mails was $580,239, an increase of $31,459, or 5.73%. Revenue from express was $2,659,571, an increase of $529,866, or 24.87%. Revenue from milk was $233,950, an increase of $23,967, or 11.41%. Revenue from switching was $785,347, an increase of $194,077, or 32.82%. Revenue from dining and buffet was $349,430, a decrease of $39,069, or 10.06%. Revenue from demurrage was $578,057, an increase of $156,599, or 37.15%.

Operating expenses for 1920 were $76,213,815, an increase of $15,839,384 over 1919, or 26.23%. This increase was entirely due to increased rates of wages and prices of fuel, materials and supplies, etc. Maintenance of way and structures increased $2,527,096, or 26.66%. Maintenance of equipment increased $4,565,595, or 27.61%. Traffic expenses increased $302,795, or 30.24%. Transportation expenses increased $7,804,331, or 25.41%. Average loaded cars per freight train mile were 20.47, an increase of .64 or 3.22%. Average empty cars per freight train mile were 7.93, a decrease of .81, or 9.27%. Average total cars per freight train mile were 28.40, a decrease of .17, or 0.60%. Average load per loaded freight car mile was 23.61 tons, an increase of .69 tons, or 3.01%. Average load per freight train mile was 455.89 tons, an increase of 27.97 tons, or 6.54%. General expenses increased $108,820, or 27.92%. General expenses increased $536,055, or 23.81%.

Wages.—The U.S. Labor Board awarded an increase in wages to employes of approximately 23.5%, effective May 1, 1920, which award was accepted by Canadian railways. The increases in rates authorized by the Board of Railway Commissioners and the U.S. Interstate Commerce Commission to meet this advance in wages did not become effective until Sept. 13, 1920, and Aug. 26, 1920, respectively.

	No. employes	Total pay roll	Increase per cent over 1918
1918	25,342	$30,152,476.36	
1919	30,617	42,617,415.93	41.34%
1920	31,686	53,375,736.60	77.02%

Taxes for 1920 were $1,280,062, an increase over 1919 of $114,752, or 9.85%. Taxes per mile of road operated were $268.07, compared with $244.04 in 1919.

Agreement with Dominion Government. Under the terms of this agreement the Government has since May 21, 1920, financed the company's obligations.

Railway Rolling Stock Orders and Deliveries.

The Timiskaming & Northern Ontario Ry.'s six cabooses, being built by Canadian Brill Co., Preston, Ont., are expected to be shipped by Nov. 15.

The Montreal Locomotive Works shipped 3 locomotives for South African railways, by the Elder Dempster & Co.'s s.s. Calgary, which sailed from Montreal, for South Africa, Oct. 8.

The C.P.R., between Sept. 12 and Oct. 13, received 1 van from its Angus shops, Montreal, 2 vans from its Winnipeg shops, and 25 steel frame box cars from National Steel Car Corporation.

The first shipments of the 500 tank cars, which Canadian Car & Foundry Co. is building for the Russian Soviet Government, were expected to be made towards the end of October, by the Canadian Government Merchant Marine steamships Canadian Challenger and Canadian Seigneur, to be followed during November by the steamships Canadian Ranger and Canadian Miller, with the balance, the complete shipment being made before the close of St. Lawrence navigation.

The Toronto Transportation Commission is offering for sale by tender, the following construction equipment: 3 locomotives, 3 ft. gauge, 4-wheel connected, saddle tank, 10 x 16 in. cylinders, 4½ ft. wheel base, weight 36,500 lb., by H. K. Porter Co.; 20 dump cars, 3 ft. gauge, two way dump, 4 cu. yd. capacity, diamond frame arch bar trucks; and 3 flat cars, 3 ft. gauge, steel under frame, 8 x 40 ft. platform, diamond frame arch bar trucks, 40,000 lb. capacity, by Kilbourne & Jacobs Mfg. Co.; 1 Thew shovel, no. 1, revolving 1¼ yd. dipper, mounted on traction wheels, weight 26 tons; 1 Marion shovel, no. 35, revolving, 1¼ yd. dipper, mounted on traction wheels, weight 38 tons; and 250 tons of steel rail, 45 lb. A.S.C.E., with bolts, plates and switches.

The Greater Winnipeg Water District Commissioners will receive tenders to Nov. 9, for the supply of a car, to be delivered at the St. Boniface terminals by Dec. 31, to be operated by an internal combustion engine fed by gasoline or fuel oil, for passenger and way freight purposes on their railway. The car is to have a seating capacity for 40 adult passengers, and to be divided by partitions so that the rear part shall seat 25, and the middle part 15, which part may be used as a smoking compartment, and the forward part of the engine, and capable of holding 2 or 3 tons of freight. A lavatory is to be provided on the rear platform, and the smoking compartment is to be of such dimensions that, if required, it may be filled with seats similar to those in the rear compartment, without loss of space. The car is to be equipped with pony trucks, and capable of maintaining a speed of 35 miles an hour. Heating is to be provided and the use of the engine exhaust should be arranged for as an auxiliary heat. The car should be able to move a loaded box car of 40 tons gross, and to accelerate to 25 miles an hour in 3 minutes on level tangent track. The equipment in general is to conform to A.R.A. Mechanical Division requirements. Fuel tank should have capacity for fuel for a 200 miles run. The actual running distance from St. Boniface terminal to the terminal at Waugh, is 92 miles, and the car may be called upon to make, at first, 4 round trips a week, and later on, 6 or more, at least, one round trip each 10 hours. The maximum grade is 0.4% and the maximum curve 7 deg. 30 min., except on Y's, where there is one 15% curve.

Proposed Abandonment of Red Mountain Railway.

A sitting of the Board of Railway Commissioners was scheduled for Nelson, B.C., Oct. 29, to hear, among other applications, one of the Great Northern Ry. for permission to discontinue the operation of the Red Mountain Ry., to take up the rails and other equipment with a view to the abandonment of the branch. The Red Mountain Ry. was incorporated by the Dominion Parliament in 1893, and the line, which is an extension of the Great Northern Ry. branch of Columbia & Red Mountain Ry., was opened for traffic in 1896. It extends from the International Boundary near Northport, Wash., to Rossland, B.C., 9.59 miles, and, with sidings and yard tracks, has a total of 13.52 miles, laid with 56 and 80 lb. steel rails. The company owns some rolling stock, and some additional rolling stock jointly with the Columbia & Red Mountain Ry. Co. The entire capital stock and bonds are owned by the Great Northern Ry. Co. The railway has not paid its operating expenses for several years past.

Alleged Ticket Stealing. — W. Ryan, formerly C.P.R. telegraph operator at Hope, B.C., was arrested Oct. 17, in Winnipeg, charged with stealing eight books of blank railway tickets, and was remanded to permit arrangements being made for his removal to British Columbia for trial. It is stated that he used some of the tickets to travel between various points, and that he sold others to finance his other expenses between periods of employment. Each book contains 100 tickets, and most of them have been recovered.

Important Results of Operation of Supply Trains on the C.P.R.

A short time ago supply trains were run over the whole of the C.P.R. main line from Fort William to Vancouver, including all terminals; and, in addition, on the Manitoba Division, from Winnipeg to Napinka, and La Riviere, thence to Souris, and back to Winnipeg over the Glenboro Subdivision; from Portage la Prairie to Bredenbury; Chater to Minnedosa; Elkhorn at Neudorf; and McAuley to Virden. On the Saskatchewan District, in addition to the main line, the territory covered was from Moose Jaw to Assiniboia, thence east to Weybourn; from Portal to Moose Jaw, going north from Moose Jaw through Outlook and Kerrobert to Macklin; from Hardisty to Bredenbury and from Lanigan to Neudorf. On the Alberta District, from Crownest to Dunmore; from Calgary to McLeod; from Bassano to Swift Current via Empress; and from Calgary to Edmonton. On the British Columbia District, from Proctor to Midway. The first experiment with a supply train was made in Winnipeg terminals on April 18, and then the district between Fort William and Winnipeg was covered. Four trains were in operation at the one time, one in each province included in Western Lines territory, and the work generally speaking commenced during the first week in May, and finished about the second week in June.

The supply trains were designed primarily to gather up all material which was not needed, whether it was new material; second hand fit for use; second hand requiring repairs, or scrap. A further function of the trains was to see that all forces were equipped with tools in good repair, to avoid high priced labor working with inefficient tools, or material, and at almost every place visited, exchanges were made, leaving track forces, and others, with a full outfit of good tools, and taking away any scrap they might have, as well as effecting an exchange of good tools for those requiring repairs.

Each train consisted of about three or four box cars, and three or four flats, and usually a rail hoist, also the regular supply car, which operates every month on way freights, for delivering material to stations and section forces; a tool car, containing new tools for exchange with those requiring repairs; a gasoline and oil car, to fill outstanding requisitions for gasoline and oil for section foremen's motors and station agents' use in lamps; a boarding car for the extra gang; a caboose for the train crew, and a superintendent's business car for the officers.

The district storekeeper was in charge of each train, and had with him an extra gang of six men. The superintendent, division engineer, bridge and building master and roadmaster were required to travel with the train, and in addition to the work outlined this gave an excellent opportunity for a thorough inspection of the company's premises on the territory travelled.

The methods employed consisted of making a most exhaustive search of the whole of the company's premises. This included underneath buildings, as well as in them. In some cases this was found to be a slow proceeding, but on the whole about 50 or 60 miles a day were covered on double track and possibly 90 miles a day on single track, exclusive of terminals.

The material recovered was loaded in about 700 cars, but all of them did not carry full loads. Credits, based on 100% for new standard material, and scrap credit for everything else, were issued to the Operating Department, to the amount of nearly $160,000. The estimated cost of repairs to materials recovered will be between $40,000 and $50,000. This material, if bought new, would have cost about $400,000. The scrap picked up will realize about $35,000. The cost of operating the trains did not exceed $12,000.

Canadian Railway and Marine World is indebted to T. Fawcett, General Storekeeper, Western Lines, C.P.R., Winnipeg, for this information.

The Great Northern Railway's Marcus-Princeton Line.

The report that the C.P.R. is about to acquire the G.N.R. line from Marcus, Wash., to Princeton, B.C., has been revived, the latest report stating that the transfer was to have been completed by Sept. 15, but that some hitch had occurred which had put the deal off for the present. The G.N.R. has a line running northerly from Spokane to Marcus, whence it branches northeasterly to Nelson, B.C., with a branch from Northport, Wash., to Rossland, B.C., and northwesterly to Grand Forks, B.C., and thence running backward and forward across the International Boundary, with branches serving the mineral country round Grand Forks, passing through Princeton and on to Vancouver. At Orville, in the east bend into the U.S., the line is joined by a branch from Wenatchee. The Canadian sections of the line are known as the Vancouver, Victoria & Eastern Ry. The distance from Marcus to Princeton is 206 miles, of which 108 miles is in British Columbia. It is stated in connection with the matter that Orville is the objective point of the line which the C.P.R. is building from Penticton southerly under the Kettle Valley Ry.'s charter.

Canadian Transit Co.—American Transit Co.—These are the titles of the Canadian and the United States incorporations, to build a bridge across the Detroit River, with terminal facilities and railway connections in Windsor, Ont., and Detroit, Mich. The directors of both companies are the same, viz.: J. W. Austin, C. E. Fowler, W. B. Gregory, A. F. Healey, C. S. King, J. O. Murfin, W. J. Pulling, J. O. Reaume, A. A. Templeton, C. B. Vandusen, Hiram H. Walker. The officers are as follows: Canadian Transit Co., President, W. J. Pulling; Vice President, C. S. King; Secretary-Treasurer, C. E. Fowler. American Transit Co., President, W. A. Gregory; Vice President, Hiram B. Walker; Second Vice President and Secretary, C. E. Fowler; Treasurer, J. W. Austin. Application is reported to have been made to the Michigan Public Utilities Commission for authority to sell stocks and bonds for $150,000,000, for construction purposes. This amount, it is estimated, will be sufficient to build a bridge for general traffic, and a double track electric railway, and it is stated that $15,000,000 more would provide a lower deck for steam railway traffic. (Aug., pg. 419.)

Shipment of Phosphorus in Metal Containers.

The Board of Railway Commissioners passed general order 346, Sept. 23, as follows: Re general order 204, Aug. 11, 1917, authorizing, for the observance of railway companies, accepting explosives for carriage, the Regulations for the Transportation of Explosives and Other Dangerous Articles by Freight; and the application of the Electric Reduction Co., of Buckingham, Que., for a change in the regulations, to permit of the shipment of phosphorus in metal containers. Upon reading what is filed in support of the application and on behalf of The Railway Association of Canada and the Bureau of Explosives, revised regulations in line with those approved by the Interstate Commerce Commission being recommended on behalf of the Bureau of Explosives, the Board orders that sec. 1832 of the Regulations for the Transportation of Explosives and Other Dangerous Articles by Freight, as authorized by general order 204, be struck out and the following substituted therefor, viz.:—

"1832 (a). White or yellow phosphorus must be placed in water, in sealed metal vessels enclosed in wooden boxes (see Specification 18) or in metal drums of not exceeding 25 imperial gallons capacity, complying with Specification 5; provided that drums of not exceeding 8 imperial gallons capacity must be constructed of full 16 gauge and drums of not exceeding 24 imperial gallons capacity of not less than full 14 gauge.

"(b). Amorphous (red) phosphorus must be packed in sealed metal containers enclosed in wooden boxes, complying with Specification 18."

Sault Ste. Marie Bridge.—A defect developed in the supports of the C.P.R. international bridge across the St. Marys River, at Sault Ste. Marie, Oct. 7, which caused the suspension of railway and general traffic for some days and ship traffic through the canal had to be conducted with special care, owing to the fact that the north half of the lifting span only was capable of being operated. We are officially advised that there was no accident, and that the concrete block counterweight was all right. The necessary repairs were made, and traffic was resumed Oct. 13. During the few days the bridge was closed, passengers were transferred, by water, and freight traffic was diverted.

Exchange and Surcharge on International Freight and Passenger Business. In accordance with the Board of Railway Commissioners' order of Jan. 14, 1921, the rate of exchange in connection with shipments of freight between points in Canada and the United States, from Oct. 1 to 14, was 9 13/16%, and from Oct. 15 to 31 it was 9 11/32%. The surcharge on this traffic was 6%. The rate of surcharge on international passenger business from Oct. 1 to 14 was based on 10% exchange, and from Oct. 15 to 31 on 9% exchange.

The Title Bond Guaranty Trust Corporation of Canada has been organized in Montreal, with Sir Lomer Gouin as President. Among the other directors are Sir Herbert Holt, Vice President, and and C. R. Hosmer, who are C.P.R. directors; A. D. MacTier, Vice President, Eastern Lines, C.P.R., and Senator J. M. Wilson, director, Montreal Tramways Co.

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TORONTO, CANADA, NOVEMBER, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 588
Birthdays of Transportation Men 571
Board of Railway Commissioners,—
Orders by, Summaries of 573
Traffic Orders 597
Canadian National Rys., Changes in Maritime Divisions and Subdivisions 594
Construction, Etc. 595
Canadian Pacific Ry., Construction, Etc..... 593
Supply Train Operation 586
Canadian Ticket Agents Association's Annual Meeting 590
Electric Railway Department .....599 to 606
Canadian Electric Railway Association's Activities 606
Hydro Electric Power Commission of Ontario, Safety Cars 607
Montreal Tramways Co.'s Report 608
Projects, Construction, Etc. 601
Toronto Ry. Co., Annual Meeting 604
Arbitration 606
Toronto Transportation Commission, General Matters 603
Track Construction and Rehabilitation.... 599
Wages, Working Conditions, Etc. 602
Express Companies, Among the 598
Grand Trunk Ry., Operating Results 590
Report 585
Mainly About Railway People 581
Marine Department .....609 to 622
Canadian Government Merchant Marine, Shipbuilding, Operation, Etc. 611
Shipbuilding, General, in Canada 609
Panama Canals Tolls Question 614
Wreck Commissioners' Judgments 621
Railway Development 583
Railway Earnings 597
Railway Mechanical Methods and Devices 575, 576
Railway Operating Revenue and Statistics.... 591
Railway Rolling Stock Orders and Deliveries 585
Railway Wages Question in Canada and the United States 578
Train Dispatching, Telephone vs. Telephone.. 567
United States Railways, Financial and Operating Position 596
Proposed Consolidation into Groups 569

Canadian Pacific Railway Earnings and Expenses for August.

C.P.R. gross earnings for August show an increase of $1,291,336 over those of July, and were the largest for any month this year. They were, however, less than those for Aug. 1920 by $930,503. While the Aug. 1921 earnings show that there was not the traffic moving that there was in Aug. 1920, yet the fact of such a substantial increase, compared with July and preceding months, is an indication that the volume of traffic is increasing, and that economic and business conditions as a whole are improving. In previous months this year, the decreased earnings, as compared with corresponding months last year, were secured on rates which were much higher than those in effect last year; but in August many freight rate reductions had gone into effect, and passenger fares were on the same basis as in 1920, which fact, taken into consideration in comparing the figures, indicates that Canadian commerce is more rapidly gaining normal proportions than is commonly supposed. A heavy grain traffic, principally from Georgian Bay ports to the Atlantic seaboard, has undoubtedly played a large part in the good showing made in the C.P.R. gross for August, the movement of export grain to Montreal being very large.

Operating expenses for August showed a satisfactory decline from the high figure for Aug. 1920, when they were $15,793,956, and for August this year, $14,488,126, a decrease of $1,305,830. A large part of this decrease must be attributed to wage decreases effective July 16; in fact the wage decrease would account for practically the entire difference, thus indicating that maintenance expenses were relatively as large as in Aug. 1920, presumably in preparation for the heavy autumn grain traffic. The operating ratio for August 1921 was 84.9%.

While gross revenue decreased, operating expenses decreased by a greater amount, making an improvement of $375,326 in the net earnings, which were $2,576,139. This net exceeded that of July by $521,824, but was smaller than that of June, May and April by $528,618, $717,412 and $69,992 respectively. It was, however, greater than that earned in January, February or March.

Comparing the results of the first 8 months of this year with the corresponding period of 1920, the total gross earnings for the first 8 months of 1920 were $127,428,115, and for the first 8 months of 1921 were $116,892,866, a decrease of $10,535,249. No better indication of the great reduction in business activity, which began last autumn, could be obtained, when the differences in rates prevailing are also taken into consideration. However, as above pointed out, an improvement has been evident in the July and August figures, and preliminary figures to hand for September indicate that this is being well maintained.

Comparing the net earnings for the 8 months period, it is seen that the net in the first 8 months of 1921 exceeded that of the first 8 months of 1920, by $2,332,137, the total net for the period this year being $17,580,621. While this improvement over 1920 is gratifying, it must not be lost sight of that this is the smallest figure for the first 8 months of the year, with the exception of 1920, for a good many years. For the first 8 months of 1919 the net earnings were almost $19,000,000; for corresponding periods in 1918, 1917, 1916, and 1915, they were over 20, 28, 29 and 20 million dollars.

While these figures for net earnings for an 8 month period may seem large, it must be remembered that the value of the C.P.R. property devoted to the public use is in excess of a billion dollars, and on consideration of this fact it is evident that the returns secured by the company have been moderate indeed. If the terms of the United States Transportation Act were applicable to the C. P.R., its shareholders would be entitled to an annual return of something in excess of $60,000,000.

During the recent agitation for decreased railway rates, much stress was laid on the fact that the C.P.R. appeared to be able to more than meet its dividend requirements for 1921, and for that reason, it was said, a decrease in rates was justified. But the mere fact of a likelihood of ability to barely meet dividend requirements would not justify a general rate reduction, nor would a reduction made on such a basis justify a continuation of the high degree of confidence in the securities of Canada's greatest industrial corporation. Such a reduction would indicate that no provision could be made for future additions and betterments necessary in the public interest, and would bring with it the probability of decreased service and a lower standard of maintenance. While conditions in the railway industry have been slowly improving, the fact remains that they have not improved to an extent sufficient to restore the C.P.R. to its former standard of earnings, the proposition being further demonstrated by the fact of the results this year to date being obtained in great measure by large maintenance economies. A proper sense of proportion is a great necessity in any analysis of railway operating figures. If due consideration be given to all relevant facts, it will be seen that, while railway operating conditions are improving, there must yet be a substantial increase in traffic offering, and a further decrease in expenses, before a reduction in unit revenues, superimposed on the reductions already voluntarily made by Canadian railways, can be seriously considered.

Daily newspapers, or at least the great majority of them, which are clamoring for reductions in railway freight rates, should take a little of their own medicine. During the Great War they advanced their subscriptions very largely, in many cases doubling them. How would it be for them to set an example by restoring pre-war prices? Canadian Railway and Marine World is glad to be able to say that it did not advance its subscription one cent, it being the same today as before the war, notwithstanding the fact that for a considerable time the publisher paid for paper three times the pre-war price, and is today paying considerably more than double the pre-war price, while every other item in the cost of production has increased largely, and in some cases enormously, all of which increases Canadian Railway and Marine World has absorbed, and has not passed on to its readers.

Canadian National Rys. trains 7 and 8, heretofore operated between Regina and Saskatoon, Sask., on week days only, are now being operated on Sundays also.

Transportation Appointments Throughout Canada.

The inormation under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by ad-

Canadian Government Merchant Marine.—S. C. SHIPMAN, formerly City Agent, Grand Trunk Ry., 44 Leadenhall St., London, E.C., Eng., has been transferred to Canadian Government Merchant Marine staff at 17 Cockspur St., London, S.W. 1, Eng.

Canadian National Express Co.—E. A. NOVIS, heretofore Travelling Freight Agent, G.T.R., Liverpool, Eng., has been appointed Local Agent, Canadian National Ex. Co., at 17 Cockspur St., London, S.W. 1, Eng., reporting to E. J. Wearing, European Express Agent, Liverpool, Eng.

For other appointments, see under "Among the Express Companies," on pg 598.

Canadian National Rys.—F. E. BIRCH, heretofore Travelling Passenger Agent, Canadian Northern Ry., with office at 21 Charing Cross, London, Eng., has been appointed Travelling Passenger Agent, Canadian National-Grand Trunk Rys. Office, 17 Cockspur St., London, S.W. 1, Eng.

A. BROSTEDT, heretofore General Freight Agent, Canadian National-Grand Trunk Pacific Rys. and Grand Trunk Pacific Coast Steamship Co., Vancouver, B. C., has been appointed General Traffic Agent, with general supervision of the traffic interests, freight and passenger, in China, Japan, Straits Settlements and the Philippines. Office, Shanghai, China.

E. W. CAMERON, heretofore Assistant Superintendent, Battleford, Carlton and St. Brieux Subdivisions, Saskatoon Division, and Dauphin Division, Prairie District, Humboldt, Sask., has been appointed Assistant Superintendent, Neepawa Division, Prairie District, vice J. H. McDiarmid, whose appointment as Assistant Superintendent, Fort William Division, Sioux Lookout, Ont., was announced in our last issue. Office, Neepawa, Man.

A. H. DAVIS, City Ticket Agent, Brandon, Man., is reported to have been appointed City Ticket Agent at Edmonton, Alta.

H. P. FULLER has been appointed Assistant Roadmaster, Kamsack Subdivision, Prairie District, Kamsack, Sask.

A. T. HERBERT, Roadmaster, Neepawa, Man., has resumed his duties, and G. Jenkins, who was acting during his absence, has been assigned to other duties.

O. M. HIGGINS, heretofore Night Chief Dispatcher, has been appointed Chief Dispatcher, Saskatoon, Sask.

W. B. LOGAN, heretofore Storekeeper, Moncton, N.B., has been appointed acting District Storekeeper, Maritime District, vice W. F. Taylor, Assistant General Storekeeper, deceased. Office, Moncton, N.B.

G. A. ROBERTS, heretofore trick dispatcher, has been appointed Night Chief Dispatcher, Saskatoon, Sask., vice O. M. Higgins, promoted.

F. L. SEATON, heretofore Travelling Auditor, Winnipeg, has been appointed acting Assistant Auditor of Traffic, Canadian Government Rys., St. John, N.B., vice J. W. Wortman, who has been granted 6 months leave of absence from Sept. 1.

R. J. SLOANE, heretofore chief clerk, District Passenger Agent's office, Winnipeg, is reported to have been appointed City Ticket Agent, Brandon, Man., vice A. H. Davis, transferred.

JAMES STEPHENS is reported to have been appointed chief clerk to District Passenger Agent, Winnipeg, vice R. J. Sloane, promoted.

A. J. WALSH has been appointed Roadmaster, Qu'Appelle Subdivision, Prairie District. Office, Regina, Sask.

J. B. WINDROSS, heretofore Manager, Macdonald Hotel, Edmonton, Alta., has been appointed relieving Manager, Hotel Department. Headquarters, Winnipeg.

The position of locomotive foreman, Brockville, Ont., heretofore held by J. CLARK, has been abolished.

P635

A. Brostedt,
General Traffic Agent for the Orient, Canadian National Rys.

The Canadian National Rys. Passenger Department office at 21 Charing Cross, London, Eng., has been closed, in consequence of the removal of the European Manager's office from Orient House, 22 New Broad St., to the former G.T.R. offices at 17 Cockspur St.

Canadian Pacific Ry.—A. J. GARD has been appointed acting local freight agent, Vancouver, B.C., vice G. L. McCrae, appointed wharf agent there.

J. H. HALL, heretofore Night Locomotive Foreman, Sherbrooke, Que., has been appointed Night Locomotive Foreman, London, Ont., vice W. G. French, transferred.

C. E. JENKINS has been appointed London Booking Agent. Office, 62 Charing Cross, London, S.W. 1, Eng.

J. W. KEPPEL, heretofore General Foreman, Vancouver, B.C., has been appointed Master Mechanic, Regina Division, Saskatchewan District, vice W. G. McPherson, whose appointment as Master Mechanic, Moose Jaw Division, Saskatchewan District, Moose Jaw, was announced in our last issue. Office, Regina.

G. L. McCREA, heretofore local freight agent, Vancouver, B.C., has been appointed wharf freight agent there, vice J. Abrams, deceased.

J. J. MORTON, heretofore Import Freight Agent, Chicago, Ill., has been appointed Foreign Freight Agent, New York, vice F. G. Frieser, resigned.

R. QUINN, heretofore General Foreman, Revelstoke, B.C., has been appointed General Foreman, Vancouver, B.C., vice J. W. Keppel, promoted.

H. L. SCOTT, heretofore Locomotive Foreman, Aroostook, N.B., has been appointed Locomotive Foreman, McAdam, N.B., vice M. Kennedy, assigned to other duties.

H. WALKER, heretofore relieving Locomotive Foreman, Ontario District, has been appointed Locomotive Foreman, Aroostook, N.B., vice H. L. Scott, transferred.

Esquimalt & Nanaimo Ry. — F. E. TEBO, heretofore dispatcher, has been appointed Chief Dispatcher, vice J. D. Fraser, whose appointment as acting Superintendent was announced in our last issue. Office, Victoria, B.C.

Grand Trunk Ry.—W. WALMSLEY, heretofore chief clerk, has been appointed Assistant to Auditor of Revenues, vice G. A. Godfrey, appointed acting Auditor of Revenues, Western Lines, Detroit, Mich., as announced in our last issue.

See also Canadian National Rys.

Michigan Central Rd.—L. M. ABBS, chief clerk, Freight Department, London, Ont., is reported to have been appointed Freight Agent there, vice T. Evans, superannuated.

Reid Newfoundland Co.—As stated in Canadian Railway and Marine World for October, R. C. Morgan, Superintendent, Winnipeg Terminal Division, C.P.R., who left Winnipeg, Aug. 21, for St. John's, to decide whether to accept the position of General Manager, Reid Newfoundland Co., left St. John's on Sept. 13, after having written President H. D. Reid, stating his reasons for declining the position. A subsequent press report stated that he visited New York on his return trip to Winnipeg, and has changed his mind and decided to go back to St. John's. A St. John's paper of Oct. 5 announced his return there, but stated that it was not known whether this was with the consent of the Reid Co.'s directorate, or whether he had come back at the request of the Government, which, in extending aid to enable the company to continue operating the railway for a year, stipulated that a general manager should be secured, either from Canada or the United States, and that the appointment should be subject to the Government's approval. No official announcement is available at the time of writing, Oct. 29, but we are advised by the C.P.R. Western Lines management at Winnipeg that Mr. Morgan "has received six months leave of absence, in connection with work he is to do for the Newfoundland Ry."

An all-British company is being formed, according to a press report, to give a daily ai rservice between London, Paris, Brussels and Amsterdam, and a twice a week service to Canada and the United States. It is stated that the aircraft to perform the latter service will have a capacity of 50 passengers, and be able to make the trip in 45 hours.

Sir Joseph Flavelle on the G.T.R. System.

Sir Joseph Flavelle, Bart, Chairman of the Board, G.T.R., accompanied by H. G. Kelley, President; J. E. Dalrymple, Vice President, Traffic; W. D. Robb, Vice President, Transportation, Construction and Maintenance; Major F. L. C. Bond, Chief Engineer, G.T.R., and Engineer Henry, of the Railways Department at Ottawa, returned to Montreal Oct. 19 after having gone over the G.T.R. lines between Montreal and Levis, and Montreal and Portland, Me., during which they stopped at the most important stations and looked over the terminals, the trip being one of a series of inspections planned to enable Sir Joseph to see the whole system.

While in Montreal, Oct. 19, Sir Joseph attended a gathering at the Engineer's Armoury, Point St. Charles, when the E. J. Chamberlin shield for first aid work was presented to a team from the company's Montreal employes. In addition to the shield, which is retained for a year by the team, the individual members receive medals. A Royal Humane Society's medal was presented to C. A. Neill, a conductor, for saving a boy from drowning in the Ottawa River, at the risk of his life.

Sir Joseph, in making the presentations, said, in part:—"I was simply amazed during my tour of the G.T.R. System with President Kelley and other officials at the splendid manner in which the road was conducted in every way, and the general spirit of Grand Trunk family loyalty I found everywhere among the employes. It was a real surprise to me, and I cannot say too much of what I have seen as to the manner in which the system has been kept in shape, and the general manner in which the employes were evidently trying to preserve the ideas of good public service. In this I am speaking as a man who has been associated with large industrial enterprises from my youth up, so that I can speak as one who knows what real efficiency and service mean."

Prince Rupert Drydock & Shipbuilding Plant.—In consequence of the Prince Rupert Drydock & Engineering Co.'s bankruptcy, this plant will revert to the owners, the Grand Trunk Pacific Ry. Co., and will be operated under Canadian National Rys. management, on behalf of the Minister of Railways, who is receiver for the G.T.P.R. Any satisfactory work that may be offered in the way of ship building, ship repairing, etc., will be taken, and the plant will also be utilized as far as possible for repairing the railways' rolling stock and other bridge equipment, etc. It will be in charge of J. H. Pillsbury, who was Manager for the Prince Rupert Drydock & Engineering Co., and who will report to A. E. Warren, Assistant General Manager, Western Lines, C.N.R.

Sir William Van Horne's Estate. — The Imperial Privy Council has allowed the appeal of the Royal Trust Co. against the British Columbia Finance Minister, in connection with the duty payable to the province by the late Sir William Van Horne's estate. The B.C. Government claimed $14,000, but it was decided that its claim was built up on an erroneous basis, and that $8,523 is the correct amount payable. The B.C. Government is to pay the costs of the appeal, as well as the Supreme Court costs.

Canadian National Railways Have Net Earnings for the First Time.

D. B. Hanna, President, Canadian National Rys., issued the following statement, Oct. 10.—

"It is a matter of extreme gratification to me to be able to announce to the Canadian people that during the month of August, this year, the gross revenues secured from the operation of the Intercolonial, Prince Edward Island, National Transcontinental, Grand Trunk Pacific and Canadian Northern Railways, exceeded the expenses by a substantial amount. The mileage included in the statement is over 17,000 miles. The gross earnings were $10,536,461.74; the working expenses $10,489,230.39; and the net earnings $47,231.44.

"August is not a specially busy month, as it marks the end of the crop year in the Canadian west, and as the new grain does not begin to move until September, in large quantities, to the lake carriers and to the sea.

"This is the first monthly period, since these railways have been operated by the Board, that it has been possible to present such a favorable statement. While I do not wish to appear as unduly optimistic, I do believe that the economies effected, as one result of consolidation, are beginning to be reflected in operation, and that the day is not far distant when the National Railways will be on asset in which all Canadians may take pride.

"No one would venture to foretell the future with trade conditions as unsettled as they are today. It would, however, appear that the end of serious operating losses on the National Railways is appreciably near; nearer, in fact, than the most sanguine of us had hoped for. We are beginning to reap the fruits of the great and complicated work of consolidation which was begun when the merging of the Canadian Northern and Canadian Government lines was accomplished in 1918 and continued when the Grand Trunk Pacific Ry. was turned over to the Canadian National Board for operation."

The Minister of Railways' Opinion.

Hon. J. A. Stewart, in commenting on the figures, is reported to have said:—"The financial position of the Canadian National Rys., as announced by Mr. Hanna, bears out the view held by the Government that a decided improvement in revenue would be shown during the last four months of the year. It means that a deficit for Aug. 1920, amounting to $4,000,000, is transformed into a surplus of $47,231 for Aug. 1921. The gross earnings for Aug. 1921 were $10,536,461, compared with $10,065,917 for Aug. 1920, an increase of $470,543. The working expenses for Aug. 1921 were $10,489,230, compared with $14,067,237 for Aug. 1920, a reduction of about $4,000,000. Another fact that should be noted is that President Hanna's statement, while including the Grand Trunk Pacific, which is being operated by the Canadian National management, does not include the Grand Trunk, which, for the time being, is under separate control, and operated in coordination with the Government lines. I am informed that net revenue from railway operation of the Grand Trunk for the eight months ended Aug. 31 last, was $3,403,610, compared with $1,629,636 for the corresponding period of 1920, while the net revenue for August alone was $1,910,994. The fact that the Government lines are making a much better showing than during the corresponding period last year should serve to dissipate some of the pessimism which surrounds the discussion of Canada's present railway situation."

The Deputy Minister of Railways' Views.

Major Graham A. Bell, C.M.G., Deputy Minister of Railways, and one of the C. N.R. directors, is reported to have said: "This is what we have been working toward for months. That we got to this point in August, which is not a good earning month, is most heartening. There will be a surplus now for every month to the end of the year. September and October, when the new crop moves, should bring even better results. Taking the whole year, we will be well within the estimate which we gave to Parliament last year as to our requirements this year, and that estimate was better than the year before. If this had been a prosperous trade year we would have made a big hole in the fixed charges. We have picked up all deferred maintenance, and there is no false economy of that kind in order to achieve this result. When the G.T.R. also is incorporated and coordination extended in the same way to it, an even greater advantage should accrue to the National lines in working toward a condition where receipts can pay, not only operating expenses, but fixed charges."

The September Results.

President Hanna issued the following statement Oct. 29:—"It naturally gives me great pleasure to follow up my recent announcements of net earnings in August by stating that for September the results of operation of the National System show net earnings of a substantial amount over the cost of operation. The figures are: Gross earnings, $11,500,126.24; working expenses, $10,995,951.37; net earnings, $504,174.87. These figures embrace the operations of the Intercolonial, National Transcontinental, Grand Trunk Pacific and Canadian Northern Railways, in all, some 17,000 miles. This statement merely confirms what I stated recently to the effect that the Canadian National Rys. situation should not be regarded from too gloomy a viewpoint. We have a fine staff of loyal, capable, hard-working officers, to whom, with the co-operation of the employes, this pleasing result is naturally due, and I feel that the announcement will do much to encourage them to make greater efforts toward securing still better results."

E. H. Fitzhugh, vs. Central Vermont Ry. et al.—In regard to this suit, particulars of which were given in Canadian Railway and Marine World for June, pg. 314, the hearing of which was first fixed for Concord, N.H., on May 17, and postponed to Sept. 6, when it was further adjourned to enable certain legal conditions raised by the individual defendants to be decided by the Vermont Supreme Court, we are advised that it will probably come up again early in November.

A British Columbia railway employes deputation waited on the B.C. Government Oct. 7, to urge amendments to the Workmen's Compensation Act, so as to increase the indemnity to injured workmen from 55 to 66 2/3%, and in other ways.

Freight and Passenger Traffic Notes.

Fort William, Ont., is reported to have had 97,583 carloads of wheat unloaded there for the year ended Aug. 31 compared with 57,432 carloads in the previous year.

The United States Consul General at Victoria, B.C., estimates that 250,000 tourists from the Pacific States have visited British Columbia this year.

The Edmonton, Dunvegan & British Columbia Ry. began operating its trains into and out of the C.P.R. station at Edmonton, Alta., Oct. 6, abandoning its own station at 121st street.

Twenty carloads of fish from Lesser Slave Lake and Lac la Biche, Alta., passed through Edmonton recently for Chicago, having been taken to Edmonton by the Edmonton, Dunvegan & British Columbia Ry., and the Alberta & Great Waterways Ry.

The Canadian National Railways is reported to have issued an order that freight cars containing intoxicating liquors must be placed next the conductors' vans, and that an officer of the railways' police department must keep watch over them while in transit.

The C.P.R. now puts on board its inward Atlantic steamships at Father Point, Que., a customs officer and baggage checkers, to examine and check baggage, prior to the ships reaching Quebec, and avoid delays to passengers in disembarking.

The C.P.R. has been authorized, by the Board of Railway Commissioners, to reduce its service between Nelson and Slocan City, B.C., from a mixed train daily except Sunday, to a mixed train three times a week, the dates of service to be selected by the company.

F. J. G. Comeau, General Freight Agent, Dominion Atlantic Ry., is reported to have estimated that more than 2,000,000 barrels of apples will be shipped from the Annapolis valley in Nova Scotia this year, and that the United States will receive 1,000 carloads of them.

The St. John, N.B., City Council has amended its bylaws so as to provide a charge of $2.50 for every railway car passing over the city trestle to Sand Point and South Rodney wharf, West St. John, and to increase the wharfage rates on grain from 5c. a ton of 2,240 lb. to 6c. a ton of 2,000 lb.

The Canadian National Rys. are reported to have handled through Port Arthur, Ont., recently, a shipment of 10,000 kegs of Dutch herrings for western points, the largest shipment of the kind ever handled at Port Arthur freight sheds. The consignment was received from United States lines at Sarnia, and carried to Port Arthur by the Northern Navigation Co.

The Reid Newfoundland Co. is operating an express train from St. John's to Port aux Basques, Nfld., leaving at 1 p. m. on Sundays, Tuesdays and Thursdays. Sleeping cars are provided, the charges being $5 for a lower, $4 for an upper berth, and $15 for a drawing room. A steamship runs from Port aux Basques to North Sydney, connecting with the Canadian National Rys. trains.

When the old Pacific Great Eastern Ry. Co. bought the right of way for the North Vancouver-Whytecliffe line, it agreed to provide an hourly service. On the British Columbia Government taking over the company's property, the Premier refused to sign the agreements with the owners, claiming that the terms were improvident and exorbitant. The hourly service has never been given, and recently the traffic was further reduced by cutting off two trains a day between North Vancouver and Altamont. J. F. Mahon and associated owners applied to the B.C. courts to enforce the agreement or in default for $600,000 damages. When the case came up on Oct. 3 an adjournment was made to enable an arrangement to be arrived at.

Alberta & Great Waterways Ry.'s new passenger service, which was inaugurated with the new rolling stock recently, runs to the end of track, mile 272, and makes the trip to Lac la Biche, 110 miles, in 6½ hours, 3 hours less than previously. Beyond this point the time is slower. A new time schedule was put in operation Sept. 1, the train leaving Edmonton, 9.30 a.m. every Friday, reaching Lac la Biche at 4 p.m.; leaving again at 5 p.m. and reaching the end of track at 12.35 Saturdays. The return train leaves the end of track at 2.35 p.m. on Saturdays, reaching Lac la Biche at 10.10 a.m. Sundays, leaving there at 11 a.m. and arriving in Edmonton at 5.30 p.m. The train is equipped with dining and sleeping car accommodation, in addition to the ordinary day cars.

Canadian Ticket Agents Association's Annual Meeting.

The Association's 35th annual meeting was held at Ottawa on Oct. 11, about 140 members being present.

At the morning session the Canadian National-Grand Trunk Rys. gave an exhibition of moving pictures, which were described by W. S. Thompson, of the G. T.R. Press Bureau. In the afternoon pictures of a trip across the continent were presented by the C.P.R. and described by A. B. Calder, of the company's executive staff.

One subject discussed was the railway companies withdrawal from their agents, not exclusively engaged in railroad work, of the privilege so long enjoyed of free transportation for their wives and other dependents to attend the annual gatherings. All agreed that it was a serious blow to the Association and expressed the hope that at no distant date the companies would adopt more generous action.

Officers were elected as follows:—J. A. McDonald, Valleyfield, Que., President; A. C. Rorabeck, North Bay, Ont., 1st Vice President; C. L. Von Gunton, Blenheim, Ont., 2nd Vice President; S. Burrows, Belleville, Ont., 3rd Vice President; E. de la Hooke, London, Ont., Secretary-Treasurer; B. Caswell, Smiths Falls, Ont., Auditor; W. Jackson, Clinton, Ont., A. M. Hare, Tillsonburg, Ont., C. B. Janes, Orillia, Ont., W. J. Moffatt, Toronto, and W. H. C. Mackay, St. John, N.B., Executive Committee.

Owing to incessant rain, the outdoor programme had to be cancelled.

The railway passenger departments were represented during the meeting, etc., as follows:—Canadian National Rys., by C. K. Howard, Tourist Agent, Toronto. Canadian Pacific Ry., by A. B. Calder, of the executive staff, Montreal; W. H. Snell, G.P.A., Eastern Lines, Montreal; H. B. Beaumont, G.A. Passenger Department, Ocean Traffic, Toronto; and W. Fulton, A.D.P.A., Toronto. Grand Trunk Ry., by C. W. Johnston, A.G.P.A., Montreal; E. C. Elliott, D.P.A., and W. S. Thompson, Press Bureau, Montreal.

On Oct. 13, the members went to Montreal, where they were entertained by the C.P.R. on board the s.s. Metagama, being received by W. G. Annable, G.P.T.A., Ocean Traffic; W. Ballantyne, A.P.T.M., Ocean Traffic, Montreal; H. B. Beaumont, G.A., Passenger Department, Ocean Traffic, Toronto, and Capt. Turnbull. After being shown over the ship, they were entertained at luncheon on board, speeches being made by W. G. Annable, J. Ransford, the Association's retiring president, and Capt. Turnbull.

Improvement in Grand Trunk Railway Operating Results.

A statement was issued from the G.T.R. general offices in Montreal Oct. 11, giving the following earnings, etc., for August:—

Gross operating revenue	$10,231,233.00
Operating expenses	8,320,238.41
Net revenue from operation	$1,910,944.59
Operating ratio	81.31%

Net income after meeting all fixed charges for the mont, $96,292.34.

Net operating revenue for eight months from Jan. 1 to Aug. 31, shows an increase over 1920 of $1,773,973.19.

The following statement was also given out:—"These figures, which are for the Grand Trunk proper as distinct from the Grand Trunk Pacific, reflect the complete success which has attended the efforts of the management along the line toward the more economical operation of the system. Under the unsettled commercial conditions, gross earnings, in common with those of all other railways, have declined, and the problem has been to reduce operating costs to a point where they will be in satisfactory ratio to the gross income. It may be noted in this connection that the ratio of operating expenses to gross operating revenue, which for the eight months of this year is 81.31%, is 12.26% lower than the ratio of operating expenses to revenue for the year ended Dec. 30, 1920, as shown in the annual statement published a week or two ago."

A Railway Manager's Libel Action.—A. B. Buckworth, General Manager, Pacific Great Eastern Ry., was given a verdict for $1 and costs in the British Columbia Supreme Court, Oct. 11, in his action for libel against the Sun Publishing Co., Vancouver. The Vancouver Sun alleged in an article that Mr. Buckworth and a produce merchant had toured the country served by the railway and secured options on the entire potato crop, and that subsequently Mr. Buckworth cut the railway rate on potatoes from $6.80 to $3.40 a ton. These allegations were denied and the jury found as stated above.

Threat against Chairman of Board of Railway Commissioners.—W. R. Motherwell, Liberal candidate for the representation of Regina, Sask., in the House of Commons, is reported to have said at a nominating convention at Prince Albert, Sask., recently: "If I am honored with the seat of a private member in the next House of Commons, one of my first duties will be to put a motion on the order paper, asking for the expulsion of Hon. Frank Carvell as Chairman of the Board of Railway Commissioners."

Steam Railway Operating Revenues, Expenses and Other Statistics for July.

The following comparative table, for July, 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of $500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	$22,469,053	$25,343,406	$1,863,918	$2,305,037	$3,396,990	$3,655,454	$9,402,726	$10,439,085	$4,131,033	$5,092,735	$775,411	$670,911
Passenger	9,330,046	10,677,345	750,751	1,064,467	1,023,517	1,020,117	4,538,027	5,222,182	1,765,101	1,878,677	212,398	275,819
Mail	590,676	296,785	80,081	40,141	75,735	39,665	271,025	132,351	98,876	44,808	21,329	11,835
Express	1,414,462	1,155,900	106,665	106,517	177,389	133,859	685,248	626,329	327,634	136,542	34,673	44,168
All other	2,218,418	2,498,894	187,135	190,500	354,282	316,146	1,177,537	1,423,184	241,047	272,896	41,543	63,502
Total railway operating revenues	$36,022,658	$39,972,331	2,988,551	3,706,663	5,027,916	5,165,243	16,074,564	17,843,133	6,563,693	7,425,660	1,085,358	1,066,236
Operating expenses												
Maintenance of way and structures	8,201,021	10,514,117	$972,904	$1,219,717	$1,589,320	$2,238,585	$3,325,741	$3,763,762	$1,015,183	$1,258,589	$445,154	$943,259
Maintenance of equipment	8,076,557	9,804,566	698,158	743,688	1,156,176	1,276,115	3,366,798	3,862,040	1,514,643	1,840,712	408,553	823,309
Traffic	1,021,924	798,098	60,699	54,245	135,432	120,513	583,565	408,427	148,762	109,952	30,896	29,108
Transportation	15,180,929	17,905,398	1,711,946	2,050,961	2,548,641	2,944,583	6,132,213	7,468,769	2,637,893	3,060,587	615,760	607,559
Miscellaneous operation	594,457	778,452	57,071	72,107	114,231	144,236	271,851	411,201	64,060	51,282	8,618	32,924
General	950,360	932,660	46,597	74,512	164,989	134,064	319,783	307,334	240,812	240,894	48,184	41,689
All other	Cr. 283,969	Cr. 76,890	.....	.....	Cr. 259,777	Cr. 85,981	.....	.....	Cr. 625	.....	33,653	.....
Total railway operating expenses	33,741,281	40,656,403	3,547,378	4,215,233	5,448,013	6,772,117	13,999,954	16,221,535	5,620,730	6,562,019	1,423,515	2,477,851
Net operating revenue	2,281,377	.....	.....	.....	.....	.....	2,014,610	1,621,597	942,962	863,641	338,160	.....
Net operating deficit	.....	684,071	558,826	508,569	420,097	1,606,874	.....	.....	.....	.....	.....	1,411,615
Ratio of operating expenses to revenue	93.67%	101.71%	118.70%	113.72%	108.36%	131.11%	87.10%	90.91%	85.63%	88.36%	131,16%	232.39%
Mileage and operating statistics												
Average no. of miles of road operated	38,303.20	38,084.75	4,564.05	4,475.75	9,759.4	9,654.7	13,785.8	13,772.1	3,571	3,571	2,807.3	2,807.3
Tons moved (revenue)	5,901	10,464	542	983	840	1,193	1,926	2,888	1,632	2,574	202	192
Tons moved one mile (revenue)	1,686,590	2,457,062	154,668	246,446	285,234	372,917	680,923	995,075	288,743	474,673	96,029	66,404
Tons moved (all freight)	8,432	11,954	757	1,165	1,109	1,413	2,534	3,568	1,937	2,827	258	257
Tons moved one mile (all freight)	1,992,602	2,767,990	193,262	271,925	357,108	449,137	825,796	1,155,473	311,923	498,335	113,095	84,265
Passengers carried	4,527	5,400	536	720	508	640	1,696	1,977	1,161	1,284	86	89
Passengers carried one mile	305,886	389,314	29,256	47,869	33,594	41,037	151,204	190,939	53,204	60,284	8,091	10,027
Freight train miles	3,635	4,811	387	488	689	951	1,291	1,832	707	886	199	193
Passenger train miles	4,015	4,371	414	457	536	621	1,858	1,980	689	721	136	162
Mixed train miles	508	614	80	116	134	148	136	173	57	60	27	41
Loaded freight car miles	84,544	114,667	9,302	12,204	14,116	18,249	32,582	47,646	14,151	19,619	4,424	4,186
Empty freight car miles	43,767	37,318	3,652	2,504	8,728	7,243	14,041	13,980	8,626	7,233	2,913	1,983
Passenger car miles	29,793	32,358	3,137	3,746	3,886	4,001	14,265	15,246	4,389	4,555	1,204	1,405
Total amount of pay roll	$20,155,795	$25,500,766	$2,340,998	$2,855,882	$3,975,389	$5,167,923	$7,601,920	$9,806,576	$3,823,796	$4,450,790	$810,553	$1,254,080
Averages per mile of road operated												
Operating revenue	$940.46	$1,049.56	$654.80	$828.16	$515.20	$535.00	$1,166.02	$1,295.60	$1,839.05	$2,079.43	$386.62	$379.81
Operating expenses	$880.90	$1,067.52	$777.24	$941.79	$558.24	$701.43	$1,015.53	$1,177.85	$1,573.99	$1,837.58	$507.08	$882.64
Net operating revenue	$59.56	.....	.....	.....	.....	.....	$150.49	$117.75	$264.06	$241.85	.....	.....
Net operating deficit	.....	$17.96	$122.44	$113.63	$43.04	$166.43	.....	.....	.....	.....	$120.46	$502.83
Tons moved one mile (revenue)	44,033	64,516	33,888	55,062	29,227	38,625	49,393	72,253	80,857	132,925	34,207	23,654
Tons moved one mile (all freight)	52,021	72,680	42,345	60,755	36,591	46,520	59,901	83,899	87,349	139,551	40,286	30,016
Averages per freight and mixed train mile												
Freight receipts	$5.42	$4.67	$3.98	$3.81	$4.12	$3.32	$6.59	$5.20	$5.40	$5.38	$3.41	$2.85
Tons of freight (revenue)	407.0	452.8	330.4	406.9	345.9	338.9	477.1	495.8	377.4	501.2	422.0	282.5
Tons of freight (all freight)	480.9	510.1	412.8	448.9	433.1	408.2	578.6	575.8	407.4	526.2	497.0	358.4
Loaded freight cars	20.4	21.1	19.9	20.1	17.1	16.6	22.8	23.7	18.5	20.7	19.4	17.8
Empty freight cars	10.6	6.9	7.8	4.1	10.6	6.6	9.8	7.0	11.3	7.6	12.8	8.4
Averages per passenger and mixed train mile												
Passenger receipts	$2.06	$2.14	$1.52	$1.85	$1.52	$1.33	$2.28	$2.42	$2.36	$2.40	$1.30	$1.35
Passengers carried	67.6	78.2	59.4	83.4	50.0	53.3	75.8	88.6	71.2	77.1	49.4	49.1
Passenger cars	6.6	6.5	6.3	6.5	5.8	5.2	7.2	7.1	5.9	5.8	7.3	6.9
Averages per freight, passenger and mixed train mile												
Operating revenue	$4.42	$4.09	$3.38	$3.49	$3.69	$3.00	$4.89	$4.47	$4.51	$4.45	$2.99	$2.68
Operating expenses	$4.14	$4.16	$4.02	$3.97	$4.00	$3.93	$4.26	$4.07	$3.86	$3.93	$3.92	$6.24
Aver. length of haul (rev. freight) miles	285.8	234.7	285.0	250.7	339.2	212.5	353.4	344.5	176.9	184.4	473.9	345.2
Average passenger journey, miles	67.6	72.1	54.5	66.4	66.1	64.1	89.1	96.6	45.8	46.9	93.8	112.0
Average tons per loaded freight car	23.6	24.1	20.8	22.3	25.3	24.6	25.3	24.3	22.0	25.3	25.6	20.1
Ratio loaded to total freight car miles	65.9%	75.4%	71.8%	83.0%	61.8%	71.6%	69.9%	77.3%	62.1%	73.1%	60.3%	67.9%
Ratio of pay roll to revenue	56.0%	63.8%	78.3%	77.0%	79.1%	100.05%	47.3%	55.0%	58.3%	59.9%	74.7%	117.6%
Ratio of pay roll to operating expenses	59.7%	62.7%	66.0%	67.8%	73.0%	76.3%	54.3%	60.5%	68.0%	67.8%	56.9%	50.6%
Aver. freight receipts per rev. ton mile	1.332c.	1.031c.	1.205c.	.935c.	1.191c.	.980c.	1.381c.	1.049c.	1.431c.	1.073c.	.807c.	1.010c.
Aver. passenger receipt per pass. per mile	3.050c.	2.743c.	2.566c.	2.224c.	3.047c.	2.486c.	3.001c.	2.735c.	3.318c.	3.116c.	2.625c.	2.751c.

(Last 2 figures omitted)

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc., includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

The Railways' Operating Results for July.

The operating and financial positions of Canadian railways continue to improve, as shown by the returns for the month of July (given on the preceding page), when the railways as a whole had a larger percentage of their operating revenues remaining, after paying operating expenses, than for any month in 1920, or so far in 1921. While the gross operating revenues show a decrease compared with July 1920, the operating expenses show a greater proportional decrease. The gross operating revenues for all railways decreased 9.9% compared with July 1920, but increased 5.7% over June 1921. Compared with July 1920, the Canadian Government Rys. gross operating revenue decreased 19.4%; the Canadian Northern decreased 2.7%; the Canadian Pacific decreased 10%; the Grand Trunk decreased 11.6%, while the Grand Trunk Pacific increased 1.8%. Compared with June of this year, the Canadian Government Rys. gross revenue increased 4.4%, the Canadian Northern increased 17%, the Canadian Pacific increased 8.9%, while the Grand Trunk decreased 1.7% and the Grand Trunk Pacific decreased 1.2%.

Compared with June 1921, the freight revenues increased, the passenger revenues substantially so, the latter, however, being largely due to a seasonal increase in traffic. Mail and express revenues were both smaller in July than in June, but the increase in miscellaneous revenue and in freight and passenger earnings combined to make the 5.7% increase in gross revenue noted above.

Maintenance of way expenses were considerably smaller in July 1921 than in July 1920, the decrease being 22%, and maintenance of equipment expenses were 18% smaller than in July 1920. While a decrease of wages taking effect July 16, undoubtedly had an effect in decreasing these expenditures, and while a reduced traffic would also tend to make expenditures on these accounts smaller, the fact remains that the combined effect of these two influencing factors would not produce the decrease noted, which forces the conclusion that the programme of maintenance restriction put into effect early in the year by the railways generally was continued throughout July . The transportation expenses for the railways as a whole decreased 15% compared with July 1920, which is about all the reduction which could be hoped for, when considering the higher unit cost of moving a reduced traffic, on the one hand, and the recent wage reduction, on the other. The decrease in operating expenses was fairly evenly distributed among the several railways, with the exception of the Grand Trunk Pacific, the Canadian Government Rys. expenses being reduced 15%, Canadian Northern 19%, Canadian Pacific 13%, and Grand Trunk 14%. The reduction in the Grand Trunk Pacific maintenance expenses is notable, they having been about cut in two, and the total operating expenses reduced by 40%. The increase in the transportation expenses of this road is a logical consequence of the increased freight traffic handled in July 1921, compared with July 1920.

For the railways as a whole, the operating ratio for July was 93.67, which, as noted above, is the best performance for any month in 1920, or so far in 1921. This compares with an operating ratio of 101.71 in July 1920, and of 94.53 in June 1921. While the Canadian Government Rys. cut operating expenses to a large degree, as noted above, the falling off in gross revenue was such as to produce a less favorable operating ratio in July 1921 than in July 1920, the figures for the two months being 118.70 and 113.72 respectively. The performance for July represents a large improvement over that of June, however, when the ratio was 133.26. The Canadian Northern ratio was the smallest this year to date, being 108.36, compared with 122.88 in June 1921 and 131.11 in July 1920. The Canadian Pacific shows an improvement over July 1920, when the ratio was 90.91, the figures for July 1921 being 87.10. This is a falling off from June, however, when the operating ratio was but 78.61. The Grand Trunk, with an operating ratio of 85.63 in July 1921, bettered its performance of July 1920, when the figure was 88.36, and of June 1921, when the figure was 88.70. The Grand Trunk had the most favorable operating ratio of any of the railways shown, in July 1921. The Grand Trunk Pacific's improvement in operating ratio over July 1920 is most gratifying, the figures for July 1921 being 131.16, compared with 232.39 for July 1920. It also made an improvement over June 1921, when the figures were 134.20.

The traffic statistics show that the large falling off compared with last year continued throughout July. The revenue ton mileage handled by the railways as a whole decreased 30%, or 770,000,000 ton miles, which indicates that Canada in July still had a long way to go before her productive capacity could be said to be fully employed. The Canadian Government Rys. revenue ton mileage decreased 37%, the Canadian Northern decreased 23%, the Canadian Pacific decreased 30%, and the Grand Trunk decreased 39%, while the Grand Trunk Pacific had an increase in its freight traffic of over 29,000,000 ton miles, or 44%. Revenue passenger mileage for the railways as a whole shows a decrease of 21% compared with July 1920. The Canadian Government Rys. passenger traffic decreased 38%, the Canadian Northern 18%, the Canadian Pacific 20%, the Grand Trunk 11%, and the Grand Trunk Pacific 12%. These percentages indicate to what an extent Canadian railway business fell off within a year. Revenue ton mileage and number of passengers carried one mile, however, show a good increase over the corresponding figures for June.

Freight train mileage decreased by 24.5% compared with July 1920. As noted above, revenue ton mileage decreased 30%; the train mileage could not be decreased in proportion to the revenue ton mileage, which inevitably tends to increase the operating expense per unit of traffic handled. The figures for train loading, 407 tons a train for July 1921, and 452.8 tons for July 1920, show that the opportunity for operating full tonnage trains is more limited under the lighter traffic conditions. As stated above, revenue passenger mileage fell off 21% for the railways as a whole; but passenger train miles decreased only 8.2%. Thus it is further demonstrated that unit costs of doing the business are increased as the volume of business offering decreases. The figures for the ratio of loaded freight car miles to total freight car miles, 65.9% for July 1921, compared with 75.4% for July 1920, indicates that conditions of reduced traffic make for a more unbalanced traffic, and that operating expenses are further increased by the necessity of hauling more empty cars in freight trains.

The change which has taken place in railway operation in Canada as between July 1920 and July 1921 is expressed perhaps as well as it could be by the figures showing the operating revenue, expenses, and net revenue, and traffic on the basis of per mile of road operated. The decrease in gross earnings, together with a greater decrease in operating expenses, having the effect of converting a deficit into a net revenue, are shown in figures which adequately convey a correct impression of conditions, as is also the revenue freight tonnage handled.

The average length of haul in freight service shows a remarkable increase, from 234.7 to 285.8 miles. An even greater increase is shown over June 1921, when the average freight haul for all roads was 216.8 miles.

The payroll in July 1921 decreased $5,344,971 from that of July 1920, or 21%. While the wage reductions effective July 16 were partly responsible for this, the greater part of the decrease was due to the smaller number of employes in service, and, undoubtedly, smaller individual earnings due to less mileage made or time worked. The payroll in July was but slightly smaller than in June. Taking into consideration the reduced wages in the latter part of July, the additional labor required in July as compared with June was about proportional to the additional traffic handled.

The receipts per freight train mile show that the higher rates prevailing in July 1921 gave a higher train mile earning than in July 1920, despite the reduced revenue tonnage per train. Passenger rates were back on the same basis as in 1920, throughout the month, and although the average rate per passenger mile was larger than in July 1920, the passenger train mile earnings were smaller than in July 1920, due to the reduced traffic.

The average freight receipts per ton mile, 1.332c., show that freight rates as a whole are still considerably higher than in 1920, but it is evident that they are not high enough to make the total freight revenues equal to those of last year, when applied to the decreased vol-

ume of traffic handled. The difference in rates in the two months, July 1920 and 1921, is about three-tenths of a cent per ton mile on the average, for all roads. A comparison of the freight receipts per revenue ton mile for the different railways is interesting; it shows that the Canadian Government Rys., Canadian Northern and Grand Trunk Pacific derive most of their freight revenue from low grade commodities, taking a low rate, while the C.P.R. and Grand Trunk handle a larger proportion of high grade commodities, which serves to make the average rate per ton mile higher for those roads than for the other three. The Grand Trunk Pacific, in particular, earns its freight revenue on a very low unit rate, the average receipt per ton mile of .807c. being very low.

While our introductory statement, to the effect that the operating and financial position of Canadian railways continues to improve, is correct, it nevertheless requires some qualification. There is no doubt that the railways are able to retain a larger proportion of gross operating revenues, after the payment of operating expenses, than they have been able to in the past year or two, but at the same time it would be better for all concerned if those gross operating revenues were being secured on a much larger traffic than is being handled at present. A much larger traffic would involve a reduction in the unit cost of handling it, and further reductions in freight rates could then be considered, but it is evident that no decreases of any magnitude should be made while operating expenses remain at their present levels. A close analysis of the July figures shows the position the Canadian National Rys. occupy, and the extent to which a reduction of their traffic affects their operating results. It is worthy of note that these lines have reported a small operating surplus for August, due to the application of the wage reduction during the entire month, and the enforcement of economy to the uttermost. This is gratifying, but we would like to emphasize the point that further improvement in their position, and in the railway situation generally in Canada, does not lie so much with the railways themselves from now on as it does with the country, and the rapidity with which population increases and commerce and industry expands. A large and permanent improvement in Canadian railway operating results demands as a prerequisite a largely increased traffic to provide work for the railways which are already in operation, and when that traffic is increased to a point where it is measurably close to the capacity of the lines, the railways may be trusted to see to it that it is carried at rates more favorable to industry than in any other country.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John River Bridge.—We were advised recently that it was expected to complete the erection of the superstructure of the new bridge over the St. John River at the Reversible Falls, St. John, N.B., by the end of October. The work was started June 1, and the center section of the bottom chord was placed Oct. 7, thus connecting the east and west cantilever arms. The total weight of the superstructure, including the light 70 ft. girder approach spans, is approximately 2,400 tons. The contractors are the Dominion Bridge Co., Montreal, C. E. Fitzpatrick being superintendent and F. Bowman being engineer in charge of the operations.

The New Brunswick Government has instituted an action in the Chancery Court, to determine whether the control of the erection of bridges over navigable waters rests with the Dominion Government, or with the province. It is said that the C.P.R. will be represented by counsel, as the question has been raised mainly through the construction of the bridge at St. John.

Interprovincial & James Bay Ry.—The C.P.R. has operated for many years a branch line from Matawa, Ont., to Timiskaming wharf, Que., 37 miles, and a line built subsequently from Kipawa Jct., mile 36, to Kipawa, 9 miles. For a number of years after these lines were in operation residents of the district to the north discussed the possibility of the extension of these lines to Ville Marie, on the Quebec shore of Lake Timiskaming. These efforts resulted in the incorporation of the Interprovincial & James Bay Ry. Co., which subsequently came under C.P.R. control. The Quebec Legislature on several occasions voted a land subsidy in aid of the construction of a line from Kipawa to Ville Marie, and Dominion aid was also promised. In 1912 the Minister of Railways approved location plans for a line from Kipawa for about 70 miles to Ville Marie, and construction was started, 10 miles of line to the White Creek being completed, but further construction was stopped, prior to the outbreak of the war in 1914. The project was revived in 1919, and in 1920 the Quebec Legislature authorized a cash subsidy of $1,600 a mile, and a further cash subsidy not to exceed $6,400 a mile in the event of the Dominion Parliament not voting a subsidy, for the construction of a line from the present terminus of the branch line at Kipawa or Timiskaming via Ville Marie to the Des Quinze River Falls, 66 miles. Following surveys and negotiations, a contract was entered into between the C.P.R. Co. and the Quebec Government for the work. A new route has been located from the end of track at White Creek, farther inland than that approved by the Dominion Government in 1912, with a branch from station 482 into Ville Marie, approximately 8 miles long, and then bearing away westerly to the Des Quinze River, at the falls, a total length of 60 miles, making, with the 10 miles built in 1912-13, a total length of 70 miles. We are officially advised that a contract has been let to Angus & Taylor, North Bay, Ont., for clearing, grading and culvert work on this 60 miles.

Manitoba District Construction. — A press report states that construction has been gone on with during the summer on a line running north from Russell, Man., and that some track has been laid. Russell is 11 miles northerly from Binscarth, on a branch line, which is now being extended northerly.

Saskatchewan District Construction.—Considerable work was done during the summer on the new branch line from Lanigan, Sask., northerly to the Saskatchewan River, which as projected will be about 50 miles long. A portion of the branch has been completed and a train service is being given over it. Ballasting and surfacing is reported to be in progress on a further mileage.

A siding is reported to have been built from a line south of Moose Jaw, to some sodium sulphate deposits which are being developed by a United States company near Dunkirk.

Moose Jaw Station.—The new station building at Moose Jaw, Sask., was opened for traffic, Oct. 15. A description and front view of this building was given in Canadian Railway and Marine World for June, 1920, pg. 291.

Alberta District Construction. — The Weyburn-Lethbridge line construction of sections of which have been built from time to time, is approaching completion. During the summer construction was in progress on an 18 mile section from Altaman, at the Saskatchewan-Alberta boundary, westerly to Payne, Alta., which it is expected to complete this year. The completion of this section will leave a gap of about 20 miles between Payne and Manyberries, which is the present terminus of the 85 miles already built easterly from Sterling, where the connection is made with Lethbridge. E. W. Beatty, President, is reported to have stated on his recent visit to the west, that construction of this mileage would be undertaken in 1922.

Tracklaying on the line from Acme, easterly into the Drumheller coal field, 35 miles, is reported to have reached Kirkpatrick, on the bank of one of the branches of the South Saskatchewan River. The question of the erection of a bridge over the river is under consideration.

A number of stations have been built in the district during the summer, one of the largest being at Cardston.

The Board of Railway Commissioners has authorized the opening for traffic of the extension of its Langdon North Branch, from Acme to Empress, mile 38.88 to 74.20. (Oct., pg. 540.)

Railway Accidents Throughout Canada.—The total number of accidents reported to the Board of Railway Commissioners in September was 167, resulting in 24 persons being killed, and 160 being injured. Of those killed, 1 was a passenger, 7 were employes, and 16 others, while of those injured, 20 were passengers, 110 employes, and 24 others. Under others are included 10 highway crossing accidents, in which 3 persons were killed, and 12 injured. In 6 of these accidents, the crossings were unprotected, in 3 there were gates, and in 1, an electric bell. In 6 cases, automobiles were concerned, in 1, a motorcycle, and in 3, pedestrians.

Elimination of Waste on Railways.—The American Society of Mechanical Engineers Railroad Division will discuss the elimination of waste on railways, in connection with the general consideration of that topic at the society's annual meeting in New York, Dec. 9. Three papers will be presented, viz.: Avoidable waste in locomotives as affected by design, by Jas. Partington, American Locomotive Co.; Avoidable waste in operation of locomotives and cars, by Wm. Elmer, Pennsylvania Rd.; Avoiding waste in car operation; the container car, by W. C. Sanders, New York Central Rd.

National Cartage & Storage Ltd. is the new name of the Canadian National Transfer Co., Ltd., at Winnipeg.

Changes in Canadian National Railways' Maritime and Quebec Districts, Divisions and Subdivisions.

The following changes have been made on the C.N.R. Maritime and Quebec Districts.

Truro Subdivision, Halifax Division, Maritime District, from Truro to Springhill Jct., N.S. (but not including Springhill Jct.), 59.54 miles, heretofore under J. T. Hallisey, Superintendent, and J. D. McNutt, Assistant Superintendent at Truro, has been consolidated with the former Amherst Subdivision, Moncton Division, Maritime District, from Springhill Jct. to Moncton, 124.75 miles, heretofore under A. C. Barker, Superintendent, and W. A. Fitch, Assistant Superintendent, Moncton, the consolidated subdivision being named Springhill, and placed in Moncton Division under Messrs. Barker and Fitch.

Newcastle Subdivision, Moncton Division, Maritime District, from Moncton to Newcastle, N.B., 78.58 miles, heretofore under A. C. Barker, Superintendent, and W. A. Fitch, Assistant Superintendent, at Moncton, has been changed to Harcourt Subdivision and transferred to Campbellton Division, under R. H. Martin, Superintendent, and H. V. Musgrave, Assistant Superintendent, Campbellton, N.B.

Loggieville Subdivision, Moncton Division, Maritime District, from Nelson Jct. to Loggieville, 13.49 miles, heretofore under A. C. Barker, Superintendent, and W. A. Fitch, Assistant Superintendent, Moncton, has been transferred to Campbellton Division, under R. H. Martin, Superintendent, and H. V. Musgrave, Assistant Superintendent, Campbellton, N.B.

Centreville Subdivision, from Westfield Beach to Centreville, N.B., 157.84 miles; Fredericton Subdivision (renamed Nashwaak) from Derby Jct. to Fredericton, 109.75 miles; and Stanley Subdivision, from Stanley Jct. to Stanley, 5.40 miles; heretofore in Campbellton Division, under R. H. Martin, Superintendent, and H. V. Musgrave, Assistant Superintendent, Campbellton, N.B., have been transferred to Edmundston Division, under F. Griffin, Superintendent, Edmundston, N. B., and R. Z. Walker, Assistant Superintendent, South Devon, N.B.

Edmundston Division, under F. Griffin, Superintendent, Edmundston, N.B., and R. Z. Walker, Assistant Superintendent, South Devon, N.B., as re-arranged, has been transferred from Quebec District to Maritime District, of which J. C. O'Donnell is General Superintendent at Moncton, N.B. Edmundston Division's new territory is as follows:—Chipman Subdivision, Pacific Jct. to Napadogan, N.B., 106.67 miles; Grand Falls Subdivision, Napadogan to Edmundston, N.B., 112.91 miles; Glendyne Subdivision, Edmundston, N.B., to Monk, Que., 123.96 miles; Nashwaak Subdivision, Derby Jct., to Fredericton, N.B., 109.75 miles; Stanley Subdivision, Stanley Jct. to Stanley, N. B., 5.40 miles; and Centreville Subdivision, Westfield Beach to Centreville, N. B., 157.84 miles.

Armagh Subdivision, Monk to Diamond, Que., 100.98 miles, heretofore part of Edmundston Division, Quebec District, has been transferred to Levis Division, Quebec District, under E. L. Desjardins, Superintendent, G. Pelletier, and J. A. Trudel, Assistant Superintendents, Levis, Que.

Bridge Subdivision, Levis Division, Quebec District, heretofore extending from Charny to Bridge, Que., 3.2 miles, has been extended to Cadorna, Que., a further 7.9 miles, and including the Marine Branch, and is under E. L. Desjardins, Superintendent, Levis Division, and J. H. Pakenham, Assistant Superintendent, Bridge Subdivision and Quebec Terminals.

La Tuque Subdivision, St. Maurice Division, Quebec District, which formerly extended from Bridge to Fitzpatrick, Que., 125.87 miles, now extends from Cap Rouge to Fitzpatrick, 123.82 miles.

Chaudiere Subdivision, Levis Division, Quebec District, heretofore extending from Chaudiere to Ste. Rosalie Jct., Que., 115.98 miles, has been extended east to Levis, 9.22 miles, making its total mileage 125.20 miles, and its name has been changed to Drummondville Subdivision.

Mileages.—These transfers have made the following changes in mileages of the districts and divisions:—

	Old.	New.
Maritime District—		
New Glasgow Division	368.01	368,01
Halifax Division	205.48	145.94
Moncton Division	423.45	393.66
Campbellton Division	682.17	497.57
Edmundston Division	.....	616.53
	1,679.11	2,021.71
Quebec District—		
Levis Division	442.54	554.64
Edmundston Division	444.52	.....
Saguenay Division	386.3	386.3
Montreal Division	464.0	464.0
St. Maurice Division	466.60	452.3
Cochrane Division	497.9	497.9
	2,701.86	2,355.14

Subdivisions' Names Changed. — The following changes have been made in the names of subdivisions:—

Port Wade Subdivision, Bridgewater Division, Maritime District, Bridgewater Jct. to Port Wade, N.S., 93.5 miles, changed to Middleton.

Amherst Subdivision, Moncton Division, Maritime District, Springhill Jct., N.S., to Moncton, N.B., 65.21 miles, changed to Springhill.

Newcastle Subdivision, Moncton Division, Maritime District, Moncton to Newcastle, N.B., 78.58 miles, changed to Harcourt, and transferred to Campbellton Division, Maritime District.

Fredericton Subdivision, Campbellton Division, Maritime District, Derby Jct. to Fredericton, N.B., 109.75 miles, changed to Nashwaak Subdivision, and transferred to Edmundston Division, Maritime District.

Napadogan Subdivision, Edmundston Division, Quebec District, Pacific Jct. to Napadogan, N.B., 106.67 miles, changed to Chipman Subdivision, Edmundston Division, and transferred to Maritime District.

Monk Subdivision, Edmundston Division, Quebec District, Edmundston, N. B., to Monk, Que., 123.96 miles, changed to Glendyne Subdivision, Edmundston Division, and transferred to Maritime District.

Mont Joli Subdivision, Levis Division, Quebec District, Mont Joli to Riviere du Loup, Que., 83.84 miles, changed to Rimouski.

Riviere du Loup Subdivision, Levis Division, Quebec District, Riviere du Loup to Levis, Que., 114.69 miles, changed to Montmagny.

Chaudiere Subdivision, Levis Division, Quebec District, heretofore from Chaudiere to Ste. Rosalie Jct., Que., 115.98 miles, extended east to Levis, 9.22 miles, total mileage 125.20 miles, and changed to Drummondville.

Joffre Subdivision, Levis Division, Quebec District, heretofore from Levis to Chaudiere, 9.28 miles, now included in Drummondville Subdivision, and from St. Charles Jct. to West Jct., Que., 16.84 miles, changed to Diamond.

Fitzpatrick Subdivision, St. Maurice Division, Quebec District, from Fitzpatrick to Parent, Que., 118.78 miles, changed to Manouan.

Parent Subdivision, St. Maurice Division, Quebec District, from Parent to Doucet, Que., 102.54 miles, changed to Oscalanea.

Doucet Subdivision, St. Maurice Division, Quebec District, Doucet to O'Brien, Que., 107.09 miles, changed to Amos.

O'Brien Subdivision, Cochrane Division, Quebec District, from O'Brien, Que., to Cochrane, Ont., 112.5 miles, changed to Makamik.

Hearst Subdivision, Cochrane Division, Quebec District, from Hearst to Grant, Ont., 125.1 miles, changed to Pagwa.

Grant Subdivision, Cochrane Division, Quebec District, from Grant to Armstrong, Ont., 131.2 miles, changed to Kowkash.

Grand Trunk Railway Employes' Pension Claims.

The following press dispatch was sent out from Toronto recently:—"Hon G. D. Robertson, Minister of Labor, in passing through Toronto en route to Hamilton, said that there was reason to hope that the grievance of G.T.R. railway train service employes, because of pensions on retirement being denied, will soon be adjusted. The Government held that the employes' claims had been regarded as a charge against the fund from which pensions were paid, and arranged for representatives of the employes to submit their case to the Cassels arbitration board for consideration. The investigation, however, developed the fact that the pension fund was exhausted in 1918, and no further provision being made for its continued maintenance, pensions from that time were paid out of earnings. The arbitrators expressed the view that the present G.T.R. directors should give the matter further attention, which suggestion is being acted upon. In view of the well known sympathy of the Government to the proposal that the Pension Fund Act and regulations should be interpreted and administered in the manner originally intended and applied up to 1910, said the Minister of Labor, it is reasonable to expect that the claim of the employes will be adjusted on that basis, at least from the date the Government became owner of the property."

Canadian Railway and Marine World communicated, in regard to the above, with the Minister of Labor, who replied: "The press dispatch quite accurately describes the facts and is substantially correct."

The Canadian National Rys. rest house at Edmundston, N.B., was destroyed by fire, Oct. 20. R. Hannah, a locomotive man, of Moncton, N.B., lost his life.

Canadian National Railways Construction, Betterments, Etc.

St. John Station. — A press report states that it is expected to begin work this year in preparation for the erection of a new station at St. John, N.B.

Little Buctouche River Bridge.—Tenders are under consideration for the construction of the substructure of a single track railway bridge over the Little Buctouche River, mile 26.1, Buctouche Subdivision, Moncton Division, Maritime District. This bridge is situated between Irishtown and Tankville, on the old Moncton & Buctouche Ry.

Newcastle-Tracadie Connection. — A press report states that a survey is to be made for a line from Newcastle, N.B., on the old Intercolonial Ry. main line to Tracadie, the terminus of the extension of the old Caraquet & Gulf Shore Ry., now incorporated in the Canadian National Rys.

Coffee River Bridge.—We are officially advised that the contract for the substructure of the bridge over the Coffee River, mile 41.1, Doucet Subdivision, St. Maurice Division, Maritime District (National Transcontinental Ry), described in our last issue, has been let to Jos. Gosselin, Ltd., Quebec.

Chaudiere Ice House.—Tenders were received to Oct. 6 for the construction of an extension to the ice house at Chaudiere Jct., Que.

Winnipeg Through Freight Track.—A piece of double track is reported to be under consideration between Water St. to Clarke St., Fort Rouge, Man., the object of which is to enable through freight traffic to be carried without having to go through Winnipeg. The trestle work for the first track was reported to have been completed Oct. 11, and it was stated that everything was ready for track laying. It is expected to have the whole work completed early in November.

Melfort Northeasterly.—Track laying is reported to be in progress on the line under construction from Melfort, Sask., northeasterly along the valley of the Carrot River, and it is expected to reach mile 23 before the end of the year.

North Battleford-Turtleford Extension. A press report states that grading on the extension of the North Battleford-Turtleford branch has been completed to St. Walberg, Sask., and is being continued to Glenbogie. Some bridge and culvert work will have to be done before the line is ready for track laying.

Rivers and Edson Water Supply. — Tenders have been received for the construction of an earth dam at Rivers, Man., and for the developing of the water supply reservoir at Edson, Alta., on the Grand Trunk Pacific Ry.

Edmonton Grades. — The Canadian Northern Ry. and Grand Trunk Pacific Ry. tracks enter Edmonton on different levels and a project is said to be under consideration changing the levels of both, so as to give them a common level. S. J. Hungerford, Vice President, Operation and Maintenance, and A. E. Warren, General Manager, Western Lines, explained the proposals to the city council recently. The G.T.R. tracks are to be lowered about 16 ft. from the east end of the trestles at 58th St., to 74th St., and the Canadian Northern Ry. tracks will be raised about 7 ft. for about 2,000 ft. Subways will be provided at the Fort Trail and Norton St., with a 4% gradient. The estimated cost of the work is about $250,000. The city gave its consent to the alteration of street crossings to suit the new levels.

Edmonton Station.—S. J. Hungerford, Vice President, Operation and Maintenance, and A. E. Warren, General Manager, Western Lines; discussed with the Edmonton, Alta., City Council recently plans for a new station in the city. The site will be east of 101st Street, extending through two blocks, giving it a 3-way approach. The freight sheds will be located west of 101st Street The plans, it was pointed out, would mean the closing of three streets, and the provision of two subways. No objection was made, and it is said that the railway engineers and architects will proceed with the preparation of the plans for the layout of the tracks, and for the station building.

Onoway to Whytecourt Branch.—Track laying is reported to have been completed on this line from Robinsons Crossing to Whytecourt, Alta. Whytecourt is on the Athabasca River, at the junction with the McLeod River, and is about 107 miles northwest of Edmonton. It is expected that the extension will be placed in operation at an early date.

Grain in Elevators.

Returns for the week ended Oct. 14, to the Dominion Bureau of Statistics, Internal Trade Branch, show that the quantity of grain in store at the various elevators throughout the Dominion increased by 12,556,476 bush., as follows:—Wheat 10,639,945, oats 1,419,222, barley 279,498, flax 153,875, and rye 63,936.

Receipts of wheat at country elevators were 18,335,983 bush, and shipments were 10,890,848 bush.

The interior terminal elevators showed increases of wheat 57,446 bush., barley 2,000 bush., and rye 1,517 bush. Oats showed a decrease of 27,003 bush. In the public and private terminal elevators at Fort William and Port Arthur, there were increases as follows:—Wheat 1,896,497 bush., oats 547,794 bush., barley 33,013 bush., rye 32,746 bush., while in flax there was a decrease of 32,925 bush. The receipts of all grains were 11,042,459 bush., and the shipments were, by ship 8,259,716 bush., and by rail 313,968 bush. In the private terminal elevators at Winnipeg, there were decreases of 2,004 and 9,497 bush. in oats and barley respectively, and increases of 1,436 bush. of wheat and 129 bush. of barley.

In the eastern public elevators there were increases as follows—Wheat 992,734 bush., flax 35,335 bush., rye 57,102 bush., and decreases, oats 86,747 bush., barley 15,104 bush. The receipts of wheat were, by ship, 3,390,545 bush., by rail, 825,198 bush., and the shipments were, by ship, 1,075,831 bush., by rail, 1,635,562 bush.

There were 8,493,221 bush. of U.S. grain in the eastern public elevators, compared with 1,814,185 bush. at the same period last year. Of this amount, 3,297,216 bush. consisted of wheat, and 3,833,558 bush. corn.

The C.P.R. is reported to have given the Town of Ingersoll, Ont., seven acres of gravel land on the town's westerly limit in consideration of having used considerable gravel from town pits some years ago.

Reduction in Livestock Rates from Western Canada to St. Paul and Chicago.

We are officially advised that the C.P.R. rates, and the Canadian National-Great Northern and Canadian National-Northern Pacific joint rates, on livestock from the prairie provinces to St. Paul, Minn., and Chicago, Ill., where they were over 50c. per 100 lb., were on Oct. 8 reduced 20%. No reduction was made in rates of 50c. or less per 100 lb. Following are examples of the old and new rates. From Moose Jaw, Sask., to St. Paul, old 69c., new 55c.; from Moose Jaw to Chicago, old 96c., new 77c.; from Calgary and Edmonton, Alta., to St. Paul, old 88c., new 70½c.; from Calgary and Edmonton to Chicago, old $1.15, new 92c.

Large reductions in live stock rates were made by the Canadian railways within Canada in August, as stated in Canadian Railway and Marine World for September, pg. 466. The U.S. Interstate Commerce Commission recently granted U.S. western railways authority to disregard the usual tariff rules in order to permit reduced live stock rates in the western states, and recommended that rates higher than 50c. per 100 lb. be reduced 20%. Practically all live stock rates from points west of the Missouri River to Chicago have been reduced on this basis, it being estimated that the reduction in the railways' revenues will be over $10,000,000.

The Pullman Co.'s report, for the year ended July 31, contains the following figures:—$67,242,066, including $60,315,717 from the earnings of cars for 11 months ended July 31, $979,166 Government compensation for Aug. 1920, and $5,947,131 returns from manufacturing interests, etc. Total expenses, including declared dividends of $9,559,820, were $70,720,902, an excess of expenses over revenue chargeable to surplus account of $3,478,835. Total assets are given as $163,248,989, compared with $195,311,947 on July 31, 1920.

Refrigerator Cars' Brine Tanks.—The American Railway Association, Mechanical Division, has issued the following circular:—"In view of the fact that all refrigerator cars with brine tanks have not yet been equipped with device for retaining the brine between icing stations, and in accordance with the recommendation from the committee on car construction, the effective date of sec (f) of Interchange Rule 3 is extended to January 1, 1922."

Sheep Fattening at Fort William.—The Canadian National Rys. are reported to have leased their freight sheds along the Kaministikwia River, Fort William, Ont., to R. C. Harvey, Lethbridge, Alta., who proposes to utilize them during the winter to house 10,000 sheep, which he will bring in to fatten on the screenings from the elevators. It was stated recently that there was no market for these screenings, and that they were being dumped into the water. The sheep, it is reported, will be brought east early in November.

Whistles for Motor Cars.—The Board of Railway Commissioners is considering the question of requiring railway companies to equip motor cars, used for purposes other than the transportation of passengers, with whistles or bells, to be sounded when approaching crossings.

The United States Railways' Financial and Operating Position.

Details of the bill providing for the funding of debts owed to the U.S. Government by U.S. railways were given in Canadian Railway and Marine World for September and October, and, as noted, the bill was passed in the House of Representatives, but had not been passed by the Senate at the beginning of the Congressional recess. Congress has long since convened, but the bill has obtained very little consideration in the Senate to date, that body being occupied with problems of taxation and foreign relations. It is expected that the bill will meet with considerable opposition in the Senate debate concerning it, as some senators seem inclined to the view that it would be merely a means of affording a measure of charity to the railways. However, it is stated that the Administration is supporting the bill, and Chairman Cummins of the Senate Committee on Interstate Commerce has pointed out that the main purpose of the bill is to enable the Government to obtain cash on the railway securities which it has received from the railways and which it is proposed to obtain, so that it may pay the railways what it owes them without going to Congress for an appropriation. While the Government might insist upon the debts of the railways to it being set off against the debts of the Government to the railways, it is obvious that to do so would involve the withholding of a privilege to the railways which the U. S. Government has afforded to foreign Governments, and it is recognized, apparently, that the railways are in no position to get along without the sums owed them by the Government at present.

It was pointed out in a previous issue of Canadian Railway and Marine World that the Government had accepted railway securities to the extent of $381,000,000, for equipment bought for the railways by the Government during the period of Federal control. The securities, or equipment trust certificates, which have been held by the Railroad Administration, have found a good market of late, over $94,000,000 of them having been sold to investment houses for the Railroad Administration by the War Finance Corporation. If the market for these securities continues, it is probable that the limit of $500,000,000 placed on the amount of the securities which the railways may dispose of to the War Finance Corporation through the Railroad Administration may be reduced considerably. At all events, it is felt that the legislation will be put through the Senate in such a way as to allow the Railroad Administration to pay the railways what the Government owes them, and to allow the railways to issue securities for what they owe the Government, in addition to their debts for equipment secured by Government action during the period of Federal control.

Consequent on the wage reduction effective July 1, and on the continuance of economy in maintenance and other expenditure, U.S. railways showeda better operating return for August than for some time. The net operating income earned was $90,000,000, which represents a return on the value of the properties of 5% annually. To earn the 6% upon their value, as calculated by the Interstate Commerce Commission, they should have earned $108,000,000. However, the fact of their having earned 5% is gratifying, in that it is by far the best monthly performance since the termination of Federal control. Total operating revenues were $504,000,000, a decrease of 9% compared with Aug. 1920, but operating expenses, $381,000,000, showed a decrease of 44% compared with Aug. 1920. This large decrease in operating expenses, however, is not indicative of the change actually taking place, since operating expenses in Aug. 1920 included a large back time wage payment on account of the Chicago wage award. The total net operating income of U.S. railways for the year beginning with the termination of the guarantee period following Federal control, viz., Aug. 31, 1920, and ended Aug. 31, 1921, was $530,000,000. But to earn the 6%, as provided for in the Transportation Act, the railways should have earned a net operating income of $1,116,000,000. The rate at which they have earned for the year is but 2.8%, and incidentally it may be pointed out that this is the lowest return U.S. railways have earned for 20 years, with the exception, of course, of when they were under Federal control and for the six months immediately following, when their net return was guaranteed by the Government. With present rates, traffic, and operating expenses, U.S. railways are just beginning to get back to a proper financial basis. But rate reductions are demanded in all parts of the country. It is evident, even on casual examination, that any rate reductions of consequence will put the railways back into the unfavorable financial position which they have occupied for the past few years, unless operating expenses are correspondingly reduced. The actions of U.S. railway regulating authorities during the next few months may, therefore, be well watched with interest.

The Federal tax on transportation, viz., 8% on passenger fares and 3% on freight, is still in operation in the U.S. There has been some agitation for the repeal of these taxes, and it is stated that the Government is seriously considering the matter. One plan proposed is to remove half of these taxes this year and the remainder in 1922, and it is stated that Senate leaders have agreed upon elimination of all these taxes at the end of this year. No definite move toward their elimination has, however, been made.

The unfavorable economic conditions prevailing have affected U.S. railway traffic in almost identically the same degree as they have affected that of Canadian railways. Statistics for the first six months of 1921 show that U.S. railways carried 800,000,000 tons of revenue freight during the period, a decrease of 22% compared with the first six months of 1920. During the last two months, car loading has shown a considerable increase. While a lot of this increase is admittedly seasonal, it is also evident that business activity and traffic are increasing. There were 873,305 cars loaded with revenue freight during the week ended Sept. 24, and 901,178 cars during the week ended Oct. 1. While this loading was less by about 100,000 cars than in corresponding weeks in 1920, it represents a good increase over the loading for precedings weeks of this year. The movement of grain and perishables is showing a large increase over that of 1920, but coal, coke, live stock, forest products and ore, account for the net decrease.

Hearings before the Senate Committee on Interstate Commerce, in connection with its enquiry into the general railway situation, will, it is expected, be resumed in the near future. The last hearings preceding the beginning of the Congressional recess were reviewed in Canadian Railway and Marine World for July, pg. 373. The hearings were suspended during the recess, before which the railway executives had completed their testimony, and the representatives of the National Association of Railroad Security Owners had testified briefly. Representatives of railway employes and of shippers have yet to be examined by the committee, and it is probable that representatives of security owners will be examined further.

Canadian Built Tank Cars for Russian Soviet Government.

As mentioned in a previous issue of Canadian Railway and Marine World, the Russian Soviet Government is having built by Canadian Car & Foundry Co., 500 steel tank cars, of 50 tons capacity each, for transporting oil from the Caucasion oil wells to Black Sea ports. The cars will be shipped from Montreal before the close of navigation, by Canadian Government Merchant Marine steamships Canadian Challenger, Canadian Miller, Canadian Ranger and Canadian Seigneur, to Novorossisk. The first shipment was expected to be made before the end of October.

The general dimensions are as follows:

Length over end sills	30 ft. 6¾ in.
Truck centers	19 ft. 7 in.
Truck wheel base	6 ft. 7 in.
Gauge	5 ft.
Height from top of rail to top of leading platform hand rail	14 ft. 4½ in.
Length of tank inside	26 ft. 10⅛ in.
Diar. of tank inside	7 ft. 2¾ in.

They are designed to carry crude oil, naphtha, kerosene and benzine, and are equipped with Nobel devices, consisting of two different arrangements, one for handling benzine, and the other for handling crude oil, kerosene and naphtha. Benzine will be loaded direct into the tank through the dome, and will be unloaded by a special syphon arrangement, with a small hand pump on top of the dome for starting the flow. For carrying benzine, a special type of float is provided, with tape gauge and rewinding drum, to indicate the level of the liquid in the tank. When crude oil, or other similar liquid is carried, it will be loaded through the dome manhole, and discharged through an outlet valve in the bottom of the tank, connecting with two discharge pipes located outside of the side sills. The cars are, in addition, equipped with safety valve in the dome head. The materials used are in accordance with American standard practice. The tanks are built up from four sheets, running full length of the tank, consisting of one top sheet ⅜ in thick, two side sheets ⅜ in. thick, and one bottom sheet ½ in. thick. The tank heads are ½ in. thick, and the dome sheet and dome head are each 5/16 in. thick. The trucks are of the standard arch bar type of A.R.A. 50 ton design, with Simplex truck bolsters, modified to suit the Russian railway gauge of 5 ft. The specialties include Russian railway standard

screw couplings and drawbar hooks, forged steel buffers with helical coil springs, Westinghouse 10 in. Russian type automatic air brakes, Simplex bolsters, special design of unloading platform, with ladder from side sill to top of tank, and hand rails on platforms, special design of brakeman's platform, with seat at end for operating hand brake, which is the Russian type screw brake, with bell crank connection to foundation brake rigging. The underframes are of structural steel shapes, plates and bars, having two center sills running full length, consisting of 15 in. channels, two side sills running from bolster to end sills consisting of 9 in. channels, and angle side sills running between bolsters, body bolsters are built up, and the cross bearers consist of plates and angles supporting side sills.

Railway Earnings.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local which have been acquired by the Dominion Govlines in the Maritime Provinces and in Quebec, ernment.

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
May	7,794,147	8,305,850
June	7,885,548	7,776,539
July	8,837,354	9,063,674
August	8,881,530	9,582,999
September	10,548,589	9,895,681
	$78,551,863	$74,107,168

Approximate gross earnings for two weeks ended Oct. 14, $5,429,367, against $5,559,715 for same period 1920.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$3,527,304	$4,347,728	$ 820,423	$ 508,178
Feb.	3,526,658	4,367,491	840,833	1,205,925
Mar.	3,595,144	4,538,904	943,761	1,235,265
Apr.	3,363,072	3,915,995	552,923	115,191
May	2,914,973	3,728,949	813,976	618,809
June	2,859,986	3,811,205	951,309	608,456
July	2,988,552	3,547,379	558,827	508,569
	$22,775,599	$28,257,651	$5,482,052	$4,864,093
Incr.	196,913	814,872	617,959	.....

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January	$5,094,100	$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
April	4,978,500	4,732,623
May	4,742,200	4,863,500
June	4,606,800	4,427,600
July	5,506,900	5,168,500
August	5,708,500	5,899,700
September	7,057,400	6,140,500
	$48,654,600	$43,820,123

Approximate gross earnings for two weeks ended Oct. 14, $3,704,000, against $3,477,600 for same period 1920.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available, to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$5,851,220	$ 7,538,786	$1,687,566	$1,672,283
Feb.	5,575,782	6,861,337	1,285,555	1,839,756
Mar.	5,812,790	6,746,912	934,122	1,280,887
Apr.	4,994,027	6,327,739	1,333,712	911,321
May	4,427,994	5,742,052	1,314,058	1,041,273
June	4,295,811	5,536,771	1,240,890	1,084,815
July	5,027,917	5,448,014	420,097	1,603,874
	$35,985,611	$44,201,611	$8,216,000	$9,437,209
Incr.	3,384,793	2,163,584	.....	.....
Decr.	.....	.....	$1,221,209	.....

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,405,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
July	15,772,929	12,718,613	2,054,316	434,839
Aug.	17,064,266	14,488,126	2,576,140	375,327
	$116,892,866	$99,312,245	$17,580,621	$2,332,137
Incr.	.....	.....	2,332,137	.....
Decr.	$10,535,249	$12,867,386	.....	.....

Approximate gross earnings for September, $19,180,000, and for two weeks ended Oct. 14, $9,281,000, against $19,703,000 and $11,045,000 for same periods 1920.

The discrepancies between the above figures and those issued by the Dominion Bureau of Statistics is owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit 1921	1920
Jan.	$6.187,539	$6,886,930	$699,391*	$624,310*
Feb.	5,468,732	5,439,039	29,693	690,857*
Mar.	6,271,921	5,584,721	687,200	398,859
Apr.	5,659,813	5,241,107	418,706	651,789
May	5,957,779	5,596,194	361,585	605,310
June	6,672,766	5,919,063	753,702	456,747
July	6,563,693	5,620,730	942,963	863,642
	$42,782,243	$40,287,784	$2,494,458	$1,661,180
Incr.	1,373,407	540,129	833,278	.....

*Deficits.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$1,441,225	$1,813,982	$ 372,757	$ 737,357
Feb.	1,013,712	1,872,946	859,234	670,817
Mar.	1,007,499	1,664,227	656,728	655,560
Apr.	908,147	1,645,916	737,769	596,625
May	965,763	1,373,613	407,850	985,655
June	1,109,053	1,488,366	379,313	1,516,152
July	1,085,359	1,423,516	338,160	1,411,615
	$7,530,758	$11,282,566	$3,751,811	$6,573,781
Incr.	825,311	.....	.....	.....
Decr.	.....	$1,996,659	$2,821,970	.....

Traffic Orders by Board of Railway Commissioners

Cooperage Stock Classification and Rates.

31,625. Oct. 5.—Re application of the Sutherland, Innes Co. for a classification on cooperage stock which will bring the same down to the lumber rate basis. Upon hearing the application at Chatham, Ont., on June 28, the applicants, and the Grand Trunk and the Canadian Pacific Railways being represented, and what was alleged; and upon the report and recommendation of the Board's Traffic Officer, the Board orders 1. That the application that the present commodity rate on lumber should be extended to cooperage stock generally be refused. 2. That the Canadian National and the Canadian Pacific Railways be required to publish and file tariffs applying the lumber commodity rate of 17c. per 100 lb. on shipments of cooperage stock from Smiths Falls to Montreal; such tariffs to be filed with the Board so as to become effective within 10 days from the date of this order.

Class Rates from Pacific Termini Reduced.

31,648. Oct. 11.—Re application of Canadian Manufacturers' Association for consideration of readjustment in class rates applicable from Vancouver, Victoria, and New Westminster to points in British Columbia, Alberta, Saskatchewan and Manitoba, placing them on the basis outlined in general order 125, May 30, 1914, dealing with what is known as The Western Rates Case. Upon hearing the application at Vancouver, Oct. 12, 1920, the Canadian Manufacturers' Association, the Vancouver Board of Trade's Transportation Bureau, and the Canadian Pacific and Canadian National Railways being represented at the hearing, and what was alleged, and upon consideration of the submissions filed, the Board orders that the C.P.R. publish and file tariffs, to become effective on or before Dec. 1, 1921, showing special class rates from Pacific termini, as follows, viz., between Vancouver and New Westminster, and points east thereof—

1. To and from Glacier, B.C., the rates to be no greater than those of the Pacific standard tariff for 290 miles.

2. To and from points west of Glacier, the Pacific territory Town tariff basis to be applied, subject to the rates to Glacier (1) as maxima.

3. To and from points beyond Glacier within Pacific territory, the maximum first class rates to be those of the Pacific standard tariff for the through mileage, made up of the actual distance beyond Glacier, added to the above mentioned assumed distance of 290 miles west of Glacier.

4. To and from points in Prairie territory west of Fort William, the maximum first class rates to be those west of Canmore and Crowsnest, plus the Prairie standard first class rate difference between the actual mileage west of Canmore and Crowsnest and the actual through mileage to or from the Prairie destination or shipping point, as the case may be.

From the first class rates constructed as above, the rates for classes 2 to 10 to be extended in accordance with the scaling of the standard tariff, so as to preserve the proportion between the classes. If the exact first class rate is not given in the Pacific standard tariff, the next higher rate is to be used.

Rates on Cotton Grain Bags, Binder Twine and Binder Cord.

31,673. Re application of N. W. Hawkes, Agent, New England Freight Association Tariff Bureau, acting for and on behalf of railway companies under the Board's jurisdiction, for permission to publish, on one day notice, revised rates on cotton grain bags, binder twine, and binder cord. Upon its appearing that the changes desired are for the purpose of correcting clerical errors, the Board orders that the applicant be permitted to publish a supplement to his Tariff C.R.C. 1, so as to give effect to the proper rates on cotton grain bags, binder twine, and binder cord; the said supplement to be made effective upon one day notice.

The C.P.R., in connection with the special trans-Atlantic sailings to England for the Christmas season, has announced that beginning Nov. 12, a through tourist sleeping car service will be operated from Calgary, Edmonton, Moose Jaw, Regina and Winnipeg to the Atlantic seaboard.

Among the Express Companies.

The Canadian Ex. Co. is being sued by Canadian Fish & Cold Storage Co., Prince Rupert, B.C., for $10,870.37 for alleged breach of contract and negligence.

Canadian National Express Co.

E. A. Novis, heretofore Travelling Freight Agent, Grand Trunk Ry., Liverpool, Eng., has been appointed Local Agent, Canadian National Ex. Co., at 17 Cockspur St., London, S.W. 1, Eng., reporting to E. J. Wearing, European Express Agent, Liverpool, Eng.

W. C. Cranston, whose appointment as General Agent, Canadian National Ex. Co., Vancouver, B.C., was announced in a recent issue, was born at Galt, Ont., Dec. 10, 1883, and entered express service in May, 1904, since when he has been, to June 1905, driver, Canadian Ex. Co., Galt, Ont.; July 1905 to Dec. 1906, messenger, same company, Toronto; May 1907 to Apr. 1910, messenger, Canadian Northern Ex. Co., Edmonton, Alta.; Apr. 1910 to Apr. 1911, agent, same company, Regina, Sask.; Apr. 1911 to June 1920, agent, same company, Saskatoon, Sask.; July 1, 1920 to Aug. 1921, joint agent, Canadian National and Canadian Ex. Cos., Saskatoon.

Fred Cumberland Salter, whose appointment as Manager, Foreign Department, Canadian National Ex. Co., Montreal, was announced in our last issue, was born at Sarnia, Ont., Aug. 31, 1863, and entered transportation service in 1882, since when he has been, to Jan. 18, 1884, operator and ticket clerk, Northern & Northwestern Ry., Toronto; Jan. 18 to July 22, 1884, operator, G.T.R., Caledonia, Ont.; July 22, 1884 to Apr. 6, 1885, operator and clerk, G.T.R., Clinton, Ont.; Apr. 6, 1885 to Aug. 1, 1887, operator and clerk, G.T.R., Buffalo, N.Y.; Aug. 1, 1887 to Jan. 1, 1889, operator, G.T.R., London, Ont.; Jan. 1, 1889 to 1891, Soliciting Freight Agent, Commercial Express Line, Buffalo, N.Y.; 1891 to 1893, agent for New York State, Commercial Express Line, Buffalo, N.Y.; 1893 to 1896, Travelling Freight Agent, Northern Pacific Ry., Buffalo, N.Y.; 1896 to Feb. 15, 1904, General Agent, N.P.R., New York, N.Y.; Feb. 15, 1904, to June 1, 1908, European Traffic Agent, G.T.R., Liverpool, Eng.; June 1, 1908 to Sept. 1921, European Traffic Manager, G.T.R. and Canadian Ex. Co., London, Eng. He is a son of the late Canon Salter, at one time at Brantford, Ont.

Appointments.—In consequence of the consolidation of the Canadian National Ex. Co. and the Canadian Ex. Co., as the Canadian National Ex. Co., the following appointments have been made, in addition to those mentioned in Canadian Railway and Marine World for September and October.

L. B. Allen, Tariff Clerk, Canadian National Ex. Co., Winnipeg, before the consolidation of the two companies, has been assigned to other duties.

C. E. Potts, formerly Travelling Agent, Canadian National Ex. Co., Toronto, has been appointed chief clerk in Superintendent's office, London, Ont.

C. A. Roach, formerly Route Agent, Canadian Ex. Co., with headquarters at Montreal, has been appointed chief clerk in Superintendent's office, Montreal.

The titles Lost Express Freight Agent, and Route Agent, used formerly by Canadian Ex. Co., have been abolished, and the title Travelling Agent, used by Canadian National Ex. Co. before the consolidation, has been retained.

The following have been appointed travelling agents, with headquarters at the places named, their former positions being also given.

B. W. Bailey, North Bay, Ont., formerly agent, Canadian Ex. Co., there.

G. L. Bishop, Edmonton, Alta., formerly agent, Canadian National Ex. Co., North Battleford, Sask.

J. Bolduc, Montreal, formerly Travelling Agent, Canadian National Ex. Co., with same headquarters.

S. E. Brennan, Saskatoon, Sask., formerly Travelling Agent, Canadian National Ex. Co., with same headquarters.

J. Charest, Mont Joli, Que., formerly Route Agent, Canadian Ex. Co., with same headquarters.

F. V. Clare, Saskatoon, Sask., formerly Route Agent, Canadian Ex. Co., with headquarters at Winnipeg.

H. E. Fraser, Dauphin, Man., formerly agent, Canadian National Ex. Co., there.

H. E. Golding, Halifax, N.S., formerly Lost Express Freight Agent, Canadian Ex. Co., with headquarters at St. John, N.B.

H. N. Lingley, Truro, N.S., formerly Route Agent, Canadian Ex. Co., with same headquarters.

W. C. McGonegal, Cochrane, Ont., formerly Route Agent, Canadian Ex. Co., with headquarters at North Bay, Ont.

J. T. Madigan, Hamilton, Ont., formerly Route Agent, Canadian Ex. Co., with same headquarters.

S. O. Martin (relief), Moncton, N.B., formerly Agent, Canadian National Ex. Co., Ottawa, Ont.

R. C. Mellish, Stratford, Ont., formerly Lost Express Freight Agent, Canadian Ex. Co., with headquarters at Toronto.

E. S. Murray, London, Ont., formerly Route Agent, Canadian Ex. Co., with same headquarters.

G. H. H. Nase, St. John, N.B., formerly Route Agent, Canadian Ex. Co., with same headquarters.

W. H. Nattress, Winnipeg, formerly Route Agent, Canadian Ex. Co., with headquarters at Edmonton, Alta.

W. F. Pillar, Winnipeg, formerly Travelling Agent, Canadian National Ex. Co., with same headquarters.

H. C. M. Porritt, Toronto, formerly Route Agent, Canadian Ex. Co., with same headquarters.

A. Proteau, Quebec, formerly Agent, Canadian National Ex. Co., Chicoutimi, Que.

J. W. Proulx, Montreal, formerly Lost Express Freight Agent, Canadian Ex. Co., with same headquarters.

A. Scholey, Edmonton, Alta., formerly messenger, Canadian Ex. Co., with same headquarters.

E. O. Shannon, Belleville, Ont., formerly Route Agent, Canadian Ex. Co., with headquarters at Montreal.

H. M. Wallace, Ottawa, Ont., formerly agent, Canadian Ex. Co., Belleville, Ont.

G. H. Waterhouse, Belleville, Ont., formerly Route Agent, Canadian Ex. Co., with headquarters at Montreal.

R. J. Dawson, formerly Route Agent, Canadian Ex. Co., with headquarters at Halifax, N.S., is on extended leave of absence, owing to ill health.

Dominion Express Co.

Miss Delphine Burr, daughter of W. H. Burr, Traffic Manager, Dominion Ex. Co., was married at Toronto, Oct. 8, to Capt. J. H. Keens.

The Dominion Ex. Co.'s service was put in force over the Edmonton, Dunvegan & British Columbia Ry., and the Alberta & Great Waterways Rys. Oct. 6, its traffic being handled through its office at Edmonton, Alta.

A Dominion Ex. Co.'s messenger was held up on board a C.P.R. train, near Moose Jaw, Sask., Oct. 19, and about $5,000 in paper money was taken from the safe, by a masked robber, who is believed to have boarded the train at Swift Current, Sask., and to have left it before it reached Moose Jaw. The messenger was found on the floor of the ear, tied to the steam pipes.

Telegraph, Telephone and Cable Matters.

Commercial Telegraphers Union of America's annual convention was held at Toronto, Oct. 3.

The Pacific Cable Board is reported to be considering the laying of a second cable across the Pacific Ocean.

John McMillan, Manager of Telegraphs, C.P.R., was a guest and a speaker at the Kiwanis Club luncheon at Calgary, Alta., Oct. 6.

Canadian National Telegraphs have opened offices at Dominion, Que., and Hay Lake, Alta., and have closed offices at Baker Brook, N.B.; Black Cape, Greening, Little Metis Beach, Pointe au Pic, and Rockfield, Que.; Clifton House, Niagara Falls, Foresters Falls, Joe Lake, Lake Joseph, Mimico, Muskoka Lakes or Bala Park, Royal Muskoka Hotel, Sparrow Lake and Wilgar, Ont.; Beaconia, East Selkirk, Grand Beach and Victoria Beach, Man.; Alberta Beach and Evansburg, Alta.

The radiotelegraph station which the Marconi Wireless Telegraph Co. is building at Laprairie, Que., is designed for experimental purposes, and will be the most up to date and efficient station of its kind. It will be fitted with a continuous wave, 15 k.w. valve transmitter, an earth screen, and receiving apparatus, which will be selective both as to direction and sense, in addition to the ordinary resonance selectivity. The station will be adapted for duplexing and remote control, and is designed to operate directly off the public electrical power supply, without the use of running machinery.

At a Post Office Telegraph and Telephone Society meeting in London, Eng., Oct. 19, F. J. Brown, Chairman, discussed Great Britain's increased communication with the Dominions. He outlined the development of the Imperial cable, which he described as a romance of the war. In spite of submarine perils, the German cable between Emden and New York, via the Azores, was diverted to Penzance at the English end, and Halifax, N.S., at the Canadian end, and is now working between London, Eng., and Halifax, carrying a load of 230,000 words a week on the average. He also announced the completion of the wireless telegraph station at Leafield, Eng., and that the corresponding station at Cairo, Egypt, will be completed and ready for service by the end of the year, thus forming the first link in the chain of stations connecting England with South Africa. He also stated that two other stations will be erected in England and Egypt, to form the first link in a similar chain, connecting England with India, Singapore, Hong Kong and Australia.

Electric Railway Department

Track Construction and Rehabilitation by Toronto Transportation Commission.

Since the City of Toronto took over the Toronto Ry. Co.'s city lines, and handed them, together with the Toronto Civic Ry., to the Toronto Transportation Commission, for operation, many improvements to the physical property have been undertaken, some of which have already been referred to by Canadian Railway and Marine World. These improvements include extensive additions to rolling stock, additions to car houses, construction of new lines and connections between former Toronto Ry. Co. lines and Toronto Civic Ry. lines, rehabilitation of existing lines, and extensions of yard and track facilities at car houses. The construction of new lines and repairs to existing tracks has been pushed most vigorously, and great progress has been made towards bringing the property up to a state of first class physical condition.

The work completed in connection with track construction and rehabilitation includes the following:—

1. Construction of second track on Coxwell Ave., from Gerrard St. east, to Danforth Ave., 3,000 ft.

2. Construction of a new double track line on Coxwell Ave. from Queen St. to a junction with the Toronto Civic Ry. line at the corner of Gerrard St. and Coxwell Ave., 2,900 ft. This, and the additional track noted, above as no. 1, make a new double track north and south route between Queen St. and Danforth Ave., in the east end of the city, which will handle a lot of the north and south traffic, and in addition provide a short route for cars from the Danforth Ave. car houses to Queen St.

3. Construction of new loop at east end of Danforth Ave. line, at Luttrell Ave. This line was operated formerly by the Toronto Civic Ry., with double end safety cars.

4. Installation of new intersection at Coxwell Ave. and Danforth Ave. This intersection, of solid manganese steel, is a double track three-part Y, that is to say, both the north and south tracks on Coxwell Ave. connect by curves to the eastbound and westbound tracks respectively on Danforth Ave., both to the east and west.

5. Installation of new intersection at Coxwell Ave. and Gerrard St.; this also being a double track three part Y, with manganese steel insert.

6. (a) Construction of curves to allow cars proceeding south on Coxwell Ave. to branch on to upper Gerrard east, a solid manganese steel installation. (b) Addition of new single track curve for cars proceeding west on Gerrard St. to turn south on Coxwell Ave.

7. Installation of solid manganese steel double track three-part Y at intersection of Coxwell Ave. and Queen St.

8. Construction of connecting link between Toronto Ry. Co. and Toronto Civic Ry. lines on Danforth Ave. near Broadview Ave., 120 ft. of new double track.

9. Construction of connecting link between Toronto Ry. Co. line and Toronto Civic Ry. line on Gerrard St. East, near Greenwood Ave., 220 ft. of new double track.

10. Installation of new curve to allow westbound cars on Danforth Ave. to turn south on Broadview Ave., and installation of new clearance curve for northbound cars on Broadview Ave. to turn east on Danforth Ave.

11. Installation of new three-quarter grand union, solid manganese steel type intersection at Church and Queen East.

12. Installation of similar three-quarter grand union at intersection of Queen and Victoria Sts.

13. Rehabilitation of northbound track on Church St. from Queen St. to Dundas St., 1,200 ft. of new single track.

14. Installation of new clearance curve, from northbound track on Church St. to eastbound track on Dundas St. East.

15. Construction of new single track on Albert and James Sts., to complete a loop, 610 ft., with installation of new curves at intersections of Albert and Teraulay Sts., James and Albert Sts., and James and Louisa Sts.

16. Installation of four new curves at ends of both branches of Spadina Crescent, on Spadina Ave. between College and Harbord Sts., and rehabilitation of track on Crescent.

17. Installation of new temporary manganese steel crossing at intersection of Dundas St. and Ossington Ave.

18. Construction of temporary connection between Toronto Ry. Co. line on Avenue Road, and the Toronto Civic Ry. eastbound track on St. Clair Ave. A double track three-part Y will be installed at this intersection later.

19. Construction of new double track extension to the Toronto Civic Ry. line on Bloor St., from Runnymede Road to Jane St., 2,198 ft. Grading for loop at Jane St. completed, loop to be constructed in near future.

In addition to the above, the following jobs were well advanced at the time of writing, Oct. 20:—

20. Rehabilitation of double track on Yonge St. from Front St. north to Carlton St., 4,396 ft. This involved tearing up the existing track and roadbed, and the diverting of traffic via Carlton and Church Sts. A 9 in. concrete slab base was laid, while oak ties, 122 lb. steel A.E.R.E.A. standard, and tie rods spaced 6 ft. apart were used. The street is being rebuilt with concrete paving base and paved with granite blocks.

21. On College St., between Spadina Ave. and McCaul St., 1,800 ft., the track is being rebuilt, new steel being laid and the devil strip widened.

22. On Dundas St., between Howard Park Ave. and Ritchie Ave., 550 ft., the track is being reconstructed, new 122 lb. steel being laid.

23. Construction of new double track line on Bathurst St., from Dupont St. to connect with the Toronto Civic Ry. line on St. Clair Ave., the track to be laid being equivalent to 5,564 single track ft.; 122 lb. steel is being used.

24. Rehabilitation of track on Bathurst St., from College to Bloor St., 4,575 ft. of double track; 122 lb. steel is being used.

25. Complete rehabilitation of tracks on Yonge St., between Bloor St. and Pryce St., 3,388 ft.

26. Complete rehabilitation of tracks on Yonge St. between College St. and Bloor St., 3,377 ft. This necessitates diversion of southbound traffic via Bloor and Church St., northbound traffic being carried on a temporary track.

27. Complete rehabilitation of tracks on Bathurst St. between Front St. and Queen St., 2,600 ft.; between Dundas and College Sts., 1,450 ft., and between Bloor and Dupont Sts., 2,834 ft.

28. Complete rehabilitation of tracks on Avenue Road, from Davenport Road to Dupont St., 800 ft., and from McMaster Ave. to Alcorn Ave., 500 ft.

29. Construction of new double track line on Teraulay St. from College St. to Bloor St., 3,300 ft.

30. Construction of double track on Wychwood Ave., south from St. Clair Ave., 240 ft., and installation of double track three-part Y at St. Clair Ave. and Wychwood Ave.

In addition to the loops mentioned above at the Jane St. terminus of the Bloor St. line, at Luttrell Ave. on the Danforth line, and to the north of the City Hall loop, a new loop is being constructed at the west end of the line on St. Clair Ave.

There is also planned for this year the extension of the Toronto Civic Ry. line on Bloor St. West from Lansdowne Ave. to St. Helen Ave. with a Y on the latter.

New diamond crossings are being installed at the intersection of Bathurst St. and a G.T.R. single track, and at the intersection of Queen St. with a G.T.R. double track.

Speaking generally, the devil strip, or space between the Toronto Ry. Co.'s double track lines, was 3 ft. 10 in. and on the Toronto Civic Ry. it was 5 ft. 4 in. The Commission is widening the devil strip to 5 ft. 4 in., which will give a clearance between two of the new cars which in no place will be less than 12 in.,

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.

Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.

President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.

Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.

Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director. Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.

Auditor, H. E. Weyman, Manager, Levis County Railway.

Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.

Official Organ, Canadian Railway and Marine World, Toronto.

on either curve or tangent. Cars will be able to operate past each other on all curves at intersections. As stated previously in Canadian Railway and Marine World, the original gauge of 4 ft. 10⅞ in. has been retained.

In addition to the above, the yard and track facilities at the various car houses are being enlarged. At the St. Clair Ave. car house, 14 pieces of special work, including turnouts, etc., are being installed, and 6,835 ft. of additional yard and running track is being put in. At the Danforth Ave. car house, 19 sections of special track work and 10,713 ft. of additional yard trackage are being put in. The steel for the special work is of 108 lb. section, and for the yard tracks of 70 lb. A.S.C.E. section. Work on the yard extensions at these two car houses is now well advanced. At the Connaught Ave. car house, 4,410 ft. of additional track is to be constructed. Additional installation in the near future.

About 2,600 men, in addition to the regular operating organization, are employed by the Commission on construction and rehabilitation.

The manner in which the track work is being carried on speaks volumes for the officials in charge of the planning and organization of it, the work proceeding rapidly and smoothly, while the absence of delay, despite the obstacles naturally connected with the commerce and traffic of a large city, is remarkable. Interference with the regular street car service throughout the city has been reduced to a minimum, automobile and truck operation having been facilitated by the skilful placing of closed road barriers and of men to indicate the alternative routes. Citizens generally have expressed great satisfaction with the high degree of efficiency characterising the work of reconstructing the system.

Toronto Transportation Commission's Track Reconstruction, Queen and Victoria Sts., looking south.

new material yards have been established at Merton St., Coxwell Ave., and on the old Hillcrest race track, at Bathurst St. and Dovercourt Road.

About 70 intersections have been ordered by the Commission, exclusive of the special intersections, turnouts, etc., mentioned for use in the yards at the car houses. The intersections put in up to the middle of October are mentioned above; about three per week will be installed in future. The Commission is also equipping the system extensively with electric switches, 18 having been installed to date, at the following intersections: Broadview Ave. with Danforth Ave.; Gerrard St., Queen St., and Dundas St.; at intersections of King St. with Queen St., and Shaw St.; at intersections of Parliament St. with Queen St., Gerrard St. and Carlton St.; at intersections of Queen St. with Church St., Ossington Ave., and Shaw St.; at intersections of Teraulay St. with Albert St. and Dundas St.; at intersections of Church St. with Queen St., Dundas St. and Richmond St.; and at intersection of College St. and Ossington Ave. The Commission has ordered 40 electric switches for

Motor Omnibus Notes.

A motor bus service in connection with the Peterborough, Ont., Radial Ry. is said to be under consideration.

The Montreal Tramways Commission is considering a plan for the operation of an auxiliary auto bus service from St. Catherine St. to Wellington St. The route would be on Atwater Ave. and Charlevoix St., about a mile and a half. The suggestion came from the city council, and is reported to have been favorably received by the Montreal Tramways Co.

Plans for the operation of a motor bus service along Dundas St., west of Toronto, are taking shape, and it is expected that a regular service will be put in operation from West Toronto to Cooksville as soon as the new highway is opened, which it is expected will be early in November. Work on Hurontario St. from Port Credit to Cooksville is expected to be completed about the same time, and it is suggested that a service be also given between Sunnyside via Port Credit and Cooksville.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Aug. 1921	Aug. 1920	2 mos. to Aug. 31, 1921	2 mos. to Aug. 31, 1920
Gross	$844,154	$810,008	$1,684,309	$1,599,010
Expenses	628,952	594,120	1,264,971	1,182,193
Net	215,202	216,488	349,338	416,817

Calgary Municipal Ry.—A press report gives the following figures for the nine months ended Sept. 30:—

	1921	1920
Revenue	$704,463.41	
Expenditures	703,868.20	
Surplus	$595.21	*$40,950.68
Operating expenses to revenue	99.9%	106.2%
Passengers carried for Sept.	1,178,659	1,156,022
Passengers carried, Jan. 1 to Sept. 30.	11,461,681	12,930,935

	1921	1920
Revenue for September	$71,616.67	$68,774.74

*Deficit.

Cape Breton Electric Co.—

	Aug. 1921	Aug. 1920	12 mos. to Aug. 31 1921	12 mos. to Aug. 31, 1920
Gross	$65,048	$56,886	$697,425	$603,423
Operating and taxes	48,011	49,691	576,442	517,814
Net	17,037	7,195	120,983	85,609
Interest	5,777	5,731	68,927	65,981
Balance	11,260	1,464	52,056	19,628

Edmonton Radial Ry.—An Edmonton, Alta., paper says:—The street railway is not in nearly as bad condition financially this year, though not on a paying basis. The total loss for August was $12,876, compared with a loss of $27,840 for Aug. 1920. The loss for the past eight months is $41,898, compared with a loss of $124,210 for the corresponding eight months of 1920.

Regina Municipal Railway.—

	1921	1920
Receipts for September	$26,870	$24,352
Passengers carried	435,526	393,233

It is estimated that the deficit on the year's operations will be about $10,000. The August figures showed a profit of $2,300, and September a profit of about $500 over and above operating expenses and fixed charges, thereby reducing the losses of the earlier months of the year.

Sydney & Glace Bay Ry.—The Royal Trust Co. is inviting tenders from holders of the S. & G.B.R. Co.'s 5% first mortgage gold bonds for bonds to be bought on account of the sinking fund as an investment for $4,862.27.

The S. & G.B.R. connects Sydney with Glace Bay, N.S., and is operated by the Cape Breton Electric Co.

The Winnipeg Electric Ry. is reported to have paid a dividend on its 7% preference stock on Oct. 1. A report that a dividend was to be declared on the common stock was stated by F. M. Morse, Secretary, to be without foundation.

	Aug. 1921	Aug. 1920	8 mos. to Aug. 31, 1921	8 mos to Aug. 31, 1920
Gross	$393,823	$368,616	$3,574,602	$3,405,002
Expenses	268,728	284,990	2,525,995	2,537,871
Net	125,095	83,626	1,048,607	867,131

Sir John Jackson (Canada) Ltd., a subsidiary of Sir John Jackson Ltd. of England, which has been in business for about eight years, and closed its Montreal office some time ago, having now completed its contract for building the Ogden Point breakwater at Victoria, B.C., for the Dominion Government, is winding up its affairs. It is reported to have bought the sailing ship, Mafalda, to convey its plant to England. Its Manager has expressed dissatisfaction with the way in which contracts are awarded in Canada.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—We are officially advised that the company has not in hand or in contemplation any extensions of its lines, but that in order to be prepared for the coming into operation of the new rule of the road on Jan. 1, 1922, it will be necessary to change cross overs and certain other track layouts suitably for right instead of left hand operation. The new track layouts have been ordered. (Oct., pg. 548.)

Calgary Municipal Ry.—Work on laying the new intersection which will divert the street railway traffic over the new Hillhurst bridge, was expected to have been completed early in October. The old bridge only had a single track, which was the cause of much delay in traffic. The new bridge has double track.

A considerable amount of welding has been done on the lines during the summer and autumn to have it in better shape for the winter. A new intersection has been ordered for the Burns Ave. line, and was expected to be laid by the end of October.

It is expected to do some track replacement during 1922, but details have not been arranged. (Aug., pg. 434.)

Cornwall St. Ry., Light & Power Co.—We are officially advised that the track reconstruction under way in Cornwall, Ont., covers one mile on Main St., between the G.T.R. station and the waterfront, upon which new ties and 80 lb. relay T rails are being used. The necessary rails have all been delivered. Defective poles throughout the town are being renewed and about 3 miles of trolley wire is being replaced with new wire. (Oct., pg. 548.)

Fort William Municipal Ry.—We are officially advised that the Fort William, Ont., City Council has decided to postpone the proposed extension to Chippewa Park for the present, and that it is not likely that any work will be done on it until next summer. (Oct., pg. 548.)

Guelph Radial Ry.—Tenders were received by the Hydro Electric Power Commission of Ontario to Oct. 6 for building a single track railway on several streets in Guelph, Ont. This is part of the rehabilitation of the lines projected at the time of the agreement between the city and the Commission as to the operation of the line, and for the payment of which the ratepayers authorized the issue of debentures. (Jan., pg. 36.)

Hamilton St. Ry—The Hamilton, Ont., City Council's street railway committee on Oct. 10 recommended that application be made to the Ontario Railway and Municipal Board for an order to compel the company to lay new track on certain streets. The company says it cannot get the rails, and if it could, it has not the money to pay for them. The committee decided that new rails should be laid on sections of the lines on King St., Main St., Wentworth St., and Sanford Ave. The committee also decided to ask that the rails on the Hamilton and Dundas line on Aberdeen Ave be relaid. (Oct., pg. 548.)

Kitchener & Waterloo St. Ry.—A plan is under discussion between the Kitchener Light Commissioners, who operate the Kitchener & Waterloo St. Ry., and the Waterloo Town Council, for the extension of the railway in Waterloo, Ont. The line now runs up King St. to Charles St., and the proposal is to extend the line a few blocks along Charles St., so as to give direct access to Waterloo Park.

We are officially advised that the Kitchener & Waterloo St. Ry. has built a station at its junction with the Grand River Ry. at Kitchener city limits, which will be used jointly by the two railways. The building is 20 x 50 ft., and contains waiting rooms, with separate lavatory accommodation, ticket agent's office and news stand. It is built throughout of British Columbia fir, with stucco finish. The new station is quite an improvement and adds to the efficiency of the service between Galt, Kitchener and Waterloo. The approximate cost was $3,500. The average number of passengers handled through the station is about 1,000 a day. (Oct., pg. 548.)

Kitchener & Waterloo St. Ry. and Grand River Ry. Joint Station at Kitchener, Ont.

Ontario Hydro Electric Rys.—Essex Division.—Tenders were received by the Hydro Electric Power Commission of Ontario to Oct. 6 for building a double track electric railway on Ouelette Ave. and Wyandotte Ave., Windsor, Ont. This is a portion of the work proposed to be done on the old Sandwich, Windsor & Amherstburg Ry., out of the $900,000 recently appropriated for the rehabilitation of the line, of which the City of Windsor is providing $457,500. (Aug., pg. 434.)

Quebec Ry., Light & Power Co. is, we are officially advised, building about 650 ft. of line on Marguerite, Bourgeois and Frontenac Streets, Belvedere Ward, Quebec. (Feb., pg. 92.)

Regina Municipal Ry.—Permission is reported to have been granted for the construction of a piece of line on land belonging to Imperial Oil Ltd., Regina, Sask., which will enable the completion of a new loop for the Blue line cars. Construction was reported to have been started Oct. 3, and it was expected to have the loop ready for operation a few days thereafter. (Oct., pg. 548.)

Toronto & York Radial Ry.—We are officially advised that the company contemplates relaying about a mile and a half of its Metropolitan Division, south from Bond Lake, Ont., with 80 lb. rails, to replace 56 lb. rails. (Oct., pg. 548.)

Winnipeg Electric Ry.—The Manitoba Public Utilities Commissioner, on Oct. 13, heard the rural municipality of West Kildonan's application for an order to direct the company to extend its car lines on McGregor St. from Bannerman Ave. to Hartford Ave. (Oct., pg. 548.)

One-Man Cars for Fort William Municipal Railway.

The Ontario Railway and Municipal Board has, we are officially advised, approved of one-man cars for use on Fort William Municipal Ry., subject to the municipality filing with the Board the routes over which it is desired to operate the cars. Up to Oct. 12 this had not been done.

The cars proposed to be used are to be of the double truck type, Brill 27.G. trucks, seating 42 passengers and having a maximum weight of 40,000 lb. The length over bumpers is 42 ft. 2⅜ in. The entrance and exit doors at the front are folding, operated manually by the operator, by a small lever alongside the air valve. By giving this lever a half turn both doors open, and the folding slip, which is 4¼ ft. long, takes a horizontal position. When the doors are shut they cannot be pushed open, as they are locked in position by the operating lever. An emergency door at the rear is provided with a step 2¼ ft. wide and 16 in. high from top of step to top of rail. This emergency door is bolt locked, by a lever in plain sight, the pulling down of which will allow the door to be pushed open and will operate the step, the step normally being folded up. The maximum headway for the cars is not to exceed 12 minutes.

Electric Railway Car Orders, Etc.

Guelph Radial Ry., operated by Hydro Electric Power Commission of Ontario, will probably offer for sale 5 double truck and 2 single truck cars, when the 7 safety cars ordered for it are delivered early in 1922.

The Winnipeg Electric Ry. has ordered 5 one-man safety cars of the type designed by the Hydro Electric Power Commission of Ontario, from Canadian Brill Co., Preston, Ont. Two of them were shipped Oct. 25 and two more will be shipped early in November. The fifth car will not be delivered for the present, pending the receipt of a new type of 35 h.p., 600 volt motor which is to be supplied by the Canadian Westinghouse Co. This motor has been brought out to meet the demand for a motor for single truck cars slightly heavier than the ordinary safety car. In construction it will be the same as the Westinghouse 25 h.p. motor for safety cars and 40 h.p. motor for larger single and double truck cars.

The British Columbia Electric Ry. is about to install one-man cars on its Victoria City, New Westminster, North Vancouver and Vancouver suburban lines. Ten standard one-man cars have been ordered for Victoria, 10 or 15 more will be ordered for some of the mainland lines, and the others will be converted two-man cars. These changes will be made when the rule of the road is changed from left to right at the end of this year. Thus the only changes in present equipment that will be necessary will be the installation of proper safety equipment and some minor alterations. It is expected that the whole of the Victoria City system will be operated by one-man cars. In New Westminster, where some eight cars are operated, and North Vancouver, which has six operating regularly, the entire systems will be equipped with one-man cars. The Vancouver suburban lines will require from 10 to 15 more. It is not planned to run one-man cars downtown in Vancouver at present. Representations have been made to the various municipal councils and the B.C. Government by the labor unions against the use of one-man cars, but it is not expected that any difficulties will be placed in the way of their adoption. The 10 standard one-man safety cars for the Victoria City lines have been ordered from Canadian Brill Co., Preston, Ont., for delivery between Dec. 15 and Jan. 1. They will be of the standard one-man safety type with the following dimensions,—length overall 28 ft. ½ in.; length over dashers, 26 ft. 9½ in.; length of platforms over dashers, 4½ ft.; length over body corner posts, 17 ft. 9½ in.; width over sheathing 7 ft. 8 in.; width overall, 7 ft. 10⅝ in.; height from rail to top of roof boards, 9 ft. 9⅝ in.; from rail to top of floor, 2 ft. 3 15/16 in.; seat and post spacing, 2 ft. 4½ in.; width of doors, 2 ft. 5½ in.; height from rail to top of trolley boards 10 ft. 7 in.; wheel, diar. 24 in. They will have straight sides, round ends, arch roof, with top sash stationary, and lower sash to raise, platform floor and body floor on the same plane as body floor and steps, 2-motor electrical equipment and air brakes with safety features.

The Hull Electric Co. is having two single truck, single end, one-man cars built by Ottawa Car Manufacturing Co., along the lines of the safety one-man cars. The general construction will be of wood, the body frame being reinforced with steel cross members and side sills; roof of arch type. The general dimensions will be,—length of body 21 ft., width of body 8 ft. 1 in. over sheeting, length over bumpers 32 ft., length of front and rear vestibules 5½ ft., seating capacity 41, standing capacity approximately 26. The equipment will include Brill 21E trucks, Westinghouse 101B motors, Consolidated Electric Co.'s buzzer system connected to the trolley, Westinghouse air brakes with all safety features and Ackley no staff brakes, Cutler-Hammer electric heaters.

Electric Railway Employes' Wages, Working Conditions, Etc.

The British Columbia Electric Ry. has given notice to its platform employes of its intention to reopen their wage agreements. The proposed scale is not mentioned, and the matter will probably go to arbitration. The present scale has 65c. an hour as the maximum.

Hull Electric Co.—We are officially advised that the wages agreement between the Hull Electric Co. and its employes expired July 1, and that the press report referred to in our last issue, as to negotiations following notice of a reduction in wages, was without foundation, as the company has not taken this matter up recently with its employes.

Hydro Electric Railways—Essex Division.—We are officially advised that the agreement between the mangement and the employes on the lines in and around Windsor, Ont., made in 1920, has been extended for a year, after having been under negotiation from early in June. The men asked an increase of 5c. an hour on the rate of 45c. an hour for first year men, increasing to 55c. an hour for long service men. These old rates will stand for another year, and we are advised that the only alteration made in the agreement is that there is a fixed allowance for uniforms instead of 50% of the cost.

London St. Ry.—We are officially advised that a new schedule for the car service in London, Ont., which was put in effect Oct. 1, has equalized the running time of the various crews so that they are all on a 9 or 9¼ hour basis. This schedule has shortened some of the runs, but although there was some objection by the men they agreed ultimately to accept it, and signed the agreement. The question of the rate of wages per hour was not involved. We are further advised that on Oct. 1 the working time in the shops and other departments was reduced from 10 to 9 hours. Some objections were made to this reduction, and although the schedule was put in operation, the question remained under consideration, and a press report of Oct. 14 stated that the local union had taken up the matter with the management, particularly as it affects the car barn men.

Montreal Tramways Co.—The board of conciliation appointed to investigate the dispute between the company and its employes, particulars of which were given in Canadian Railway and Marine World for October, pg. 543, concluded its sittings Sept. 13. A majority report, dated Sept. 20, and a minority report, dated Sept. 22, were forwarded to the Minister of Labor. The majority report is signed by Judge Bazin, of the Montreal Court of Special Sessions, chairman, and A. B. Frigon, representing the company, both of whom were appointed by the Minister, the company declining to take any action in the matter. This report states that a board of conciliation in Aug. 1920 unanimously fixed a rate of wages for one year, with a recommendation that it should be continued in operation for another year unless either party gave 30 days notice of a desire for a change. In April the company gave notice that the agreement made under this finding would be terminated June 30, and that while no alteration of wages was then contemplated, it desired to be free to make any changes warranted by general economic conditions. The company gave notice subsequently that a 20% reduction in wages would be put into operation Aug. 1, and after some negotiations with the men, the company changed the reduction to 12½%, fixed the date of its coming into operation as Aug. 16, and put it into effect accordingly. The only question to be decided by the board was whether the cut was unreasonable under the circumstances. The company's employes only appeared before the board and presented their case in favor of a continuation of the scale fixed in Aug. 1920. The majority of the arbitrators hold that the evidence does not justify such a conclusion; that economic conditions have changed, the cost of living has decreased; the company's financial condition has not improved and a severe crisis prevails in Canada as well as all over the world. Under the circumstances the decrease of wages was held to be not unreasonable.

The minority report by A. Brossard, representing the men, points out that the board of Aug. 1920 recommended that the wages then fixed should be maintained for a year from June 30, 1921, which recommendation the company refused to accept; and that in violation of the Industrial Disputes Investigation Act of 1907, article 57, it had put in force a decrease in wages, when the men had applied for a board of conciliation. He contended that the company's action was not justifiable. The employes should be dealt with regardless of the company's financial position; and it could not invoke business depression in favor of a decrease in wages, as it was shown it had a profit for the year ended June 30, of over $66,000 instead of a deficit. After the report of Aug. 1920, the company was given an increase of fares, but no suggestion was made that fares would be reduced along with wages. It was true there had been a slight decrease in the cost of living, but there had been an increase in August, and the winter promised to be a hard one. The working hours had been shortened by 10%, owing to the withdrawal of 140 cars from service. Further, the wages paid in Montreal are lower than in Toronto and other Canadian cities. Under all the circumstances he was of opinion that the decrease was not justified, and recommended that the wages established by the report of Aug. 1920 be maintained for a year from July 1.

The employes held a meeting Sept. 25, at which the majority report was discussed, and adjourned without having taken any action or fixing a date for a further meeting.

Toronto Transportation Commission Matters.

Appointments.—The following appointments have been made, in addition to those mentioned in our last issue:—

H. Cowan, heretofore Inspector of Equipment, Toronto Ry., is appointed Chief Inspector of Rolling Stock, reporting to Superintendent of Rolling Stock and Shops.

Chas. Deacon, heretofore foreman machinist, Toronto Ry., is appointed General Foreman, Mechanical Department, reporting to Superintendent of Rolling Stock and Shops.

George Philp, heretofore Electrical Foreman, Motor Repair Shop, Toronto Ry., has been appointed Foreman, Electrical Department, Motor Repair Shop, reporting to Superintendent of Rolling Stock and Shops.

M. Power, heretofore Master Car Builder, Toronto Ry., is appointed General Foreman, Car Department, reporting to Superintendent of Rolling Stock and Shops.

George Sweetlove, heretofore Foreman, Armature and Coil Department, Toronto Ry., is appointed General Foreman, Electrical Department, reporting to Superintendent of Rolling Stock and Shops.

M. Switzer, heretofore Master Mechanic, Toronto Civic Ry., is appointed Assistant to Chief Inspector of Rolling Stock.

Appropriations.—Toronto City Council, some time ago, appropriated $7,000,000 for the Commission, to cover the first phase of the general work of rehabilitation and extension of the lines taken over from the Toronto Ry. Co. An application for $4,000,000 more has been approved by the Board of Control, but has not yet been dealt with by the City Council.

Cars Received.—Up to Oct. 17 the Commission had received 85 motor cars and 15 trailers from Canadian Car & Foundry Co., leaving 15 motor cars and 35 trailers to be delivered, which are expected to be received before the end of November. No deliveries have been made by Canadian Brill Co., which has an order for 50 motor cars.

Royalty on Cars.—Peter Witt, formerly City Commissioner of Cleveland, Ohio, now consulting engineer there ,and C. S. Wright, of C. S. Wright & Co., railway supplies, Toronto, each of whom has a half interest in Canada in the Peter Witt electric car design, are suing the Commission for $7,000, for royalty of $50 each on 140 motor cars supplied by Canadian Car & Foundry Co., and which, plaintiffs claim, infringe their patent. It is said that the Canadian Car & Foundry Co. agreed in its contract to protect the Commission against any claims for infringement.

Equipment for Sale.—The Commission is offering for sale by tender, 340 single end city service street cars, as follows: Single truck closed motor cars, 4—18 ft., 2—20 ft., 15—21 ft., 117—22 ft.; single truck convertible motor cars, 30—23 ft.; double truck convertible motor cars, 1—27 ft., 1—30 ft.; double truck closed motor cars, 12—25 ft., 34—30 ft., 3—36 ft.; single truck convertible trailer cars, 36—19 ft.; single truck closed trailer cars, 2—16 ft., 69—22 ft., 17—18 ft. The single truck motors cars are mounted on Blackwell, Curtis and Peckham trucks, and are equipped with G.E. 67 and G.E. 1,000 motors, K-10 controllers and hand brakes; and the trailers are mounted on special trailer gear. The double truck motor cars are mounted on Curtis and Brill trucks, and are equipped with G.E. 80, G.E. 67 and G.E. 1,000 motors, E-6 and E-10 controllers and Magann storage air brakes. The Commission has on hand a stock of spare equipment for these cars, and this will be disposed of to parties buying cars. All the cars have a wheel gauge of 4 ft. 10⅞ in.

Trailer Car, Toronto Transportation Commission.

The Commission has invited tenders to Nov. 18, for the following construction plant, which it has for sale:—3 locomotives, 20 dump cars and 3 flat cars, all 3 ft. gauge, 250 tons 45 lb. rail, 1 Marion shovel and 1 Thew shovel.

Track construction and rehabilitation, being done by the Commission, is dealt with fully in a separate article, on another page of this issue.

Children's Fares.—As stated in Canadian Railway and Marine World for September, the Commission fixed the fares for children, not in arms, and not over 51 in. high, at 4c. cash, or 7 tickets for 25c., the latter being equal to 3 4/7c. each, compared with 3c. cash, or 10 tickets for 25c., as charged before the Toronto Ry.'s transfer to the city. Children's night fares were fixed the same as for adults. The city's public and separate school boards have been endeavoring to get the rule changed, so as to include all school children, and after a conference, the Commission's General Manager, H. H. Couzens, wrote each of the boards on Oct. 13 as follows:—"The Commission has instructed me to say that they are prepared to authorize special tickets, at the same rate as now applies to children's fares, available for use on school days only, between 8 and 9 a.m., 12 noon and 1.30 p.m., and 3.30 p.m. and 4.30 p.m. These tickets to be limited to children within the age limits specified in the Adolescent Act., viz., 16 years, and to be applicable only to children of residents in the city attending the public and separate schools, high schools, collegiates, High School of Commerce and Technical School, under the jurisdiction of the Board of Education and the Separate School Board. The proposal does not apply to private schools, the object being to limit it to those for whom free education is provided. This offer is made subject to the Board of Education and the Separate School Board arranging for the distribution of the tickets to those scholars who are entitled to receive the same, that is to say, those scholars who need to use the cars for the purpose of attending school, and only sufficient for this purpose. The Commission to deliver tickets as required to fill the needs of the boards for the purpose outlined above. The object of this arrangement is to eliminate as far as possible the abuse of these tickets, which experience has shown to be considerable. The arrangement as outlined is the one which in the Commission's opinion will best meet the object in view, and at the same time avoid interference with traffic. Your board will, I know, realize that the Commission's duties are confined to transportation, and in putting forward this plan they have gone outside the strict line of duty in the endeavor to facilitate the work of your board, and the Com-

mission confidently looks forward to the kind co-operation of your board in safeguarding their interests. Tickets are being prepared along the lines indicated above, and I shall be glad to advise you as soon as we can obtain a guaranteed delivery date."

North Toronto Fares. — The Toronto City Council has arranged with the Commission so that, pending the taking over of the Toronto & York Radial Ry.'s Metropolitan Division within the city, passengers using that company's cars between Farnham Ave. and the north city limit at Yonge St., will be carried to and from any part of the city on payment of the same fare as charged by the Commission on the city lines it operates, and the city has assured the Commission that operation of this arrangement shall not be at the Commission's expense. Special tickets are used, one portion for the city lines, and one for the T. & Y.R. Ry., the city paying the T. & Y.R. Ry. for people travelling on its cars with such tickets.

Mainly About Electric Railway People.

Herbert Hamilton Beasley, whose appointment as Purchasing Agent, Toronto Transportation Commission, Toronto, was announced in our last issue, was born at St. Thomas, Ont., Aug. 1, 1867, and entered electric railway service in May, 1892, since when he has been, to 1897, timekeeper, Toronto Ry.; 1898 to 1908, General Storekeeper, same company; 1909 to 1910, General Storekeeper and Purchasing Agent, same company; 1910 to 1912, General Storekeeper and Purchasing Agent, same company, and Toronto Power Co.; 1913 to Aug. 1921, General Storekeeper and Purchasing Agent, same companies, and Toronto & Niagara Power Co.

Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, is announced as one of the speakers at the Public Ownership League of America's Convention, to be held at Chicago, Ill., Nov. 19 to 21.

Lady Beck, wife of Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, died at the Toronto General Hospital, Oct. 17, following an operation. The funeral took place at Hamilton, Ont., Oct. 19, when there was a suspension of service for one minute, throughout the hydro electric system. She was a woman of pronounced executive ability, and pleasing personality. Throughout her life, her chief interest lay in charitable work, and during the war, she devoted her energies to the Red Cross Society's work, being a member of the Dominion board, as well as President of the London Red Cross Society. She was also interested in the Queen Alexandra Sanatorium at London, the preventorium at Byron, a similar institution at Hamilton, and, in conjunction with Sir Adam, erected and equipped a nurses' home, in connection with the sanitorium at London, as a thank offering for the recovery of their only daughter from a serious illness. Her chief recreations were music and horses, and she secured many prizes at various horse shows in Canada, the U.S. and England, and on several occasions, acted as one of the judges at the great New York horse shows.

J. S. Beckwith, heretofore Divisional Superintendent, in charge of the North Division, Winnipeg Electric Ry., has been appointed acting Traffic Superintendent, vice W. F. Edwards, Traffic Superintendent, resigned.

W. F. Edwards, Traffic Superintendent, Winnipeg Electric Ry., Winnipeg, has resigned, in order to visit relatives and friends in Great Britain.

A. Gaboury, Superintendent, Montreal Tramways Co., has been elected Third Vice President, American Electric Railway Transportation and Traffic Association.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and Mrs. Gale, spent some time at Tadousac, Que., recently.

J. G. Grace, Secretary-Treasurer, Toronto Ry. Co., was married at Toronto, Oct. 15, to Mrs. J. L. Chandler.

Senator Frederic Nicholls, Chairman of the Board, Canadian General Electric Co., died at Toronto, Oct. 25, after a short illness. He was born in England, Nov. 23, 1856, was educated at Stuttgart, Wurtemberg, Germany, and came to Canada in 1874. For a short time he was a newspaper reporter, then he was Secretary of the Canadian Manufacturers Association for seven years, and founded, and was up to 1893 proprietor and editor of, the Canadian Manufacturer, then the Association's official organ. He formed the first electrical company in Canada, the Toronto Incandescent Electric Light Co., which adopted the underground system of electrical distribution, and which developed into the Canadian General Electric Co., of which he was first Managing Director, Vice President and afterwards President until a year ago, when he retired and became Chairman of the Board. He was, at different times, on the directorate of several transportation and allied companies, including the Canadian Northern Ry. Co., of which he was the first President, Toronto Ry. Co., Canadian Allis-Chalmers Ltd., Toronto & Niagara Power Co., Electrical Development Co. of Ontario., Dominion Steel Corporation, etc.

Toronto Railway Co.'s Annual Report and Meeting.

Following are extracts from the directors' report for the calendar year 1920, presented at the oft adjourned annual meeting on Sept. 30:—While the gross revenue for the year increased over the previous year by $674,996.48, the charges exceeded the revenue by $417,426.19.

Gross earnings		$7,909,891.86
Charges for operating, maintenance, etc.		6,626,508.04
Net balance from operation		$1,283,383.82
Deficit carried forward		417,426.19
		$1,700,810.01
Other charges:—		
Bond interest	$109,175.21	
War and Ontario Government taxes	31,766.10	
		$140,941.31
Payments to city:—		
Percentage on earnings	$1,308,339.96	
Pavement charges	98,782.40	
General taxes	152,746.34	
		1,559,868.70
		$1,700,810.01

Notwithstanding the large increase in wages granted to employes referred to in our last report, the company had to face another heavy increase this year. When the agreement made by the Ontario Railway and Municipal Board, under which we were paying 50, 52½ and 55c. an hour expired in June 1920, the men demanded a flat rate of 85c. an hour, which the company refused to grant, and being unable to effect an amicable settlement, the company applied to the Government for a conciliation board, which was appointed under the chairmanship of Mr. Justice Maclennan, of Montreal. This board rendered a decision that the men had not made out a case for any increase in wages, and recommended that the prevailing rate should continue up to the end of the franchise. The employes refused to accept the award and made a new demand upon the company that they be paid a maximum of 66c. an hour. Your directors decided to abide by the conciliation board's award, with the result that the men went on strike on June 23, 1920. Rather than subject the company to the previous experience of being taken over by the Ontario Railway and Municipal Board, the company requested that board to act as mediators, and after formal hearings, the board recommended as a compromise 5c. an hour increase be granted to the men, all other working conditions to remain the same. This was accepted by the men, who returned to work on June 27, having been on strike four days. There was no alternative for your directors, but to accept this compromise, since it is altogether likely had the board taken over the property it would have granted at least this much more to the men. The increase amounted to approximately $400,000 a year.

The tenth drawing of the company's currency and sterling bonds, under the terms of the mortgage deed dated Sept. 1, 1892, took place on June 22, 1920. Under said terms the company draws annually during the last 10 years of its franchise 5% of the amount of bonds issued, thus reducing, during the 10 years mentioned, the outstanding bonds to 50% of the original issue, and all bonds so drawn are to be redeemed on or after Aug. 31, following the date of drawing, from which date no interest is payable on the bonds so drawn. There has been drawn to date a total of $2,275,360.

The profit and loss account showed a credit balance of $5,578,527.16 at Dec. 31, 1919, which after deducting the deficit for 1920 was reduced at Dec. 31, 1920, to $5,161,100.97.

The number of passengers carried was 197,346,726, against 182,377,494 in 1920. The percentage of charges, etc., to passenger earnings was 84.2, against 79.5 in 1920.

The old directors were re-elected, with the exception of Senator C. P. Beaubien, who retired, W. D. Moore, Assistant to the President, being elected to succeed him, making the board as follows:—Sir William Mackenzie, President; Senator Frederick Nichols, Vice President; Brig. Gen. Sir Henry M. Pellatt, H. H. Pitts, F. W. Ross, G. H. Smithers, Hugh Mackay, K.C., E. R. Wood, W. H. Moore.

Canadian Grain Elevators for South Africa.—A Cape Town press dispatch states that it has been officially announced that, subject to certain formalities, a contract for the erection of 36 grain elevators at different points in South Africa will be given to a Canadian firm. A portion of the machinery will, it is said, be bought in Great Britain.

Electric Railway Notes.

Regina, Sask., Municipal Ry. made some changes in operation of lines, Oct. 3, resulting in a faster service.

Sarnia City Council has decided to ask the Ontario Railway and Municipal Board to order the Sarnia St. Ry. to equip its cars with air brakes.

Edmonton, Alta., Radial Ry. staff has been reduced, a press report states, by laying off 4 painters, 4 carpenters, 15 trackmen, a blacksmith and a lineman.

The Winnipeg Electric Ry. Old Timers' Association held its opening social event of the season, a whist drive and dance, in Norman Hall, Oct. 12.

Cornwall, Ont., St. Ry., Light & Power Co. is, we are officially advised, making considerable repairs to its rolling stock, but no new cars are being bought.

The Hamilton, Ont., St. Ry. put into effect on Sept. 29 changes under which a number of stops are cut out on several of the routes, and some new stops are established.

The Ottawa Electric Ry. Co.'s franchise expires Aug. 14, 1923, and the company is calling the citizens' attention to the fact, and inviting them to give consideration to the question of what is to be done about it.

C. North, Ontario Highways Department traffic officer, who was charged recently by C. Johns, Manager, St. Thomas Municipal Ry., with passing a standing street car on his motorcycle, was convicted and fined.

The London, Ont., Railway Commission, operating the London & Port Stanley Ry., has approved of certain matters connected with the sale of lands in Port Stanley to the L. & P.S. Ry. Co., after an inspection by the directors.

London, Ont., St. Ry. has issued a notice to employes that passengers must not be put off the cars for violation of the rules as to the use of transfers. Conductors are directed to use discretion and courtesy in dealing with infractions of the rules.

The British Columbia Minister of Railways is reported to have stated that the Government has not opened negotiations with the B.C. Electric Ry. for the taking over by it for operation of the Pacific Great Eastern Ry.'s North Vancouver-Whytecliffe section.

W. McRae, Chief Inspector of Equipment and Appliances, British Columbia Railways Department, attended a conference of automobile owners in Vancouver, Oct. 6, to discuss matters in connection with the change in the rule of the road, which becomes effective in December.

The Edmonton, Alta., Radial Ry. put some changes in operation on the McKeran's Lake line on Sept. 29 which gives two trips an hour to the end of the line, instead of the former service. This is the best that the management can do, as at present there is only one car available for this service.

The Port Arthur, Ont., Public Utilities Commission has under consideration, we are officially advised, the advisability of converting the cars used on its main line for operation as one-man cars. One-man cars have been operated on the belt lines for a considerable time.

The Mayor of Winnipeg has been asked by residents of Selkirk to take up with the Winnipeg Electric Ry. their desire that the Winnipeg, Selkirk & Lake Winnipeg Ry. cars be run further into Winnipeg than at present. The suggestion is that cars be taken in as far as the Board of Trade building.

Owing to the breakage of the electric engine operating Black's bridge, over the Lachine Canal, traffic on the Montreal & Southern Counties Ry., has been considerably delayed. On Oct. 10, one train was reported to have been delayed 70 minutes, and on the following morning a train was delayed 45 minutes.

The British Columbia Electric Ry. is about to install at its Stave Falls plant, a fourth generator with a capacity of 8,000 k.v.a., and which has been on the ground for some time without being erected. An extension of the power house will be necessary. The new unit will not be in operation, it is expected, before March.

An increasing number of jitney and taxi drivers in St. John, N.B., are being brought up before the magistrates for breaches of traffic bylaws. A considerable number of the drivers are former employes of the New Brunswick Power Co., and members of the local street railway men's union, who were displaced by the company recently.

New Westminster, B.C., City Council on Oct. 4 discussed the British Columbia Electric Ry.'s proposal to operate one-man cars. The Street Railway Men's Union wrote objecting to the proposal on the ground that it would throw 16 men out of work. The mayor claimed that the operation of one-man cars would be dangerous on account of the hilly streets.

The Sarnia, Ont., City Council passed a resolution recently to ask the Ontario Railway and Municipal Board to order the Sarnia St. Ry. to equip its cars with air brakes, but the matter has been taken up direct with the company, instead of with the Board. The company has 10 motor cars, 5 of which are in operation each day. They are equipped with efficient hand brakes, and the management contends that it would be a hardship to have to instal air brakes at present.

The London & Port Stanley Ry. management has been investigating the wrong use of tickets, by which there has been considerable loss of revenue. Three conductors have been prosecuted for having a share in the transaction, and on Oct. 6 Ernest Partridge, formerly employed as a conductor and latterly a detective, was sent for trial, by the London Deputy Police Magistrate, for conspiring with E. W. Honsinger of St. Thomas, Ont., to defraud the railway, by handling tickets. Honsinger, who is a dental surgeon, is reported to have disappeared.

The Port Arthur, Ont., Civic Ry.'s schedule, just put in operation Oct. 14, provides as follows:—Main line to Fort William: 12 minute service from Current River, between 5.30 a.m. and 11.45 p.m., week days, and 24 minute service between 5.30 a.m. and noon, and 12 minute service until 11.45 p.m. on Sundays, with night cars at midnight, 1.20, 2.40 and 4 a.m. Arthur St. line: 20 minute service between 5.50 a.m. and 11.40 p.m., on week days, and between 6 a.m., and 11.40 p. m., on Sundays. North Belt line: 30 minute service between 5.35 a.m. and 12.05 a.m. on week days, and Sundays. South Belt, Current River and Hodder Ave. line: Hourly service between 6.30 a.m. and 10.30 p.m., week days and Sundays.

There was a general attack on the New Brunswick Power Co. cars in St. John, N.B., Sept. 26, when the windows of 14 were smashed by a mob of sympathizers with union men who have been displaced. Four people were injured, and one man was arrested. The regular service was restored by the company, Sept. 27. The city council passed a bylaw Sept. 29 for the prohibition of all parades in the city, unless a permit had previously been obtained, with a view of preventing any further disturbances A boy who was brought before the St. John magistrates, Oct. 1, admitted having broken car windows, was given a lecture and let go. On Oct. 5, a bolt was found on the line at the curve at the corner of King and Ludlow Sts., which might have thrown a car off the tracks.

The Manitoba Court of Appeal gave judgment, Oct. 7, confirming the decision of the local county court in an action brought against the Winnipeg Electric Ry. Co. by D. W. Shunk. Plaintiff boarded a Corydon Ave. car at the Union station in May, 1920, obtaining a Deer Lodge transfer. He left the Corydon car at the corner of Main St. and Portage Ave., and boarded a westbound Deer Lodge car, the conductor of which refused to accept the transfer, claiming that under the company's instructions as to the use of transfers, the plaintiff should have remained on the Corydon Ave. car until he arrived at the corner of Portage Ave. and Sherbrooke St., that being a diverging point. The plaintiff was ejected from the car, some force being used. The county court judge awarded the plaintiff $50 damages. The Court of Appeal in confirming the judgment found that regulations governing issuance and use of transfers are covered by bylaw 543, sec. 6, incorporated in the company's charter, and the company has no authority to make the rule that transfers can be used only at the last diverging point.

Tenders for Purchase of Construction Plant

Tenders will be received by registered post only, addressed to R. C. Harris, Commissioner of Works, City Hall, Toronto, up to 12 o'clock noon, Tuesday, November 15th, 1921, for the purchase of Construction Plant as follows:—

3 only Locomotives

20 only Dump Cars.

Envelopes containing tenders must be plainly marked on the outside as to contents.

Specifications and forms of tender may be obtained at the Works Department, Room 12, City Hall.

The highest or any tender not necessarily accepted.

R. C. HARRIS,
Commissioner of Works.

October 27th, 1921.

Canadian Electric Railway Association's Activities.

The Canadian Electric Railway Association's Executive Committee met at Toronto recently, the President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co., being in the chair, and disposed of a considerable amount of business.

A report by Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co., and W. S. Hart, Managing Director, Three Rivers Traction Co., concurred in by E. P. Coleman, General Manager, Dominion Power & Transmission Co., on rules for installation and maintenance of electrical supply and signal lines, prepared by the Hydro Electric Power Commission of Ontario, stated that while great credit was due the Commission's staff for the preparation of the rules, and while they in general follow standard practice, the wording in some cases is ambiguous, the standards adopted differ to some extent from those in use by some of the larger companies, and there is much repetition in the draft, the committee considering that the subject might safely be taken care of in a very much smaller volume. It was decided to cooperate with the Commission, with the Canadian Electrical Association, and others in forming a set of rules for installation and maintenance of electrical supply and signal lines following standard practice.

It was decided to suggest to all member companies that they should become members of either the national or provincial safety leagues, and to suggest to the National Safety League that all automobile drivers be required to pass an examination.

The President reported that all electrical railway companies which are paid for transportation of mails on a mileage basis had received the additional remuneration provided by the Dominion order in council passed Feb. 16, 1921, and published in Canadian Railway and Marine World for April, 1921, but that companies being paid on a lump sum basis had received no increases, the matter being still under consideration by the Post Office Department.

The President explained that some smaller companies considered the annual membership fee of $100 excessive, and that for this reason membership was principally confined to the larger companies, and it was decided to communicate with prospective members, advising that the Association has under consideration the revision of fees to be based upon the gross earnings derived from railway operation, and inviting them to consider membership on the proposed basis. The fees suggested tentatively are as follows:—On $100,000 gross earnings, $25 a year; on over $100,000 and under $200,000, $50 a year; on over $200,000 and under $400,000, $75 a year; on over $400,000 and under $700,000 a year; on over $700,000 and under $1,000,000, $125 a year; on over $1,000,000, $150 a year.

The President explained that a number of member companies had second hand equipment for disposal, and it was decided that the Secretary advise them that the Association's official organ, Canadian Railway and Marine World, is available for advertising such equipment.

It was decided to hold the next annual meeting at Quebec on June 1 and 2, 1922.

The Canadian Electrical Association having appointed a committee on relations with other associations, a committee consisting of the President, and D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., was appointed to co-operate with the Canadian Electrical Association, and others, on matters of common interest.

Arbitration of Value of Toronto Railway Co.'s Property.

Particulars of the proceedings up to Sept. 23, before the arbitrators, Hume Cronyn, M.P. for London, Ont., chair; Sir Thos. White, representing the company; and Sir Adam Beck, representing the City of Toronto, were given in Canadian Railway and Marine World's last issue. When the hearing was resumed on Sept. 27, W. J. Hagenah, of Chicago, the company's first witness, was again examined, and testified that its head office building, corner of King and Church Sts., is necessary to the railway's operations, that it was specially designed for handling cash, and that there are special vaults with a secret alarm system. On cross examination, he admitted that the bulk of cash fares is handed in by conductors at the barns in different parts of the city, and that some of it is collected from them on the streets. W. N. Tilley, K.C., for the city contended that the building is not necessary to the operation of the railway, being principally devoted to office purposes. He took the stand that the city is not bound to take over any property which is not necessary for the railway's operation, and which the company could sell for other purposes. Counsel on both sides argued at length as to the manner in which evidence should be given, and after a recess the Chairman gave the following ruling by the arbitrators:—"We feel it our duty, so far as our powers and discretion extend, to ask that the case be presented in that fashion which will tend to clarify the issue and expedite thhe hearing. We hesitate to interfere with the task entrusted to counsel by their clients, but, nevertheless, venture to suggest that the facts regarding items not in dispute be first submitted. Subsequently evidence to bring disputed items within the terms of the reference and counter evidence, if any, might be heard and the case terminated by proof of value of those items which we may decide to include. The burden of proof rests in the first place on the Toronto Ry.; should, therefore, counsel for the railway prefer to take up first the items in dispute that option should be given them."

On Sept. 28 it was announced that the company claimed $2,433,067 more than the value of its phyhical assets, made up of various items, the cost of which it was claimed would have to be incurred by the city if it had had to construct a complete system like the one taken over. The city's counsel contended that the claim was not entitled to consideration.

W. J. Hagenah's cross examination was taken up intermittently from Sept. 29 to Oct. 6, during which he admitted that he had never built or operated a street railway.

F. Poucher, of the National Trust Co.'s real estate department, testified on Oct. 4 and 7, as to the value of the company's real estate, and on the latter day the arbitrators, the counsel and city and company officials, inspected some of the tracks, etc. On Oct. 11, there was a long argument between counsel, as to the production of certain of the company's books. On Oct. 12 and 13, Victor A. Dorszeski, Chief Engineer for W. J. Hagenah, was examined and cross examined in regard to valuation work he had done on the company's property, particularly of the electrical equipment.

A postponement of the arbitrators' sittings for over a fortnight was caused, first by Lady Beck's illness, and then by her death, but the sittings were resumed on Oct. 26, when Sir Adam Beck was present again, and Mr. Dorszeski's cross examination was continued. He was followed on the witness stand by F. L. Hubbard, Assistant to General Manager, Toronto Ry., who testified as to the extent of the system, its operation, and various other matters.

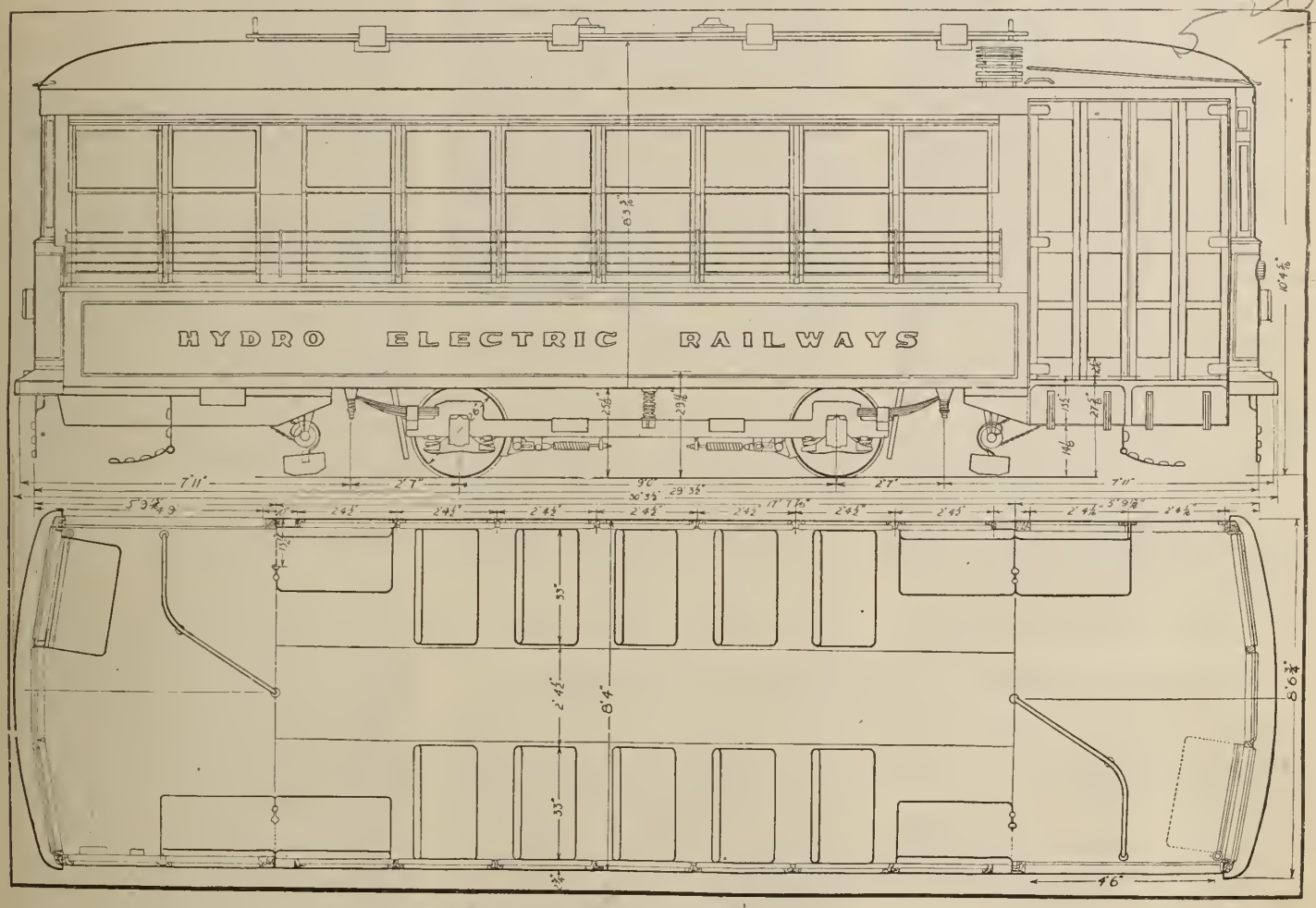
Electric Railway Freight and Passenger Rates.

Hamilton St. Ry. — E. P. Coleman, General Manager, Dominion Power & Transmission Co., submitted to the city council's special railway committee on Oct. 12 a draft bylaw for the operation of the company's lines on a service at cost plan. He is reported to have stated that the company had been struggling along since the end of the war on rates of fares fixed when the charter was given in 1892, which provided that the company was not to pay its employes less than 15c. an hour, which indicated how low operating expenses then were. During the war there had been a great boom in business throughout the city, and the street railway had reaped benefit together with other concerns, and by economical management had managed to make money on what was on the average a 4c. fare. At the present time the company is not making enough to pay actual operating expenses. The company felt inclined to ask for a temporary increase in rates, as a preliminary to a consideration of the adoption of a service at cost plan. There were two methods of railway administration now open, first, municipal ownership, and second, a real partnership between the railway company and the city. Through this latter plan, the city would receive the benefit of the experience of the people accustomed to running such properties and the personal interest of the owners. The service at cost plan could be inaugurated by the council without the submission of a bylaw to the ratepayers. The city need not lose the revenue it now receives from the company if the suggested plan be adopted, and although it was not possible to state with any degree of certainty what the fare would be under that plan, he was of opinion that after a short period of its operation a 5c. fare would be sufficient. He promised to submit further particulars of the plan, so that it could be more fully discussed at a future meeting.

Moncton, N.B., ratepayers voted, Sept. 29, on a bylaw to purchase the Moncton Tramways, Electricity & Gas Co.'s property, effects and franchises, as from May 31, for $165,000, with 6% interest from May 31 until the amount be paid. The board of trade and some other local interests conducted a strong campaign against the proposal, and the ratepayers refused to approve of the bylaw by a vote of 869 to 526. This is the second occasion on which the ratepayers have defeated a similar bylaw, the previous occasion being on July 3, 1920, when the vote was 530 against and 475 for.

Safety Cars for Hydro Electric Power Commission of Ontario.

The Hydro Electric Power Commission of Ontario has ordered 25 safety cars, 18 of which are for the Hydro Electric Rys. Essex Division (formerly the Sandwich, Windsor & Amherstburg Ry.), and



Safety Car, Ontario Hydro Electric Railways.

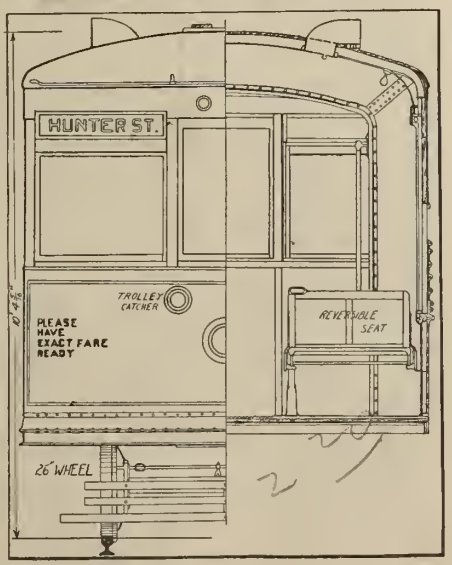
7 for Guelph Radial Ry. They will be of the single truck type, with the following dimensions:—

Length over all	30 ft. 3½ in.
Length over end vestibule	29 ft. 3½ in.
Length over end of car body	17 ft. 7⅞ in.
Width over all	8 ft. 6¾ in.
Width over sheathing	8 ft. 4 in.
Height from rail to top of roof	10 ft. 4 5/16 in.
Height from under side sills to top of roof	8 ft. 3 3/16 in.
Height from top of rail to top of platform	27⅝ in.
Height from top of rail to floor	29 11/16 in.

The weight of the car body will be about 11,000 lb., of the electrical and air brake equipment about 5,500 lb.; and of the truck, about 5,000 lb., making the total weight approximately 21,500 lb.

The truck will be of the Brill type 79-E-2, modified, the weight of the car being supported by elliptical springs attached to the ends of the side members of the truck, and vertical coil springs extending from the under side of the underframing to the top of the side members of the truck. The two central coil springs will carry 25% of the weight of the car body, between them, the other 75% being distributed among the four elliptical springs at the truck ends. The journals will be 3¾ x 7 in., and the solid rolled steel wheels will be 26 in. diam. The truck wheel base will be 9 ft.

Two motors will be connected to the axles by helical gearing. Although many cars not much lighter than these are equipped with motors of about 25 h.p., it has been decided by the Commission's engineers that a motor with a somewhat higher rating will be more suitable to meet the climatic and other operating conditions, and for that reason motors of from 35 to 40 h.p. will be installed. The



End Elevation, Safety Car, Ontario Hydro Electric Railways.

electrical manufacturing companies have developed and are making a 35 h.p. motor suitable for this type of car. The motor to be used has not yet been determined on, and the same applies to controllers, rheostat, trolley bases, trolley poles, circuit breakers, lightning arrestor and other electrical equipment. The cars will be equipped with double end control, and two trolley poles will be used. The air brake equipment and has not been definitely decided on, but it may be stated that the cars are to be equipped with motor driven compressors, suspended from the underframing, the capacity of the compressor to be such that 15 cu. ft. of free air a minute can be compressed to a pressure of 90 lb. per sq. in. when operating at 600 volts. The air brake equipment will also include compressor governor, safety valves, brake valves equipped with sanding feature, at each end of car, and other standard parts. Two hand brakes will be added.

A feature of the car will be the pneumatically operated safety arrangement in connection with the opening and closing of the doors. The brake valves will be equipped so that after the brake has been applied, the movement of the brake valve handle to a further position will open the exit door, while movement of the handle a little further to another position will open the entry door. The apparatus will be so arranged that it will be impossible to start the car while either of the doors is open. The ad-

vantage of having the two halves of the folding door open separately is evident. Opening the exit door first, will enable the passengers to start making their exit before passengers waiting to board the car may start entering, and will thus afford a large degree of assistance to the car operator in regulating the traffic. Two air sanders, and a galvanized iron sand box will be included in the equipment, as will also two snow scrapers.

The underframing is to be of structural steel shapes and plates, the side sills to be continuous. The floor and side framing will include cross beams to transfer the floor load to the side trusses, and the end and vestibule framing have been designed with a view to special provision against the destructive effect of collisions. The side sheathing will be of ⅛ in. steel plate, securely riveted to the side sills and side plates. The bottom flooring will be of ¾ in. white pine, and the surface flooring of ¾ x 3¼ in. maple, with two layers of tarpaper insulation between the pine and maple. The roof will be of the plain arch type and of composite construction. The roof boards will be of 9/16 in. poplar, and 8 oz. canvas will be used. The roof carline furring will be of poplar, reinforced on each side by steel plate ⅛ in. thick.

The interior will be finished in cherry or birch, with window sashes of similar finish, and all metallic fixtures will be of bronze. The head-lining will be of 3/16 in. agasote. The side windows will be equipped with pantasote curtains, the windows will be of plate glass ⅛ in. thick. The vestibules at each end of the car will be equipped with three drop windows; the vestibules will be sheathed outside with 3/32 in. sheet steel and inside with ash panel frames. The platforms will be 2 1/16 in. below the level of the cra floor. The folding vestibule doors will be of cherry or birch, operating as described above, and the doors will be fitted with a wired glass panel in the lower portion, and 3/16 in. plate glass in the upper portion.

Lighting will be by 46-watt lamps, arranged in lock wall sockets, and equipped with opal reflectors. There will be four ventilators on each side of the car, and heating will be by the use, on each car, of eight 1,000 watt Cutler-Hammer double coil truss plank electric heaters, wired four to a circuit, the heater wires running in conduit under the car body, or in metal moulding within the body, the heating system having thermostatic control. The cars will be equipped with dash type incandescent headlights at both ends.

The seating capacity will be 34. The accompanying floor plan shows the seating arrangement.

The cars, which were designed by the Hydro Electric Power Commission's engineers and are being built by Canadian Brill Co., Preston, Ont., will have all the latest improvements applicable to safety cars. The electrical and air brake eqiupment will be decided on in the near future, and it is expected that delivery of the cars will be commenced early in February.

The Winnipeg Electric Ry. is having five cars built from the same design.

Montreal Tramway Co.'s Annual Report and Meeting.

Following are extracts from the Montreal Tramways Co.'s directors' report for the year ended June 30.

Revenue.	
Allowance from contract	$2,355,970.24
Other revenue	55,358.96
Gross revenue	$2,411,329.20
Expenses.	
Interest on bonds	$1,082,418.33
Interest on debentures	850,313.36
Other expenses	17,540.65
Total expenses	$1,950,272.34
Net income	461,056.86
Less dividends for the current year	388,993.75
Surplus for the year	72,063.11
Add surplus at June 30, 1920	941,175.24
Total	$1,013,238.35
From which has been appropriated for: deferred dividend paid on common stock 2½% quarter ended March 31, 1919	96,529.00
General surplus	$ 916,709.35

The gross revenue for the year was $2,411,329.20 and the expenses $1,950,-272.34, leaving a net income of $461,-056.86, from which there has been declared four quarterly dividends of 2½% each, amounting to $388,993.75, leaving a balance carried to credit of general surplus account of $72,063.11, which, added to $941,175.24 at the credit of this account last year makes a total of $1,013,-238.35, from which there has been appropriated $96,529.00 on account of deferred quarterly dividend paid during the year, leaving a balance at credit of general surplus account of $916,709.35.

Your directors desire to point out that from the coming into force of the contract, viz., Feb. 10, 1918, to June 30, 1921, the revenue has not been sufficient to meet the requirements of the contract, as shown by statement of operations under new contract, but it is hoped that under existing conditions the situation will materially improve.

Under the authority of a resolution of shareholders, adopted Sept. 30, 1911, your directors authorized an issue of $4,000,000.00 of 5% debenture stock, to be disposed of from time to time as required. During the year $150,000 was disposed of, which, together with the issue of $1,000,000 sold in 1919, leaves a balance of $2,850,000 to be disposed of from time to time as required. During the year the company issued $1,000,000 of its 5% thirty year gold bonds, being 75% of the capital expenditures made from Jan. 1, 1918, to Oct. 31, 1920, in conformity with the trust deed. The bonds are held in the treasury, and will be disposed of by the directors when conditions are more favorable.

Under the terms of the contract the company has to provide from its own funds a guarantee fund amounting to $500,000 in amounts of not less than $100,000 a year. Your directors beg to report that $100,000 has been paid into the guarantee fund since the close of the company's fiscal year, making $300,000 now in the fund, according to the terms of the contract.

During the year the company paid its usual quarterly dividends on its common stock, at the rate of 2½% per quarter, and also paid the quarterly dividend in arrears for the quarter ended March 31, 1919, leaving two quarterly dividends still in arrears.

Your directors desire to report that after numerous discussions with the employes respecting a readjustment of wages, to comply with present day conditions, they regret that no satisfactory agreement could be reached. In order to meet the present day conditions, it was then decided to reduce the wages of the employes by about 12½%, to take effect on Aug. 16, 1921. The employes requested a board of conciliation under the Lemieux Act, which was granted by the Minister of Labor. The company feeling, however, that the reduction of wages decided on was more than reasonable under the existing conditions, decided not to take part in the arbitration.

The sub-station at Cote St., referred to last year, was put in operation in the latter part of August; two units being completed. The other two units, it is expected, will be ready for operation in December.

At the annual meeting on Sept. 27 the shareholders passed a resolution stating that the company's service is the most practical and efficient of any organization of its kind in the world. The directors and officers were all re-elected as follows:—E. A. Robert, President; J. W. McConnell and Hon. G. G. Foster, K.C., Vice Presidents; Wm. C. Finley, P. J. McIntosh, W. G. Ross, J. M. McIntyre, Hon. J. M. Wilson and Hon. Lorne C. Webster. J. E. Hutcheson is General Manager, and Patrick Dubee, Secretary-Treasurer.

Change of Rule of Road in British Columbia.

As the time for making the change in the rule of the road from left to right is drawing nearer, plans are being discussed in Victoria and Vancouver, regarding the details. Work on the B.C. Electric Ry. rolling stock is going ahead rapidly, and orders have been placed for some new special work for tracks leading into New Westminster interurban station and several other locations. The original proposal was to make the change at midnight on Dec. 31, but, owing to difficulties in operation, this will be impossible. It is certain that the change will be made some time after the last car reaches the barns and before the first car emerges the next day. The suggestion is that 5 a.m. on a Sunday be the time.

Various bodies in Vancouver are considering the best means for educating the public. The Automobile Club has asked for public co-operation and the Board of Trade is taking the matter up also. A campaign will be conducted, it is expected, by means of banners, automobile stickers, front and rear signs on all vehicles, moving pictures, school addresses, and so forth.

The B.C.E.R. Co. expects to have only a partial service in operation the first day, but to be at normal within a few days thereafter. Due to people being unaccustomed to the new direction and the new loading points, the service will be slower than usual and more cars will be required. Some relief will be given by means of the new one-man cars ordered for Victoria. A police suggestion is that white lines be painted at each crossing and that regulations against jay walking be rigidly enforced. Education will also be done to the end that pedestrians will look first to the left and then to the right as they cross streets. Should fog or snow arrive just before or after the change, the difficulties will be enormously increased. The B.C.E.R. Co. is changing two of its snow sweepers, in case snow may fall.

Marine Department

General Shipbuilding Matters Throughout Canada.

B.C. Yacht & Boat Builders Ltd., Victoria, B.C.—In connection with the financial difficulties of this company, which built two motor patrol boats for the Dominion Marine Department, the British Columbia Department of Industries, in the local daily press, practically placed the blame on the Dominion Government, on the ground that it would only pay $75,000 for the boats, whereas they cost the buiders $90,000. In reply to this complaint, Alex. Johnston, Deputy Minister of Marine has issued a statement, which is summarized as follows:—In the spring of 1920, the Department called for tenders for building two motor patrol boats for the B.C. service, and received seven tenders from B.C. firms, ranging from $66,250, which was the B. C. Yacht & Boat Builders' tender, to $112,400. Enquiries were made as to the company's status, and assurances were received from various sources, which were considered reliable, that the company was composed of returned soldiers, and was thought to be competent to carry out the contract. The company suggested some alterations in the plans and specifications, which would lessen the cost, and subsequently entered into a contract to build the two boats for $62,750, in 140 working days. At that time the company had neither plant nor site, but immediately set about to establish itself and obtained a 10 year lease of a site in Victoria, from the B.C. Government, where the plant was subsequently installed. One obstruction after another presented itself, financial and otherwise, until a change of management was decided on by the directors, and construction was only begun in September. In November, the company's Manager, W. C. Winkel, arrived in Ottawa, accredited by the company's President, and presented a memorial stating that the boats could not be built for the contract price, $62,750, and asked to be relieved of the existing contract, and to be given a new contract, which would provide for the Government paying the cost of labor and material, which it was guaranteed would not exceed $75,000. As this was slightly lower than the next lowest tender, the Minister decided that, if he could get some assurance that the company could actually complete the boats for $75,000 he would recommend that the proposition be accepted. Accordingly, H. A. Butt, an expert shipbuilder, in the Department's service, and A. J. Dallain, Accountant in the Department's Victoria agency, were instructed to go through the company's books and plant, to secure data, and they reported that the boats could be built within the estimate of $75,000, and arrangements to that end were concluded. The Department contends that, in view of these facts, it cannot be claimed that it has acted unfairly.

Collingwood Shipbuilding Co., Kingston, Ont.—The overhauling of Ontario Car Ferry Co.'s car ferry Ontario No. 2, which was docked Sept. 17, was completed Sept. 26. Canada Steamship Lines s.s. Toronto was docked towards the end of September, for repairs to bottom damage. With regard to the proposed lengthening of this steamship for the accommodation of additional staterooms, we are advised that it will not be undertaken at present, traffic conditions during the season, and the prospects for next season, not being considered to warrant the expenditure.

J. Coughlan & Sons, Vancouver, B.C. In connection with the practical completion of the steamships on order for Canadian Government Merchant Marine, S. H. Coughlan is reported to have said that the company has no intention of giving up the shipbuilding business. There are no orders on hand, but plans are on file for the building of some 10,000 d.w. tons ships, and the company is bending its energies to the securing of new business, and it hopes to lay some keels next year. While it has been carrying on its shipbuilding business, it has built 21 steel cargo ships of an aggregate of 182,100 d.w. tons, for the British Government, through the Imperial Munitions Board, for the Canadian Government Merchant Marine, and a few for private ownership. Pending further shipbuilding orders, the company will continue its structural steel business, which has attained considerable dimensions. It has a contract with the Dominion Government for building a drydock, the contract providing for aid at the rate of 4½% for 35 years on an expenditure of $2,500,000, but negotiations are proceeding for a new contract, so that a floating, instead of a stationary, drydock may be built, in conjunction with the Wallace Shipbuilding & Drydock Co., North Vancouver.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, The President, First Vice President, Second Vice President, and W. E. Burke, Canada Steamship Lines, Montreal; H. W. Cowan, G. U. Price, Ltd., Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; W. B. Ellsworth, Imperial Oil Ltd., Toronto; L. L. Henderson, Montreal; G. J. Madden, George Hall Coal Co. of Canada, Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Dominion Shipbuilding & Repair Co., Toronto.—The liquidator, Osler Wade, issued the following circular to creditors Sept. 29:—The Government ships were completed and the Marine Department vacated our yards on Aug. 31. As anticipated in my report of Dec. 14, 1920, the estate has succeeded in realizing a large quantity of the merchandise on hand, which was disposed of to the Government for the purpose of completing these ships, with the result that the bank's lien of some $260,000 on the assets of the estate has been reduced to about $45,000. In addition to this lien, there are other secured claims, aggregating about $55,000, and it is believed there is sufficient merchandise on hand to satisfy these claims in full eventually, leaving for the purposes of the unsecured creditors the plant, the buildings, and the book debts. The plant has been extensively advertised for sale, but no tenders were received in response to the advertisements, which, it was announced, would be opened on Aug. 31, and under a direction of your committee, advertisements are now running in the press, announcing the dismantling of the plant and soliciting enquiries for individual machines. Detailed lists of the machines in booklet form are being mailed to some 5,000 dealers and users, in the hope that something substantial may result from the campaign. In the meantime, negotiations are pending with parties who make a specialty of dismantling industrial plants, and enquiries for buildings alone are being followed up, and it is hoped that these various schemes will eventually result in your committee realizing a respectable amount on the fixed assets. The affairs of Christoffer Hannevig, who was indebted to the company for a considerable amount, are in the hands of the bankruptcy courts of New York State. No estimates are at hand as to what amount of dividend will be available from this source. It will require at least $100,000 to liquidate the balance of the secured and preferred claims, and the process of liquidation is likely to be slow from this date forward, owing to the very nature of the assets. Having this in view, it will be some months before it will be possible to make any estimate as to when a payment can be made to the ordinary creditors, but as the liquidation proceeds, and as soon as the preferred claims have been disposed of, a further report will issue."

Fraser Brace Ltd., Montreal, did repair work during September on Canadian Government Merchant Marine steamships Canadian Coaster and Canadian Harvester; Webster Steamship Co.'s s.s. Stuart W.; Nova Scotia Steamships' s.s. General Currie; Walford Shipping Co.'s s.s. Caledonia; Fairhaven Transportation & Coal Co.'s s.s. Henry B. Hall.

Nova Scotia Steel & Coal Co., New Glasgow, N.S.—The steam yacht Sea King, for Baron Bliss, Bahamas, British West Indies, the launching of which was announced in our last issue, was expected to be completed and ready for delivery by the end of October. Her dimensions are,—length 137 ft., beam 28½ ft., depth 13 ft. The owner's quarters are aft, and are finished in mahogany, and the decks throughout the ship are of teak. The ship is schooner rigged, with a large foremast, and a derrick to take a 4-ton motor boat. She is equipped with two 250 b.h.p. semi-Diesel oil engines, built by Vickers-Petter, Ipswich, Eng., for a speed of 11 knots, and there are two auxiliary Vickers-Petter oil engines driv-

ing a line shaft, which in turn drives two dynamos, ballast pump and CO2 refrigerating machine. She is also fitted with large storage batteries. The steering engine is a combination of hand and air, and was designed by the owner for this particular ship. Accommodation for officers and crew are forward of the engine room, the pantry and galley being in a separate deck house on each side of the engine room. All fittings and furnishings are as usually supplied for a first class yacht.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—Following are extracts from the directors' report for the year ended June 30, 1921, issued over the signature of Jas. Whalen, President:—Considering that we have secured no contracts for new ship construction this year, I consider that the company is fortunate in being able to show even a small net profit. The only ship construction done during the year was the completion of two freight steamships of approximately 4,000 and 3,000 d.w. tons, respectively, commenced last year. Nothing that I can say will explain how drastic has been the reduction in volume of business, or how greatly the company has been affected by the depressed business conditions that developed during the year, as well as a comparison of the amount of construction work in process, which fell off from $1,974,027 at the closing of last year to $39,984 at the closing of this year. Shipbuilding has been at a standstill during this year, and it will yet be some time before conditions are adjusted to a point where it will be resumed on a normal basis. With this condition to meet, your management energetically pushed the development of other work to keep your plant busy, which, at the same time, can be continued and carried on in future years, in conjunction with shipbuilding. We entered definitely into the building of pulp and paper making machinery and equipment. The services of engineers thoroughly acquainted with the designing and building of this machinery and equipment were engaged. Designs and plans of a number of machines were completed and rights to build in Canada several machines and auxiliaries required by the trade, recognized to be leaders in their respective fields, secured. An amount of work has already been secured by this new department that, considering the existing conditions, is very encouraging. The manuacture of pulp and paper is one of Canada's principal industries. We have an enormous supply of the principal raw materials required for the making of pulp and paper, and ample water power for their development. The supply of these raw materials in the United States is rapidly diminishing, and Canada is the natural source for the supply of pulp and paper for that country. The pulp and paper market has been hard hit by the present business depression, but the future of the industry in Canada is assured. Once normal conditions are restored, this industry should develop with a rapidity that will equal anything it has experienced in the past. The business of building the machinery, and equipment required for this industry has an equally promising future, and your company is prepared to take an important part in this work. Situated at the head of Lake Superior, in the center of a large pulpwood producing area, in which pulp and paper mills are rapidly being built, we are in a very advantageous position for participating in this work. The company has also decided to commence the manufacture of low-pressure boilers for heating purposes. We have the western Canada market principally in mind for these boilers. Our position is exceptionally favorable for participation in this business in the western market. Port Arthur is as close to this market as it is possible to bring the materials required by boat. We can land these materials in our plant at the cheaper water freight rate with one handling. We already have a boiler shop equipped with all the machinery and tools required to build this class of boiler, and large enough to take care of the business through its initial stages. The possibilities of this business are great and in deciding to participate in it your directors are convinced that in a few years a large and profitable business can be built up. During the year preferred stock, having a par value of $93,200, was retired, also $60,000 of mortgage bonds. Capital expenditures made during the year amounted to $88,-791, and were for plant improvements and additions, which included the erection and equipment of a modern fireproof building for transforming electric current, through which a saving of 15% on the price of the electric power will be effected."

The financial statement shows the following results for the year:—Gross profit from operations, after deducting cost of material, labor and manufacturing overhead, $216,070.50; Less general and administrative expense, $153,033.08; net operating profit, $63,037.42; add miscellaneous income, $88,659.17, $151,696.59; deduct bond interest, exchange and miscellaneous charges, including estimated Dominion tax, $89,786.93; net earnings for year, $61,909.66.

Prince Rupert Shipbuilding Yard and Drydock.—The Canadian National Rys.' Right of Way and Property Commissioner, Toronto, has invited applications for leasing, for a term of years, the Grand Trunk Pacific Ry.'s shipbuilding yard and drydock at Prince Rupert, including waterfront lots, and wharves of approximately 30 acres, water lots of over 60 acres, all buildings, plant, tracks, fixed machinery, and equipment, 20,000-ton floating drydock, docks, wharves, piers, landing stages, etc.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—The shareholders of this company, which undertook to build four wooden barquentines, to assist in the civil re-establishment of returned soldiers, and to relieve unemployment, for which special loans were granted by the Dominion Government, have laid their grievances before the Government, in the hope of obtaining some further assistance towards the lessening of their losses, on account of the company's failure. It is claimed that repeated telegrams sent to the Government have failed to elicit any response, and a final message, in the nature of an ultimatum, was sent, to the effect that unless a reply was received by Oct. 12, as to the Government's policy towards the shareholders, a full statement covering the entire operations would be given to the press. This was confirmed by the directors, Oct. 13, and a statement was authorized to be prepared and given out for publication. A press report of Oct. 24 stated that an arrangement has been reached with the Government for the completion of the programme originally outlined.

Yarrows Ltd., Victoria, B.C., did the following repair work during September: Ship Mafalda, 1,425 tons, altered, repaired, cleaned and painted; Vancouver Steamship Co.'s s.s. City of Vancouver, 5,497 tons, docked, cleaned and painted; C.P.R. s.s. Princess Victoria, 1,943 tons, repairs to main steam pipe, etc.; Standard Oil Co.'s s.s. Caddo, 6,329 tons, drydocking survey, repairs to bottom damage, drawing tail shaft, repairs to rudder, and cleaning and painting; steam tug Mystery, engine room repairs.

The contract for repairs to the Nippon Yusen Kaisha s.s. Toyohashi Maru was awarded to Yarrows Ltd., and carried out in the early part of October. This is the second contract obtained by the company recently, in direct competition with U.S. yards on the Pacific coast.

Drydock for Vancouver.

An agreement for the construction of a stationary drydock of the second class at Vancouver, B.C., between the Dominion Government and J. Coughlan & Sons, Ltd., Vancouver, B.C., was signed Oct. 27, 1920. The agreement provides for the construction of a stationary drydock of the following dimensions:—

Length from caisson stop to head wall.....725 ft.
Length from back of sill to head wall.....700 ft.
Clear width of entrance at bottom.....110 ft.
Width of entrance at top.....116 ft. 2½ in.
Depth over sill at extreme high water....32.23 ft.
Depth over sill at higher water (equivalent to high water ordinary spring tide)....30 ft.

Under the provisions of the Dry Docks Subsidies Act, the Government agreed to pay a subsidy of 4½% for 35 years on the cost of the drydock, which, for the purpose of subsidy calculations, was placed at $2,500,000. Apart from the acquirement of the site, nothing has been done in the way of construction, or even of preparation of the site, and enquiries made have elicited the information that while J. Coughlan & Sons can probably finance the project today, they do not, at present, see sufficient work ahead of them to warrant the expenditure, but that there would doubtless be ample work by effecting a combination with Wallace Shipbuilding & Drydock Co., North Vancouver.

J. Coughlan & Sons and Wallace Shipbuilding & Drydock Co., the latter company having submitted a tender for the construction of a floating drydock, at the time the stationary drydock agreement was made with J. Coughlan & Sons, are combining with the object of getting authority to build a floating drydock at North Vancouver and have submitted a proposition to the Dominion Public Works Department.

Burrard Drydock Co. Ltd. has been incorporated under the Dominion Companies Act,, with authorized capital of $1,000,000 and office at North Vancouver, B.C., to build in Vancouver harbor, a floating drydock with patent and other slips, work shops, machinery, piers, etc., and to carry on a general shipbuilding and ship repairing business; to apply for subsidies under the Drydock Subsidies Act, and to enter into a contract with the Dominion Government in connection with such subsidy. The incorporators are:—C. Wallace, Wallace Shipbuilding & Drydock Co., North Vancouver; J. J. Coughlan, J. Coughlan & Sons, Vancouver; R. A. Pringle and L. Cote, Ottawa, Ont.

The American Association of Port Authorities held its annual convention at Seattle, Wash., Oct. 13, and decided that the next one would be held at Toronto.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Launching of Steamships.—We have been advised of the launching of the following steel cargo steamships, for Canadian Government Merchant Marine, in addition to those mentioned in previous issues.

Sept. 24, s.s. Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, Halifax Shipyards Ltd., Halifax, N.S.

Oct. 6, s.s. Canadian Britisher, Marine Department contract 43, builder's yard no. 2, approximately 8,390 d.w. tons. The contract for this ship was given Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C., and after that company became bankrupt Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., was given a contract to complete her at Prince Rupert, on a cost plus basis.

Oct. 12, Canadian Freighter, Marine Department contract 63, builder's yard no. 21, approximately 8,390 d.w. tons, J. Coughlan & Sons, Vancouver, B.C.

All of the 63 steel cargo steamships ordered under the Dominion Government's shipbuilding programme have now been launched.

Delivery of Steamships.—In addition to the ~~steam~~ cargo steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation:—

Oct. 12, s.s. Canadian Logger, Marine Department contract 54, builder's yard no. 10, approximately 3,890 d.w. tons, Midland Shipbuilding Co., Midland, Ont.

Oct. 22, s.s. Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, Davie Shipbuilding & Repairing Co., Lauzon, Levis, Que.

Oct. 22, s.s. Canadian Transporter, Marine Department contract 62, builder's yard no. 20, approximately 8,390 d.w. tons, J. Coughlan & Sons, Vancouver, B.C.

Officers of Ships.—The following officers have been appointed to the various ships, in addition to those mentioned in previous issues: Canadian Aviator, Capt. W. J. Davies, formerly on s.s. Thomas J. Drummond, vice Capt. E. Randell, on leave of absence; Canadian Britisher, chief engineer, L. Chappellow; Canadian Cruiser, Capt. A. L. Starratt, returned from leave of absence; Canadian Engineer, chief engineer, W. R. Jones; Canadian Farmer, Capt. W. J. Boyd, vice Capt. J. P. Sharp, transferred to s.s. Canadian Voyageur; Canadian Forester, chief engineer, T. P. Cubitt; Canadian Planter, Capt. J. E. Roop, formerly on Canadian Volunteer, vice Capt. W. H. Miller, transferred to Canadian Volunteer; chief engineer, G. V. Brown; Canadian Raider, chief engineer, W. Percival; Canadian Volunteer, Capt. W. H. Millar, formerly on Canadian Planter, vice Capt. J. R. Roop, transferred to Canadian Planter; Canadian Voyageur, Capt. J. P. Sharp, formerly on Canadian Farmer, vice Capt. A. E. Sprosen temporarily out of service; Thomas J. Drummond, Capt. W. J. Cunningham, vice Capt. W. J. Davies, transferred to Canadian Aviator; Simon F. Tolmie (barquentine), Capt. J. C. Stewart.

Refrigerator Accommodation.—The following Canadian Government Merchant Marine ships are already equipped with refrigeration apparatus, etc.:—Canadian Commander, Canadian Conqueror, Canadian Leader, Canadian Victor, Canadian Scottish, Canadian Skirmisher and Canadian Traveller. The following ships, which are under construction, will be similarly equipped, Canadian Freighter, Canadian Britisher, Canadian Transporter, Canadian Cruiser, and Canadian Constructor. The Canadian Highlander, which was delivered Dec. 15, 1920, is also to be similarly equipped.

Montreal Sailings.—The following sailings have been announced:—

Liverpool Service: Canadian Commander, Nov. 11; Canadian Hunter, Nov. 20.

London Service: Canadian Otter, Nov. 11.

Glasgow Service: Canadian Squatter, Nov. 8.

Cardiff and Swansea Service: Canadian Trooper, Nov. 16.

Australia Service: Canadian Victor, Nov. 20.

Barbados, Trinidad and Demerara Service: Canadian Harvester, Nov. 2; Canadian Coaster, Nov. 16; Canadian Beaver, Nov. 20.

Nassau, Kingston and Belize Service: Canadian Forester, Nov. 8.

Charlottetown and Newfoundland Service: Canadian Sealer, Nov. 5; Canadian Sapper, Nov. 19; Canadian Sealer, Nov. 20.

Vancouver Sailings. — The following sailings have been announced:—

Australia and New Zealand: Canadian Transporter, Nov. 8, Auckland, Sydney, Melbourne, Adelaide; Canadian Freighter, Nov. 30, Auckland, Sydney, Melbourne; Canadian Skirmisher, Dec. 30, Auckland, Sydney, Melbourne; Canadian Traveller, Jan. 24, Sydney, Melbourne; Canadian Scottish, Feb. 24, Sydney, Melbourne.

Oriental Service: Canadian Prospector, Nov. 25, Kobe, Shanghai; Canadian Highlander, Dec. 27, Yokohama, Shanghai; Canadian Winner, Jan. 20, Takubar, Shanghai.

India Service: Canadian Inventor, Jan. 4, Calcutta, Bombay.

Winter Sailings from St. John, N.B., to United Kingdom:—

To Liverpool: Canadian Explorer, Dec. 14; Canadian Commander, Dec. 28; Canadian Leader, Jan. 11; Canadian Explorer, Feb. 1; Canadian Commander, Feb. 15; Canadian Leader, March 1; Canadian Explorer, March 22.

To London: Canadian Raider, Dec. 7; Canadian Trapper, Dec. 21; Canadian Rancher, Jan. 4; Canadian Raider, Jan. 25; Canadian Trapper, Feb. 8; Canadian Rancher, Feb. 22; Canadian Raider, March 15; Canadian Trapper, March 29.

To Glasgow: Canadian Aviator, Dec. 17; Canadian Otter, Jan. 7; Canadian Hunter, Jan. 21; Canadian Aviator, Feb. 4; Canadian Otter, Feb. 25; Canadian Hunter, March 11; Canadian Aviator, March 25.

To Cardiff and Swansea: Canadian Navigator, Dec. 13; Canadian Squatter, Jan. 3; Canadian Navigator, Feb. 4; Canadian Squatter, March 1.

Winter Sailings from Halifax, N.S., to places mentioned below:—

Australia and New Zealand: Canadian Spinner, Dec. 28; Canadian Constructor, Jan. 25; Canadian Miller, Feb. 22; Canadian Pioneer, March 22.

Brazil and Plate: Canadian Volunteer, Dec. 7; Canadian Seigneur, Jan. 14; Canadian Ranger, Feb. 11; Canadian Challenger, March 11.

Steel Cargo Steamship Canadian Scottish, appro ximately 8,390 d.w. tons, Canadian Government Merchant Marine.

Barbados, Trinidad and Demerara: Canadian Logger, Dec. 14; Canadian Harvester, Dec. 28; Canadian Coaster, Jan. 11; Canadian Beaver, Jan. 25; Canadian Logger, Feb. 8; Canadian Harvester, Feb. 22; Canadian Coaster, March 8; Canadian Beaver, March 22.

Nassau, Kingston & Belize: Canadian Fisher, Dec. 2; Canadian Forester, Dec. 23; Canadian Fisher, Jan. 13; Canadian Forester, Feb. 3; Canadian Fisher, Feb. 24; Canadian Forester, March 17.

St. John's, Nfld.: Canadian Sapper, Dec. 6, Dec. 20, Jan. 3, Jan. 17, Jan. 31, Feb. 14, Feb. 28, March 14, March 28.

Mexican Trade.—The new Minister of Trade and Commerce is reported to have stated in Winnipeg recently, while on his way to Vancouver, that it is planned to secure an extension of shipping facilities between Canada and Mexico by means of Canadian Government Merchant Marine.

The s.s. Canadian Commander arrived at Liverpool, Eng., after a stormy and somewhat hazardous voyage, during which 60 cattle were swept overboard or drowned in the holds. Leaving Montreal on Sept. 30, the ship encountered very severe weather when a week out, and at the height of the storm, during which Capt. J. D. Mackenzie, of North Sydney, N.S., was on the bridge for 48

hours, the ship had to put about and run before the storm. The stock fittings were smashed and cattle drowned or injured, the wireless installation destroyed, the main hatch smashed in, and the poop railings carried away by seas, which officers describe as the worst in their experience. The ship took two weeks for the voyage, landing the cattle at Glasgow before proceeding to Liverpool.—Copyright cablegram to Montreal Gazette.

The s.s. Canadian Exporter, which was wrecked on Willapa Spit near Astoria, Wash., July 29, is reported to have been sold to the Premier Lumber Co., Vancouver, for $2,000. She broke in two, and the fore part was swung round, by the action of the tide, at right angles to the after part, and, generally speaking, the wreck was in poor condition and the chances of salvage slight. It is stated that a certain amount of fittings and machinery has been salved, and also a quantity of lumber, but that the amount realized for this is more than swallowed up by the cost. It is expected that the forward half will be floated.

The s.s. Canadian Importer, which has been undergoing a general survey at Esquimalt, B.C., drydock, since she was towed in, after having sprung a leak while en route to Australia, will, subject to confirmation, be repaired by B.C. Marine Engineers and Shipbuilders Ltd., Vancouver. It is stated that five tenders, for the necessary repairs, were received, and that the lowest, for slightly under $12,000, was accepted. The repairs are not extensive, and are confined almost solely to the engine room and engines. The engines will have to be overhauled, as also will the auxiliary machinery.

The s.s. J. A. McKee arrived at Toronto, Oct. 17, with a cargo of sugar. She left St. John, N.B., with 2,000 tons of sugar, 400 tons of which was discharged at Montreal, 600 tons at Toronto, and the balance was taken to Port Arthur, where, after discharging, she will take a cargo of grain downbound. She has been engaged for some time carrying coal from Sydney, N.S., to Levis, Que., for Canadian National Rys., but having completed that work for this season, she is being utilized for the lake grain traffic, in which she was engaged, prior to her acquisition by the Dominion Government, when owned by the Western Steamship Co., Toronto.

The Simon F. Tolmie, one of the wooden barquentines built at Victoria, B.C., under special aid from the Dominion Government, by Victoria (B.C.) Shipowners Ltd., and taken over by the Marine Department, on account of the company's failure, has been handed over to Canadian Government Merchant Marine, for operation. She was built at the Cholberg shipyard, and finished by the Victoria Machinery Depot Co. She was at Vancouver, during October, fitting out for her first trip, and was expected to load lumber for Australia. She is in charge of Capt. J. C. Stewart.

J. Coughlan & Sons, Vancouver, B.C., launched the steel cargo steamship Canadian Freighter, Marine Department contract 63, builder's yard no. 21, approximately 8,390 d.w. tons, for Canadian Government Merchant Marine, Oct. 12. The christening was performed by Mrs. C. Wallace, wife of the President, Wallace Shipbuilding & Drydock Co., North Vancouver. This is the last of the C.G.M.M. ships to be launched by this firm.

The s.s. Canadian Transporter, Marine Department contract 62, builder's yard no. 20, approximately 8,390 d.w. tons, the keel of which was laid Jan. 6, and which was launched Aug. 31, was ready for delivery on Sept. 14, but, on account of the Department having extra refrigerating work done by outside contractors, the trial trip was postponed at the Department's request. The trip was made on Oct. 21, she was transferred to Canadian Government Merchant Marine Oct. 22, proceeded to load a cargo at Vancouver and will sail for New Zealand and Australia on Nov. 8.

Davie Shipbuilding & Repairing Co., Lauzon, Levis, Que., delivered the steel cargo steamship Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, to the Marine Department on Oct. 22, when she was transferred to Canadian Government Merchant Marine for operation, and left for Montreal to load tank cars for Russia, with which she will sail early in November.

Halifax Shipyards Ltd., Halifax, N.S., launched the steel cargo steamship Canadian Constructor, Marine Department contract 39, builder's yard no. 4, approximately 10,500 d.w. tons, for Canadian Government Merchant Marine, Sept. 24, the christening being performed by Mrs. F. B. McCurdy, wife of the Dominion Minister of Public Works. The Canadian Constructor is one of the two largest ships ordered by the Dominion Government. Her general dimensions are,—length overall 445 ft., length b.p. 430 ft., breadth moulded 56 ft., depth moulded 38 ft., draft loaded 29 ft., approximate tonnage, 10,500 d.w. She is of the three deck type, with poop and forecastle, and is equipped with triple expansion engines, with cylinders 29½, 50 and 80 in. diar. by 54 in. stroke, 4,000 i.h.p., supplied with steam by 4 single ended boilers, each 15½ x 11¾ ft. at 180 lb., for a speed of 12 knots at sea under full load. Accommodation is provided for 6 passengers. She is fitted with the latest life saving devices and cargo handling facilities, including a 30-ton derrick for handling extra heavy shipments. A telescopic mast is fitted, to enable her to travel the length of the Manchester Ship Canal. The keel was laid Oct. 6, 1919. and she was launched July 21. A Halifax press dispatch says that she left there Oct. 23 for Sydney, N.S., to load 8,000 tons of coal, with which she will make a trial trip back to Halifax, and will then load partly there for Australia, completing her cargo at New York.

Midland Shipbuilding Co., Midland, Ont., delivered the steel cargo steamship Canadian Logger, Marine Department contract 54, builder's yard no. 10, approximately 3,890 d.w. tons, to the Marine Department Oct. 12. She was transferred to Canadian Government Merchant Marine for operation and took a grain cargo from Midland to Montreal.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—The steel cargo steamship Canadian Britisher, Marine Department contract 43, builder's yard no. 2, approximately 8,390 d.w. tons, which this company was building when it became bankrupt, and for the completion of which a contract was given Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., was launched at Prince Rupert, Oct. 6.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C. See Prince Rupert Drydock & Engineering Co.

Steamship Service to the West Indies.

The Dominion Trade and Commerce Department is inviting tenders up to Jan. 31, 1922, for a steamship service between Canada and the West Indies, either weekly or fortnightly, from St. John, N.B., or Halifax, N.S., or either weekly or fortnightly from St. John and Halifax alternately, for five or 10 years, tenders to state the earliest date on which the proposed service can be established. The steamships to be employed are to be from 5,000 to 6,000 gross tons, capable of maintaining an ocean speed of 12 knots and providing accommodation for 100 first class, 30 second class and 100 steerage or deck passengers, and to be provided with 'tween decks. A reasonable proportionate allocation of passengers and cargo accommodation is to be made as between the West Indian islands, and there are to be no unfair differences in the rates of freight as between the larger and smaller colonies at a similar distance from St. John or Halifax. Freight and passenger rates will be subject to the Department's approval. The steamships to be employed are to be built so that, should traffic warrant, cold storage may be provided, but alternative tenders may be submitted, either with or without cold storage, and provision must be made for carrying mails.

Steamships on the outward sailings are to call one week at Bermuda, Barbados, Trinidad and British Guiana, and on the homeward route, at Trinidad, Grenada, St. Vincent, Barbados, St. Lucia, Dominica, Montserrat, Antigua, Nevis, St. Kitts and Bermuda; and on the alternate weeks, outward at Bermuda, St. Kitts, Nevis, Antigua, Montserrat, Dominica, St. Lucia, Barbados, St. Vincent, Grenada, Trinidad and British Guiana, and on the homeward route, at Trinidad, Barbados and Bermuda.

Operation of Lights on Great Lakes and St. Lawrence River.

All Canadian lights and fog alarms on Lake Superior will be kept in operation until the close of navigation, with the exception of Caribou Island, which will be closed Dec. 10, Otter Island, Quebec Harbor, Davieaux Island and Michipicoten Island, east end, which will be closed Dec. 15, Gargantua, Michipicoten Harbor, Corbeil Point and Ile Parisienne, which will be closed Dec. 20, Slate Island, Battle Island, Lamb Island, Shaganash, Point Porphyry, Thunder Cape, Welcome Island, Pie Island and Victoria Island, which will be closed after the last sailing to or from Port Arthur and Fort William.

All Canadian lights and fog alarms on Lake Huron, Georgian Bay, Lake St. Clair, Lake Erie, Lake Ontario and connecting waters will be maintained in operation until the close of navigation, excepting the southeast shoal lightship on Lake Erie, which may be removed after Dec. 1, and Lonely Island light, Georgian Bay, which may be closed before the general close of navigation.

All Canadian lights on the River St. Lawrence will be maintained in operation until the close of navigation.

All gas buoys and other floating aids to navigation will be maintained in position as long as ice conditions permit, and in cases where it is necessary to remove gas buoys, the more important lights will be marked by spars.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 8.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,513,440	2.d., p., h and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*8,995	205.	818,975	Lake, s.d., p., h. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shiphldg. & Dry Dock Co.	100	*4,495.75	207.	930,620.25	2.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	*4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	2.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62.	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 8, 1919	May 8, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	*3,975	205.	814,926.25	2.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	*3,978	205.	815,541.25	2.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shiphuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd'e	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	*4,850	200.	967,000	2.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	July 11, 1920
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	Aug. 14, 1920	Jan. 20, 1921
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	2.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	Sept. 20, 1920	Feb. 26, 1921
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 11, 1919	Oct. 9, 1919	June 24, 1920
18	Sept. 4, 1918	Canadian Hunter	" " "	460	*4,992	200.	998,400	2.d., p., b. and f'c's'le	"	12	Mar. 28, 1919	May 7, 1920	Aug. 10, 1920
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	"	41	*3,408	210.	715,680	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	10½	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,406	210.	715,207.50	Lake, s.d., p., b. and f'c's'le	"	10	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 18, 1918	Canadian Mariner	Halifax Sbipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., h and f'c's'le	"	10	Feb. 24, 1919	Sept. 4, 1920	Nov. 27, 1920
22	Sept. 18, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	Dec. 18, 1920	Feb. 24, 1921
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	*4,581	215.	984,915	2.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,577,508	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	*8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,577,884	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	*8,899.80	188.	1,579,068.40	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbour Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	June 29, 1920	Nov. 29, 1920
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	Sept. 29, 1920	Apr. 9, 1921
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	*,3,972.50	205.	855,348.54	2.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	May 8, 1920	Oct. 4, 1920
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,350	215.	935,250	2.d., p., b. and f'c's'le	"	11	Aug. 29, 1919	June 26, 1920	Oct. 15, 1920
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	*8,381	198.	1,659,488	2.d., p., b and f'c's'le	Lloyd's	11	July 25, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	*8,380	198.	1,659,240	2.d., p., b and f'c's'le	"	11	Aug. 8, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Aug. 19, 1919	Jan. 24, 1920	July 17, 1920
37	Nov. 22, 1918	Canadian Prospector	"	14	*8,350	198.	1,653,300	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	June 15, 1920
38	Dec. 10, 1918	Canadian Cruiser	Halifax Sbipyards Ltd.	8	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	July 9, 1921	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,078,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	Sept. 24, 1921	.....
40	Mar. 81, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	*2,776.50	210.	583,065	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1919
41	Mar. 81, 1919	Canadian Miner	" "	6	*2,778	210.	583,380	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 8, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Scottish	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b. and f'c's'le	Bri. Corp.	11	Sept. 27, 1919	May 12, 1921	Sept. 1, 1921
43	Feb. 21, 1919	Canadian Britisher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20. 1919	Oct. 6, 1921	.....
44	Jan. 23, 1919	Canadian Otter	British American Shiphuilding Co.	4	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	Mar. 29, 1919	Apr., 13, 1920	Aug. 18, 1920
45	Jan. 28, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	2.d., p., b. and f'c's'le	"	11	July 14, 1919	July 26, 1920	Nov. 12, 1920
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	*3,954	180.	711,720	2.d., p., b. and f'c's'le	"	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	*3,981.75	180.	712,910	2.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	May 8, 1920	June 15, 1920
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding & Repair Co	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	Lloyd'e	11	Nov. 8, 1919	May 12, 1921	July 18, 1921
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake. s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	June 30, 1921	Aug. 25, 1921
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., h. and f'c's'le	Lloyd's	11	Dec. 10, 1919	June 22, 1920	Aug. 25, 1920
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,800	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	July 27, 1920	Sept. 30, 1920
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 2, 1920	Oct. 30, 1920	Apr. 26, 1921
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	June 29, 1920	Nov. 27, 1920	May 6, 1921
54	Feb. 26, 1920	Canadian Logger	Midland Shipbuilding Co.	10	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 9, 1920	June 8, 1921	Oct. 12, 1921
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipbldg. & Dry Dock Co.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	Lloyd's	11	Mar. 30, 1920	Oct. 14, 1920	Dec. 15, 1920
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	Oct. 14, 1920	Mar. 17, 1921	May 16, 1921
57	Mar. 18, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	June 5, 1920	Oct. 19, 1920	Nov. 17, 1920
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	2.d., p., b. and f'c's'le	"	11	May 6, 1920	Mar. 24, 1921	May 5, 1921
59	Oct. 26, 1920	Canadian Sapper	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d., p., h. and f'c's'le	Lloyd's	8½	May 4, 1920	Nov. 9, 1920	Dec. 18, 1920
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405.325	2.d. p., b. and f'c's'le	"	11	May 14, 1920	July 7, 1921	Oct. 22, 1921
61	Feb. 26, 1920	Canadian Harvester	Port Arthur Shipbuilding Co.	45	8,390	182.50	709,925	2.d., p., b. and f'c's'le	Bri. Corp.	11	Mar. 30, 1920	Nov. 20, 1920	May 17, 1921
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405.825	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	Aug. 31, 1921	Oct. 22, 1921
63	April 7, 1920	Canadian Freigbter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	Jan. 6, 1921	Oct. 12, 1921	.....
					379,296.80		$72,818,073.19						

The C.P.R. Steamship Princess Louise and Her Predecessor.

The illustrations given on this page show the s.s. Princess Louise, now under going completion and fitting out, for the British Columbia Coast Service, and her predecessor, of the same name, taken over by the C.P.R., from the Canadian Pacific Navigation Co., in 1901. A comparison of the two ships shows the immense strides made in the class of ship utilized in the coast service, since the C.P.R. entered the business.

The s.s. Princess Louise, built at New York, N.Y., in 1869.

The first s.s. Princess Louise was built at New York in 1869. Her hull was of seasoned white oak, and she was propelled by side wheels, with a beam engine. Her dimensions were,—length 180 ft. 10 in., beam 30 ft., depth of hold 12½ ft. She made her first trip from Olympia to Victoria, Dec. 7, 1869, and in 1879 was sold to the Hudson's Bay Co., and registered at London, Eng. In 1883 she was transferred to the Canadian Pacific Navigation Co., and in 1901 went into C.P.R. hands and was operated in the British Columbia coast service, until a few years ago, when she was sold to Marpole, Macdonald & Co., Victoria, and converted into a coal hulk. During the time she was operated by the H. B. Co., she ran to its various posts as far north as Port Simpson, and under C.P.R. management she was operated occasionally on the northern run, but chiefly in local water, calling at Victoria, Vancouver, New Westminster, Nanaimo, and some other island ports.

The new s.s. Princess Louise, built by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., has the following dimensions,—length b.p. 317 ft., beam 48 ft., depth of hold 18½ ft. She is equipped with vertical, triple expansion type of engines, balanced on the Yarrow, Schlick and Tweedie system, with cylinders 28, 43, 50 and 50 in. diar. by 39 in. stroke, driving a propeller 13¾ ft. diar., having 4 bronze blades. She has complete electric lighting plant, electric freight elevators, searchlight, refrigerating plant, etc. Steam is supplied by 4 single ended boilers, each 16 ft. 2 in. x 12 ft., equipped for burning oil or coal at natural draft. There is stateroom accommodation for 300 passengers, and dining room accommodation for seating 140 persons at a time. With the exception of the auxiliary machinery, which is all of standard British make, the ship is entirely a British Columbia production.

The Panama Canal Tolls Question.

The U.S. Senate on Oct. 10 passed a bill providing for the exemption of U.S. coastwise ships from payment of tolls for the passage of the Panama Canal, and its subsequent progress was suspended temporarily.

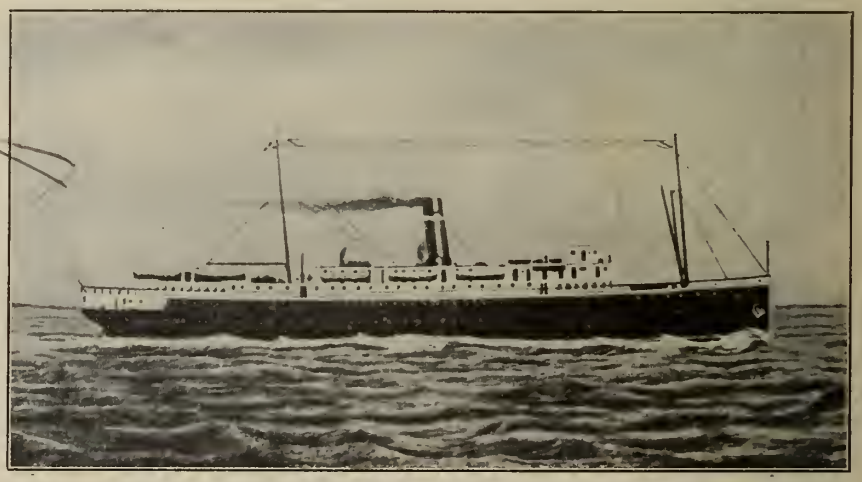
The bill provides only for the exemption of U.S. ships engaged in the carrying trade between Atlantic and Pacific coast ports, and it is said that its main object is to test the feeling of Congress for the extension of the toll exemption to all U.S. ships using the canal, whether engaged in coastwise or foreign trade.

The British Embassy at Washington, D.C., has filed a protest with the U.S. State Department, asserting that Great Britain would consider the enforcement of such a law as a violation of the treaties which promised equal treatment for ships of all nationalities. In 1850, Great Britain and the U.S. entered into the Clayton-Bulwer Treaty, to build a canal across the Panama Isthmus, and to share jointly in its control. No construction was done, under this agreement, and, under the Hay-Pauncefote Treaty of 1901, all the rights in ownership and construction under the previous treaty were transferred to the U.S., and a clause was added as follows: "The canal shall be free and open to all vessels of commerce and war of all nations observing these rules, on terms of entire equality, so that there shall be no discrimination against any such nation or its citizens or subjects in respect of the conditions of the charges of traffic or otherwise."

In 1912, under President Taft, U.S. ships engaged in the coasting trade were exempted from the payment of tolls for passage through the Panama Canal, but the tolls on them were reimposed in 1914, under President Wilson. The question was incorporated in the Republican party's policy for the presidential election in 1920, which resulted in the election of President Harding, who is reported to hold the view that while the exemption is a matter of right, it can be dealt with better by diplomatic negotiation than by legislation.

Should the bill in its present form become law, it would be possible to ship freight intended for Europe, by U.S. ships, from any Canadian or U.S. port on the Pacific coast, to any U.S. port on the Atlantic, where it could be transhipped to other ships crossing the Atlantic; and again goods could be shipped at any Canadian or U.S. port on the Atlantic coast to any U.S. port on the Pacific coast, for transhipment across the Pacific, in both cases, without paying Panama Canal tolls, while British or Canadian ships, passing from coast to coast, or direct through the Panama Canal, to the Orient, or Australasia, would be discriminated against to that extent.

The argument used in the U.S. Senate, that U.S. money built the canal, and therefore U.S. ships should receive the benefit, does not hold, when the full history of the project is considered. At the time of the signing of the Clayton-Bulwer Treaty, the rights of Great Britain and the U.S. in the matter were, at least, equal, and the condition imposed on the U.S., under the Hay-Pauncefote Treaty in 1901, viz., the use of the canal by all ships of all nations observing the rules, on terms of entire equality, was the consideration for which Great Britain transferred her rights to the U.S. Any discrimination in favor of U.S. ships would therefore be a gross break of the treaty's provisions and an act of national dishonesty.



The s.s. Princess Louise, C.P.R. British Columbia Coast Service, built at North Vancouver, B.C., in 1921.

Welland Ship Canal Wages.—The Labor Department announces that the questions of wages and working conditions on the Welland Ship Canal, which were in dispute, have been settled, that the pay ranges from 37½c. an hour for laborers to 87c. an hour for engineers. The wages are effective from Sept. 1, and working conditions from Oct. 1.

Establishment of Seaplane Stations.

Seaplane stations have been established by the Canadian Air Board at:—

Dartmouth, N.S., on the point at the entrance to Eastern Passage, Halifax harbor, approximately lat. n. 44 deg. 38 min., long. w. 61 deg. 31 min. 50 sec.

Victoria Beach, Manitoba, on the east shore of Lake Winnipeg, 100 yds. south of the Government wharf at Victoria Beach, approximately lat. n. 50 deg. 40 min., long. w. 96 deg. 32 min.

Vancouver, B.C., on the old Jericho Admiralty Reserve and English Bay, at the south side of the entrance to Vancouver harbor, approximately lat. n. 46 deg. 16 min. 15 sec., long. w. 123 deg. 11 min. 30 sec.

Mariners are advised to give these stations a wide berth, and warned that it is dangerous to pass or anchor within half a mile of them. The stations will be marked by distinguishing signals, particulars of which are not yet available, and are attended by Government launches carrying a distinguishing flag. All instructions given by these launches should be complied with as far as possible.

Chilled Meat Shipments from the Pacific via Panama Canal.

The s.s. Kinderdijk, of the Holland-American Line, passed through the Panama Canal on Aug. 26, carrying in cold storage 100 tons of mutton, shipped from Vancouver, B.C., and Seattle, Wash., to London, Eng. Press dispatches report that this is the first shipment of chilled meat from Canada to Europe by way of the canal, as it has customarily been handled by refrigerator cars between the Pacific and Atlantic coasts and over Atlantic steamship lines.

In the first 6 months of this year, 71,036 tons of mutton in cold storage were shipped through the canal from Australia and New Zealand for the United Kingdom. Other shipments in cold storage from Australasia in that period included 33,720 tons of beef, 30,316 tons of cheese, 19,057 tons of butter, 10,752 tons of tallow, 2,272 tons of glaxo, 2,038 tons of casein, and 61,882 tons of cold storage classified as "other." In all, the cold storage shipments from the Australasian area through the canal in the 6 months aggregated 186,073 tons.

The cold storage carriage through the canal from Australia and New Zealand is an old established service, dating back to the first year of canal operation. The cold storage service from the Pacific coast to Europe is about a year old, the first vessel of the Holland-American Line, bound from Vancouver and other west coast ports for Europe, having passed through the canal on Sept. 8, 1920. The demand for cold storage space, homeward bound, on this route has exceeded the supply.

Welland Ship Canal Contracts.

The Railways and Canals Department invited tenders in September to be sent in by Oct. 5 for building sections 3 and 4 combined, Welland Ship Canal. On Sept. 30 the Department issued the following statement:—"The Government has decided to postpone for the present the call for tenders for sections 3 and 4 combined, of the Welland Ship Canal, which is the subject of advertisement at present. When the decision was reached to advertise this work, the possibility of an immediate election was not taken into account. The contract is one which will involve probably $16,000,000, and the Government feels that the letting of such an important contract between dissolution and the date of election might be open to objection, hence the decision to postpone the call for tenders and continue the work for the present on force account."

Doheny, Quinlan & Robertson are the present contractors for section 3, on a cost plus basis. No work has been done on section 4, but some of the dredging, which it was intended should be included in that section, has been added to section 5, the contractors for which are the Dominion Dredging Co., Midland, Ont.

Shipbuilding Wages and Prospects in Great Britain.

The British Labor Ministry on Oct. 6 issued the award of the arbitrators in the wages dispute between employers and employes in the shipbuilding trades. The award calls for reductions of wages as follows: riveters, 25%; caulkers and drillers, 15%; shipwrights, platers and others, 2½%.

Archibald Hurd, the naval and maritime critic, states that it is open to serious question whether the award will enable the industry to recover from the depression from which it is now suffering. He states that the high cost of production has caused work on about 100 ships to be suspended, and that there are at least 200 berths vacant in Great Britain. He adds: "Generally, it may be said that an ordinary cargo boat cannot be built for less than from £16 to £18 a ton, and of that 80% goes into wages. Forty per cent. of the men in the industry now are unemployed, and the number will rapidly increase unless production costs are brought down. Very few orders, and those for vessels of a special type, have been placed in Great Britain this year. The whole industry is slowing down, and only radical measures will prevent a general stoppage in the next few months. The outlook was never blacker than at present."

International Ferry Ltd. has been incorporated under the Dominion Companies Act, with $200,000 authorized capital and office at Sarnia, Ont., to operate a ferry service, for automobiles, passengers and conveyances of all kinds, between Sarnia, Ont., and Port Huron, Mich., and to carry on a general navigation and steamship business. The principal incorporators are: G. C. Stevenson, master mariner, Port Huron, Mich., and N. L. LeSueur, barrister. The company is reported to have leased the Government dock at Windsor, Ont., and to be negotiating for the lease of docking accommodation at the foot of First St., Detroit, Mich., at an annual rental of $10,000.

Ships Registered in Canada During July, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Enginse, n.h.p. etc.	Owner or Managing Owner
134452	Donald Mac	Toronto	Toronto, Ont. . . 1914	71.0	17.0	8.4	67	34	13 Sc.	C. F. J. C. Morgan, Port Stanley, Ont.
150355	Canadian Pathfinder*	Montreal . .	Toronto, Ont. . 1921	251.0	43.7	22.3	2374	1398	146½ Sc.	Minister of Marine, Ottawa, Ont.
90778	Joseph L. Russell (1)	Toronto	Windsor, Ont. 1888 Toronto 1921	118.4	25.9	9.0	200	77	46 Sc.	J. E. Russell, Toronto.
138183	M. J. Low	Collingwood, Ont.	Killarney, Ont. . 1921	59.0	14.0	6.4	34	15	11 Sc.	C. L. Low, Killarney, Ont.
150295	Sadie Mac	Sydney, N.S.	Levis, Que. 1917	81.7	19.2	10.9	102	34	24 Sc.	W. N. Macdonald, Sydney, N.S.
137790	Susie Chipman	Kingston . .	Milwaukee, Wis. . 1885 1913	128.8	26.2	9.3	317	179	11 Sc.	Jas. Richardson & Sons, Kingston, Ont.
133573	Trevisa	Montreal . .	Londonderry, Ireland . 1915	250.0	42.5	17.4	1813	1095	153 Sc.	Tawa Steam Shipping Co., Cardiff, Wales.
141670	Venice II (2)	Toronto . .	Ithaca, N.Y. 1893	92.4	13.7	8.0	55	5	22 Sc.	Thomas L. May, Toronto, Ont.

*Equipped with wireless. (1) Formerly Lakeside. (2) Formerly Venice.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
141079	Edith McIntyre	Windsor, N.S.	Sch.	Bath, Me. ..... Meteghan, N.S. 1921	102.6	24.5	10.4	181	149	E. J. Dicks, Charlottetown, P.E.I.
150365	George D	Montreal . .	Schr.	Notre Dame de Pierreville, Que. . 1919	103.1	22.9	6.3	125	116	G. Descheneaux, Notre Dame de Pierreville, Que.
150440	P.S.B. & D. Co No. 4	Vancouver, B.C.	Scow	Kennecott, Wash. 1912	81.0	26.2	6.8	122	122	Dredging Contractors Ltd., Vancouver, B.C.

Safety First at Halifax Shipyards.

By M. L. Fraser, Field Officer, N.S., Accident Prevention Association.

On entering the Halifax Shipyards Ltd. plant at Halifax, N.S., the first thing to attract attention is a large sign board, placed where no eye can miss it, having on it in large letters "Safety First." The visitor, and the man going in for his first day's work in the yard, meet these two vital words face to face, and they cannot but make an impression, which, if fostered, at all, will make him a more careful man. The big sign board is also a constant reminder to all who pass its way that safety first is an important item in the affairs of today, and is so regarded by the Halifax Shipyards Ltd. Bulletin boards displaying safety bulletins are placed here and there throughout the plant, in places where they will be read by the greatest number. They show graphically all kinds of hazards, types of carelessness and teach the safe way to do things. They stay on the boards for one week and are then replaced by new ones.

One of the primary essentials in the carrying on of effective safety work in any plant is co-operation between management and man. Here, this co-operation is maintained by means of a general safety committee, organized in Dec. 1920, and composed of 24 men. Five of them are company officials, and 19 are men from the yard, each department having its own representative. The personnel is changed at the end of a six months term of office. Meetings are held regularly once in every two weeks. At present D. Scouler, Superintendent of Hull Construction, is chairman; G. W. Grossan, Superintendent of Engineering, Vice Chairman; D. G. Ferguson, Superintendent of Employment, Secretary. J. F. Paige, Operating Manager, is a member ex-officio, and frequently attends the meetings. The committee's duties are to interest themselves in all matters pertaining to employes' safety, to make recommendations for guarding dangerous places and machines, and to further the cause of safety in the plant in every possible way. Each member is particularly responsible for the department which he represents.

First aid to the injured is recognized as being closely allied with safety first. Proper attention to injuries, given as soon as possible after they are received, not only alleviates the pain of the wound, but in very many cases prevents it from becoming aggravated, as in the case of serious blood poisoning, resulting from a slight scratch which was not properly taken care of at first. The shipyards have a model first aid room, modern and complete in every detail, which is in charge of two graduate nurses, and for a portion of each day the company's doctor is in attendance. The men are urged by every possible means to go to this dressing station with every injury, no matter how slight. During last winter a class in first aid to the injured was carried on among the employes and 15 certificates were awarded by the St. John's Ambulance Association to members of this class successfully passing the examinations. St. John's Ambulance certificate holders are competent to render first aid and are a valuable acquisition to any plant.

It is gratifying to those interested to know that good results are being obtained as a result of the safety first and accident prevention work. For the first six months of 1921 the number of accidents occurring per month was 38.07% less than the number per month for the last eight months of 1920. The days lost per month on account of accidents were reduced 47.3%, in the same period. The eight month period is given for 1920 for the reason that accurate figures are not available for the entire year. It is evident that that number of accidents has been reduced 38.7% and their severity 47.3%. Of course these figures are based on a unit, or standard, working force, and therefore are absolute in their meaning. These reductions have without any doubt been entirely brought about by the efforts of the safety committee, the bulletin service, mechanical guarding, and to the general educational campaigns.

The safety activities which have been briefly outlined are a result of the efforts of the Nova Scotia Accident Prevention Association, its chief object being to promote industrial safety throughout the province. J. E. McLurg, General Manager, Halifax Shipyards, is also President of the Accident Prevention Association, and he unhesitatingly affirms that the time, energy and money spent in accident prevention, and first aid work, is not only well spent, from a humanitarian point of view, but is as well a sound business investment, with a high rate of return, and that production without safety is inefficient. Accident prevention is absolutely an essential part of the industrial programme.

H.M.S. Charybdis for Sale.—The Naval Service Department is offering for sale the H.M.S. Charybdis, formerly second class cruiser, but now converted for use as a merchant ship, as she lies at Bermuda dockyard, without guarantee as to her condition. Her dimensions are,—length 220 ft., breadth 49½ ft., depth of hold 25½ ft., tonnage, 2,730 gross. She has a steel hull sheathed with teak and coppered, phosphor sternposts, rudder and propeller brackets, two anchors and a cable. She has refrigerating machinery with insulating space for 34,440 cu. ft., a capacity of 1,460 d.w. tons, and bunker capacity of 566 tons. Tenders will be considered both inclusive and exclusive of the refrigerating machinery. The main engines are twin screw, triple expansion, inverted, vertical type of 7,000 i.h.p., and with main and auxiliary surface condensers of gun metal with brass, and usual auxiliary machinery. The ship was originally fitted with 8 boilers, 6 return tube marine type boilers are now on board, and one on the wharf.

Great Lakes Levels.—The U.S. Lake Survey reports the levels of the Great Lakes, in feet above mean sea level, for September as follows:—Superior, 602.67; Michigan and Huron, 580.04; St. Clair, 574.99; Erie, 572.17; Ontario, 245.43. Compared with the average mean stage for the past 10 years, Superior was 0.05 ft. below; Michigan and Huron, 0.68 ft. below; Erie, 0.27 ft. below; Ontario, 0.74 ft. below.

The Pacific Coast Association of Port Authorities, of which Col. G. H. Kirkpatrick, President, Vancouver Harbor Commissioners, is President, held its annual convention at Vancouver, B.C., Oct. 17.

Grain Cargoes from Vancouver.

A recent London, Eng., copyright cablegram to the Montreal Gazette said: "Officials of the Johnson Line of Stockholm, in declining to accept a cargo of 100,000 British Columbia ties for the Sudan, have written the British Columbia authorities in London that all their tonnage in the North Pacific will be needed for the movement of grain, flour and other cargo via the Panama Canal. The Johnson Line, which has a fleet of motor ships, made the experiment of taking a cargo of Canadian wheat through the Panama Canal to London recently. It arrived in perfect condition and the company hopes to carry on a permanent trade in this line."

Canadian Railway and Marine World sent a copy of the above to C. Gardner Johnson, Vancouver, agent for the Johnson Line of Stockholm, who replied: "I know nothing of what the report outlines. It is true that grain cargoes will be offering very shortly, and if any of the steamships referred to are available, I shall endeavor to get them a grain cargo as I did nearly a year ago. The motorship Buenos Aires, which carried a grain cargo to London so successfully in 1920, is in port as I write (Oct. 20)."

Canada Steamship Lines' Traffic.

J. F. Pierce, Passenger Traffic Manager, Canada Steamship Lines, is credited, in a press report, with the following statement:—"Notwithstanding that lessened traffic from the other side of the Atlantic and from the United States affected transportation on the Great Lakes of Canada and on the St. Lawrence, the passenger traffic season which has just closed for Canada Steamship Lines has been in many way a successful one. Traffic started early in June, and was consistently good right up to the end of the regular season, so much so that the company decided to extend its Toronto, Thousand Islands and Montreal service an extra week to Sept. 26. Traffic on the Great Lakes and Northern Navigation Division was heavier than in 1920, which was a banner year. Traffic between Toronto and Montreal was within 10% of 1920, and from Montreal eastwards within 7% of the standard of the record season of 1920, and at the same time involved much smaller operating expenses, so that in all likelihood the season will be found to have been the most satisfactory from the earning point of view in the company's history."

G.T.R. Pier at Portland, Me. — The Maine State Pier Site Commission has paid to the G.T.R., and the Eastern Steamship Lines $307,875 for their rights, title and interest in the Galt and Franklin wharf properties, and such of the adjacent real estate as has been determined necessary for the construction and operation of a state pier. The amount paid to the G.T.R. is stated as $97,344.20 and to the Eastern Steamship Lines, $210,513.30.

The Norwegian s.s. Otta was towed into St. John's, Nfld., Oct. 17, by the Canadian Government Merchant Marine s.s. Canadian Trooper. The Otta was bound from Montreal, with 6,000 tons of grain, for Europe, and was picked up by the Canadian Trooper, about 400 miles east of Belle Isle, with her rudder stock broken.

The Salvaging of the Steamship Canadian Importer.

By G. W. Gore, Master of the Tug Sea Lion.

On Aug. 13, the s.s. Canadian Importer, of 8,800 tons, belonging to the Canadian Government, left Vancouver, B.C., loaded with 4,000,000 ft. of lumber, bound for the various ports of Australia. Being a long-legged brute, drawing 26 ft. on even keel, and of narrow beam, with a high deckload, she was inclined to be somewhat cranky.

After rounding Cape Flattery, the course was set to the south'ard and west'ard and soon after passing out, the ship took a decided list to starboard. As she had done the same thing on previous voyages, nothing much was thought of it at the time. She was kept on her course, but the list kept on increasing, until water finally poured into the fire room from no. 2 hold, shortly afterwards putting out the fires under the boilers and rendering the ship helpless. In this position she lay, gradually listing over, as the water poured into the fire and engine room, until she had a 30 degree list to starboard and her after end was flooded, the water finally reaching to the height of the cylinder heads on the main engine, a depth of 26 ft., leaving her in a most precarious condition.

On Aug. 19, the day after the ship filled, a volunteer crew of the second and third officers and nine men set out in one of the ship's lifeboats, seeking assistance for their disabled craft. After a harrowing experience of 15 days in an open boat the crew were eventually picked up. In the meantime the s.s. Cordova sighted the Canadian Importer and sent in wireless calls for assistance to be sent and then left in search of the missing lifeboat.

On Sept. 2 at 2 p.m. the tug Sea Lion loaded with fuel and an ample supply of provisions at San Francisco, proceeded to sea in search of the Canadian Importer, then lying helpless 600 miles off shore. Passing through the north channel at 3 p.m., Point Reyes was made as darkness shut in. Our course was set a little to the southward of the last position of the Canadian Importer, as received by wireless, allowing for the drift she was making to the southeast. I gave the second officer on watch orders to keep a strict lookout for the missing crew in the Canadian Importer's lifeboat. I repeated the same orders to the chief officer, who came on watch at midnight, also remarking that no doubt they would show a light, if we came anywhere near them. At 12.45 the first officer called me, stating that he thought the missing lifeboat was in sight. On looking through the darkness on the starboard hand, there appeared the red glow of a Coston signal, looking, with its baleful glare, like the evil eye of some unknown denizen of the deep. We knew at once it was the lifeboat, and immediately the Sea Lion's wheel was ported until we were heading for them, the range lights on the tug showing those in the lifeboat that their signal had been seen. At 1 a.m. we arrived alongside the lifeboat, having hauled the Sea Lion into the wind and sea in such a position as to make a lea for them on the starboard side of the tug. Words could not express the delight of the two officers and nine men as they knew they were once more safe on board ship. As they struggled over the Sea Lion's side, assisted by our crew, they presented a sorry and unkempt appearance, the result of 15 days exposure to the elements of sea and sky in an open boat. Weak and unshaven, but all alive, they were soon drinking copious draughts of hot coffee and eating to fullness the many sandwiches our cook prepared for them. Drying out their clothing and making them comfortable for the rest of the night was the work of a short time. With true maritime spirit they all decided to go back with us to their ship. Daylight, a hearty breakfast, and later hot salt water baths and a change of clothes, with judicious medical aid, soon had them all feeling better and improved in spirit 100%. There was a moderate northwest wind blowing but a large westerly swell running, when the lifeboat came alongside the tug. After three ineffectual attempt to lift the boat in the Sea Lion's davits, it was decided to tow her astern.

On Sept. 5 at 9 a.m. we arrived alongside the Canadian Importer and put the lifeboat's crew, now greatly improved in body and spirits, aboard their ship. The Canadian Importer's deckload had been cast overboard and she had been partially pumped out by wrecking pumps, put aboard by the Pacific Salvage Co.'s wrecking steamship Algerine, leaving her with only a 10 degree list to starboard. The Canadian Winner, another Canadian Government Merchant Marine ship, was towing the disabled ship, but immediately let go on our arrival and that afternoon departed for Puget Sound. The Sea Lion's hawser was made fast to the Canadian Importer's port cable, and we started on our long tow from latitude 38-55 north, longitude 135-24 west for Victoria, B.C., being accompanied by the s.s. Canadian Observer as an escort. The weather at that time was fine, clear and smooth.

On Sept. 6 at 9 p.m. the tug Sea Monarch hove in sight and, putting a hawser aboard the ship, the two tugs continued on their long journey. With the exception of two days strong northerly winds, fine weather was experienced throughout the trip, the ship steering better with wind and sea ahead than with wind abeam or astern. We reached Victoria on Sept. 13, at 8 a.m., just one month after the Canadian Importer had started on her ill fated trip, having towed her 803 miles in 7 days and 21 hours, an average of 4.24 knots an hour under all conditions of weather, wind and sea. We docked the Canadian Importer at the outer dock in Victoria harbor at 11 a.m., being greeted with hearty cheering by the vast crowd assembled to meet her arrival. The two tugs were objects of great interest to the many who passed along the piers where they were tied up, and many favorable comments were made on the successful feat they had just accomplished. At 3 p.m., as the Sea Lion and Sea Monarch left for San Francisco, they were given three rousing cheers by the Canadian Importer's crew and the crowd on the dock. The powerful tugs which had so ably represented the Ship Owners' and Merchants Tugboat Company took their departure from the harbor of Victoria.—Pacific Marine Review.

The Lake Erie Excursion Co., incorporated in New York State, has been licensed to carry on business in Ontario with $500,000 capital.

The Panama Canal's Seven Years Record.

The Panama Canal completed seven years of operation on Aug. 14. During that period, 13,416 passages of commercial ships were made, with an aggregate net tonnage of 45,869,942. The cargoes carried by these ships totalled 91,578,920 long tons, of 2,240 lb. The traffic was divided as follows: from the Atlantic to the Pacific, 6,388 ships, 21,933,325 net tons, carrying 22,215,402 long tons of cargo; from the Pacific to the Atlantic, 7,028 ships, 23,936,617 net tons, 29,363,518 long tons of cargo.

The report for the financial year of 1921 shows that 33% of all the shipping passing through the canal in that year was British, and 32% of all the cargo handled was carried in British bottoms. During 1915, 1916 and 1917, these percentages varied from 41 to 45, the decline in percentage being stated to be due to the rapid increase of U.S. shipping during and after the war.

The most important British trade served via the canal, during 1921, was between Europe and Australia and New Zealand, the second place being taken by that between Europe and the west coast of South America, the relative importance of other trade being in order, as follows,—U.S. to Australia and New Zealand, U.S. and far east ports, and Europe and the west coast of North America.

Marine Public Works Contracts.—The Public Works Department gave a contract for building a training and landing pier at the Riviere du Lievre Lock, Poupore, Que., on Sept. 23, to W. H. Kelly, Buckingham, Que., for $9,176.50; construction of wharf, Mansons Landing, Cortez Island, B.C., Sept. 26, W. Greenlees, Vancouver, B.C., $4,985; repairs to wharves, Hope Bay, North Pender Island and North Gabriola Island, B.C., Sept. 30, Vancouver Pile Driving & Contracting Co., Vancouver, B.C., schedule of prices; rubble mound extension to Mission River breakwater, Fort William, Ont., Oct. 4, O'Brien & Martin, Ottawa, $1.39½ a ton of stone to enter into the work.

The Mackenzie Basin Fisheries Ltd. has been incorporated under the Dominion Companies Act, with $200,000 authorized capital and office at Calgary, Alta., to carry on a general fishing and fur business, and to operate ships for transportation of freight and passengers. The incorporators are: C. J. Ford, L. H. Miller, G. A. Costigan, Miss M. Acton and G. Kirkpatrick, Calgary, Alta.

Motorboat Nokomis for Sale. — The Public Works Department received tenders to Oct. 25 for the purchase of the motorboat Nokomis. She is a cabin cruiser, with hull of cypress, 1⅛ in. thick, and with frame of white oak, rebuilt in 1920. She is equipped with Buffalo medium type engine of 20 h.p., with 20 in. propeller, also bell, searchlight, side lights and anchor. She has an average speed of 9 miles.

The Hudson's Bay Co.'s s.s. Nascopie, which has made its usual annual trip to the company's trading stations in Hudson Bay, is making a second trip to the Arctic regions, something which has not been attempted before. The second trip is to take a cargo of reindeer from Norway to Baffin Land, the Nascopie having sailed from Norway during October.

Atlantic and Pacific Oceans.

The White Star Line has reduced its second class cabin rates to Scandinavian and Finnish ports by $20.

A general reduction in third class passenger fares on steamships from Canadian to European ports came into effect in the latter part of September. The average decrease was $25. The rate from New York was similarly reduced, the fare from New York to Rotterdam and Antwerp being reduced by $21.50.

The s.s. Edam, which was scheduled to sail from Montreal, on the Canada Line's service to Rotterdam, Hamburg, Dantzig and Libau, was reported to have been in collision with the British s.s. Glenogle, in the North Sea, at the end of September, and all her scheduled sailings were cancelled.

The U.S. Shipping Board's s.s. Princess Matoika, operated by the United States Line, on the route between Bremen, Germany, and New York, will, in future, call at Halifax, N.S., westbound. Other steamships operated in this service are the Hudson and Potomac. Pickford & Black are agents at Halifax.

The Anchor-Donaldson Line expects to have two new steamships ready for service between Montreal and Glasgow, Scotland, by the reopening of St. Lawrence navigation. The s.s. Athenia is expected to sail from Glasgow, for Montreal, Apr. 21, 1922, and the s.s. Letitia later in the season. Each of these ships will be approximately 14,000 tons gross.

The bulk of the New Brunswick potato crop, which in past years has been shipped to U.S. points, will, on account of the new tariff arrangements, be shipped to European ports. It is stated that Furness, Withy & Co. are contracting for the supply of 15 steamships during the season, to ship the potatoes from St. John, N.B., and that the crop is now moving in that direction.

The s.s. Treviso has been transferred from the British to the Canadian register by the Tava Steam Shipping Co., Cardiff, Wales. She was owned formerly by the North of Ireland Shipbuilding Co., Londonderry, Ireland, and was built there in 1915. Her dimensions are,—length 250 ft., breadth 42.5 ft., depth 17.4 ft., tonnage 1,813 gross, 1,095 net, and she is screw driven by engine of 153 h.p.

The White Star Line's s.s. Teutonic was sold by the British Admiralty recently, to a firm of Dutch shipwreckers, for breaking up. She was built at Belfast, Ireland, in 1889, and, at that time, was considered the world's finest passenger steamship. She did valuable service during the war, as a transport, etc., and it was considered that she was not worth the expense necessary to recondition her for service.

The s.s. Bayern, the first steamship carrying the German flag to enter New York harbor since the commencement of war in 1914, arrived there, Sept. 30. She is owned by the Hamburg-American Line, and is said to be the first of a series to be placed on the route by the company, in conjunction with the United American Line. She carried third class passengers mainly, with a few first class, the accommodation for such being limited.

The Norwegian s.s. Royal, bound from North Shields, Eng., to Montreal, ran ashore on Mistaken Point, Newfoundland, Oct. 13, and is reported to have been abandoned. She was built at Newcastle, Eng., in 1902, and has the following dimensions, — length 365 ft., breadth 48 ft., depth 25½ ft., tonnage 3,833 gross, 2,497 net. She is not equipped with wireless and consequently did not obtain bearings from the direction finding stations.

The C.P.R. s.s. Grampian, which was badly damaged by fire, and which sank subsequently in 30 ft. of water, at Antwerp, Belgium, early in the year, will probably be back on her route on the reopening of St. Lawrence navigation in May, 1922. She was abandoned to the underwriters, and was raised and towed to England, where considerable work has been done on her. During the war she carried troops and supplies between Alexandria, Egypt, and the Dardanelles.

Furness Withy & Co. Ltd. is reported to have obtained a contract for the service of two first class passenger steamships in winter and one in summer between New York and Bermuda, and to have made arrangements for the erection of an hotel and golf course in Bermuda. It is also reported to have bought the Trinidad Shipping & Trading Co.'s business in Trinidad, including three first class steamships, which have been operating between New York, Grenada, Trinidad and British Guiana.

The C.P.R. will inaugurate a new steamship service early in December between Canada and the West Indies, the s.s. Sicilian sailing from St. John, N.B., Dec. 5, for Havana, Cuba, calling at Boston, Mass., and Nassau, Bahamas. It is stated that the service will be maintained throughout the summer, the Canadian port being Montreal. The s.s. Sicilian, which has been operating for some time between Canada, Havre, France; Antwerp, Belgium; and London, Eng., has been completely refitted for the West Indian service.

The American-Hawaiian Line's s.s. Arizonan, bound from Tacoma, Wash., to Vancouver, B.C., struck a reef at Limekiln Point, near Roche Harbor, San Juan Island, Oct. 4, and tore a large hole in her hull. The Pacific Salvage Co.'s steamship Algerine was quickly on the scene from Victoria, and installed pumps on the Arizonan, which kept the water from gaining while she made for Esquimalt, where she was docked for repairs. She is 471 ft. long, and is stated to be the largest ship which has been docked at Esquimalt. The dock there is 485 ft. long, with the gate fixed at the outer end. After a survey was made, tenders were asked for the repairs.

The C.P.R. s.s. Empress of Japan completed her 154th trip across the Pacific Ocean, when she arrived at Vancouver, B.C., Oct. 10. She was built at Barrow-in-Furness, Eng., and brought to Canada in 1891, and at that time was the fastest steamship in the Pacific service, only being displaced by the newer C.P.R. Empresses. She is still in excellent condition, and recently completed the trip from Yokohama in a little less than 12 days, allowing for the meridian day, at an average of 16½ knots. She is still being operated with the original boilers. With the newer steamships already added, and to be added, to the company's Pacific service, it has been decided to offer the Empress of Japan for sale.

The Cunard Line s.s. Ansonia is expected to be ready for service between Montreal and London, Eng., about the end of April, 1922, for the opening of St. Lawrence navigation in May. She will be about 13,000 tons gross, and will have accommodation for 486 cabin, and 1,178 third class passengers. Other of the company's new ships to be assigned to this route are Andania, Alaunia, Ausonia and Ascania, all being of similar type to the Ansonia. The new ships, in some cases replace those of similar names, which were lost during the war, when the Cunard Line lost 15, including all those engaged previously on the St. Lawrence route.

Elder, Dempster & Co.'s s.s. Calgary sailed from Montreal, Oct. 8, on her maiden trip to African ports, and reports state that the amount of cargo carried was not very encouraging, being only about a third of the capacity. It is, however, anticipated that when the world's business returns to normal, the service will be fully justified. The s.s. Calgary was built at Clydebank, Scotland, early this year. Her dimensions are,—length 440 ft. lin., breadth 59 ft. 2 in., depth 31 ft. lin.; tonnage, 7,200 gross, 4,486 net, 11,000 d.w. The propelling machinery is of the geared turbine type, and she is fully equipped with refrigerating machinery, suitable for the route crossing the equator. There is accommodation for 12 first class passengers.

The Hudson's Bay Co.'s s.s. Baychimo returned to Montreal, Sept. 29, after establishing a post for the company at Pond's Inlet, Baffin Land, stated to be the most northerly post yet established by the company. With the exception of the old time whaling steamships from Dundee, Scotland, she is stated to be the first freight steamship to go up that inlet. The ice conditions in the north were reported to be out of the ordinary, and, though large icebergs were sighted, there was open water generally. During the

Ships Added to and Deducted From the Canadian Register During July, 1921.

	Steam.			Sailing.		
		—Tonnage—			—Tonnage—	
Added.	No.	Gross	Net	No.	Gross	Net
Built in British Possessions	6	2,546	1,471	3	233	221
Purchased from foreigners	5	419	215	3	329	297
Transferred from U.K. ports	1	1,813	1,095	....	.....	.....
Registered anew	4	430	214	....	.....	.....
Totals	16	5,208	2,995	6	562	518
Deducted.						
Wrecked or otherwise lost	3	46	33	4	350	310
Broken up or unfit for use	7	391	241	13	783	739
Sold to foreigners	1	8	5	2	757	746
Transferred to British Possessions	....	.....	.....	4	449	386
Registered anew	3	542	311	2	25	25
Other ships	....	.....	.....	1	16	16
Totals	14	987	590	26	2,380	2,222

time the ship was north she was in continuous communication by wireless with the company's s.s. Nascopie, then in Hudson Bay. She was purchased by the H. B. Co. early this year, and was formerly the German s.s. Angermanelfven, built in Sweden in 1914, for the Baltic trade, about 1,200 tons gross.

The United States Shipping Board is reported to have severed relations with the Liverpool Lines Conference, because of inability to reach a satisfactory understanding with the latter regarding what it considers a proper U.S. participation in the ocean freight business from Egypt and elsewhere to U.S. ports and to Liverpool. Reports state that more than half of the Egyptian cotton crop is consumed in the U.S., and, it is stated, on this ground the Shipping Board insisted that not less than 50% of this movement should be made in U.S. ships. A tentative agreement was reported to have been reached some time ago, on this point, providing that U.S. ships could participate in the Egyptian cotton freight business to the extent of 50% of the movement direct to U.S. ports, but nothing was agreed on as to the movement from Egypt to United Kingdom ports.

A London, Eng., press report stated recently that the Canadian Chamber of Commerce there had announced that a new steamship service between Canada and England, making the voyage in four days, was on the way to becoming an accomplished fact. Sir George McLaren Brown, European General Manager, C. P.R., London, who is President of the Canadian Chamber of Commerce, stated subsequently that the announcement was made by the publicity department without the knowledge or consent of the officials or members of the council, and was incorrect. Such a scheme has been talked of for many years, and has been laid before the Imperial Shipping Committee, but it is considered that no such step should be taken unless the governments of overseas dominions are all agreeable, and in any case, during the present condition of the shipping business, it is outside the range of possibility.

Martime Provinces and Newfoundland.

The Eastern Steamship Lines reduced the passenger rate from St. John, N.B., to Boston, Mass., on Oct. 5, by steamship, to $6, with $2 additional for stateroom.

The Newfoundland schooner Marjorie Mahaffey ran ashore at Mistaken Point, Oct. 8, while bound to St. John's from Barbadoes, with molasses, and became a total loss.

The Commercial Cable Co. has deposited with the Public Works Department at Ottawa a description of the site and plans of an extension to its wharf at Halifax, N.S.

The Cape Breton Electric Co.'s s.s. Electronic was hauled out on the Sydney Marine Railway during September for general overhaul and repairs, prior to her winter service.

The s.s. Baleine, formerly a trawler owned in Dunkirk, France, and latterly owned by Leonard Fisheries Ltd., Canso, N.S., ran aground on Cape Hogg, near Sand Point, in Canso Strait, Sept. 30, during a heavy fog.

The Royal Mail Steam Packet Co.'s s.s. Chignecto was seized by customs officials at Halifax, N.S., recently, when a quantity of rum was found while in the possession of members of the crew, who are West Indian natives.

The Halifax, N.S., Board of Trade announces that it is taking steps for the improvement of the cattle shipping facilities at that port, in view of the prospective large increase in the shipment of cattle to British ports during the winter.

The French steam trawler Gabrielle, which went ashore on Petries Ledge, near North Sydney, N.S., in Nov. 1920, and which was sold subsequently to F. Clarke, Sydney, N.S., for $1,590, was refloated recently. It is stated that only slight repairs will be necessary to make her fit for service again.

Canada Steamship Lines' s.s. Manoa, which was to have made her last trip of the season from Montreal to Newfoundland, made additional sailings, Oct. 13 and 29, and will make a third additional sailing, Nov. 17, in response to requests from Newfoundland residents. The usual calls were made at Gaspe, Que., and Charlottetown, P.E.I. It is stated that the Manoa will make a series of special winter cruises to the south.

A steamship service has been started between St. John, N.B., and ports along the south shore of the Bay of Fundy, including Harborville, Halls Harbor, Scotts Bay, Hampton, Port Lorne and Port George. The s.s. Bay Queen is being used on the route, and two trips a week are being undertaken. Among those interested in the business are A. H. Ashton and H. Babbage, Halifax, N.S.

The lighthouse tower under construction at Liscomb Island, off the south coast of Nova Scotia, is expected to be completed about Nov. 10, when the present flashing red and white light will be shown therefrom. The tower is on land, 35 ft. above high water, and about 50 ft. northwest of the old lighthouse. It is octagonal in shape, and built of reinforced concrete, surmounted with an iron lantern at a height of 45 ft., the light being at an elevation of 72 ft.

The s.s. Bernard M., owned by Wedgeport Steam Trawling Co., Wedgeport, N. S., is reported to have been sold for service in the inter-island traffic in the West Indies. She was built at Wedgeport in 1919, and is screw driven by engine of 66 h.p. Her dimensions are,—length 143.1 ft., breadth 26.3 ft., depth 12.4 ft.; tonnage, 370 gross, 194 net. She is undergoing considerable alterations at Yarmouth, N.S., before sailing to take up her new service. The hull is being thoroughly overhauled, caulked throughout, and copper fastened below the water line. Hatches, winches, etc., are being changed to handle heavy freight, and the deck house is being extended to accommodate staterooms, and a number of second class passengers. The work is expected to be completed during November.

Ontario and the Great Lakes.

Keystone Transports Ltd. is reported to have bought the s.s. Neebing, recently engaged in U.S. coasting trade, for service between Montréal and Lake Erie ports.

The s.s. Ritchie, owned by Woodward Bros., Winnipeg, is reported to have been destroyed by fire at Davidson & Smith Elevator Co.'s wharf, Port Arthur, Sept. 28.

The Port Colborne & St. Lawrence Navigation Co., a subsidiary of the Maple Leaf Milling Co., Toronto, has bought the s.s. International, in England, for its service between Port Colborne and Montreal. She arrived in Canada during October.

The U.S. Lighthouse Service is carrying out construction operations at the West Neebish channel light stations 21 and 24, St. Mary River, and mariners are requested to check the speed of their ships as much as practicable, in passing, to avoid damage to the work.

The Lake Erie Navigation Co.'s steamship s.s. Marquette and Bessemer No. 1, ran aground at Farran's Point at the end of September, and was released Oct. 2, after having about 350 tons of her cargo lightered. Damage sustained was considered slight and she proceeded to Montreal after reloading her cargo.

The Marine Department has established a green steel cylindrical gas buoy, showing an occulting green light, west of Psyche shoal, and about 3 miles from False Ducks lighthouse, on Swetman Island, to mark the position of the wrecked schooner Oliver Mowat. The buoy is placed immediately southeast of the wreck.

Canada Steamship Lines Ltd., as mentioned in our last issue, is considering the question of lengthening its s.s. Toronto by 40 ft., providing for an additional 32 staterooms. We are officially advised that it has not been definitely decided, but if it is carried out, the work will be done by the Collingwood Shipbuilding Co., at its Kingston yard.

Canada Steamship Lines' tug Mary P. Hall, which ran aground near Iroquois, while engaged in salvaging the s.s. City of Hamilton, in July, is reported as sold to Donnelly Wrecking & Salvage Co. She has been overhauled and fitted for wrecking work, at Kingston. She was built at Ogdensburg, N.Y., in 1898, and was owned formerly by Montreal Transportation Co.

Four wooden barges arrived at Hamilton, early in October, in tow, carrying 3,000 tons of sulphur. This was mined in Texas and shipped to New York by the coast route, and from thence by the New York State barge canal to Buffalo, N.Y., and thence through Lake Erie, the Welland Canal and Lake Ontario. The towing from Port Dalhousie to Hamilton was done by the Joseph L. Russell, owned by John E. Russell, Toronto. It is stated that this means of transportation is cheaper than the rail haul from New York to Hamilton.

Some objection seems to be apparent regarding the new U.S. ship channel in the St. Clair River, opposite Port Huron, Mich., and Sarnia, Ont. It is stated that a representative of several insurance companies visited the neighborhood recently, and inspected the channel, in connection with insurance risks, and is reported to have stated that it was improbable that insurance would be issued to protect ships using the channel. Interested shipping men, who have been watching ships passing from Lake Huron into the river, and on the course they have to take in entering the new channel while southbound, are reported to have stated that it is likely to prove a handicap rather than advantage to shipping.

The Mathews Steamship Co., Toronto, which bought the wrecked s.s. Francis Widlar recently, has transferred her from the U.S. register to the Canadian register, and has changed her name to

Bayton. She was wrecked on the Pancake Shoal, Lake Superior, in the autumn of 1920, and was refloated recently by Reid Wrecking Co., Sarnia, Ont., and overhauled and repaired by Port Arthur Shipbuilding Co., Port Arthur, Ont. She was built at Cleveland, Ohio, in 1904, with steel hull, on the channel system, with 3 watertight, and 2 non watertight bulkheads, electric lighting, steam pump wells, and hatches spaced 24 ft. centers. Her dimensions are,—length b.p. 416 ft., breadth 50 ft., depth 28 ft., tonnage 4,682 gross, 3,368 net. The propelling machinery consists of triple expansion engines with cylinders 22, 35 and 58 in. diar. by 40 in. stroke, 1,460 i.h.p. at 85 r.p.m., supplied with steam by 2 Scotch boilers, each 13 ft. 2 in. diar. by 11½ ft. long, under forced draft.

Manitoba, Saskatchewan, Alberta and Northwest Territories.

The Marine Department has established four red and three black wooden spar buoys, to mark the outer entrance channel leading to Pine Creek, on the west side of Lake Winnipegosis, Man.

The Hudson's Bay Co. is reported to be making arrangements for building of a steamship hull at McMurray, Alta., to be ready for next year's service on the Athabasca River, in conjunction with the s.s. Distributor. It is said that the machinery, rigging, etc., from the company's s.s. Port Simpson are being transferred from Port Simpson, B.C., where that boat is now lying, for installation in the new hull. The engine and boilers were built by Polson Iron Works, Toronto, which built six sets of this type of machinery for the company's boats. The hull, it is said, will be 200 ft. long, and proportionate in width, to obtain as wide a distribution of surface as possible, for operation in shallow waters.

British Columbia and Pacific Coast.

The first direction finding station which is being erected by the Naval Service Department on the British Columbia coast at Tatoosh, was completed and opened for service during September.

The Canadian Fishing Co.'s s.s. Celestial Empire ran ashore at Calamity Point, in the First Narrows of Burrard Inlet, Oct. 5, during a fog. She was released without much apparent damage.

The C.P.R. s.s. Princess Adelaide has been withdrawn from service on the Gulf route to be converted to an oil burner. The company's s.s. Princess Mary is undergoing a similar conversion.

A. Melville Dollar, Managing Director, Canadian Robert Dollar Co., has bought the U.S. submarine chaser, no. 300, and is asking tenders from Vancouver shipbuilders for her complete refitting as a pleasure boat.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince George was withdrawn from service at Prince Rupert, Oct. 16, and docked there for her annual overhaul. When this is completed, she will replace the s.s. Prince Rupert, which will also be overhauled at Prince Rupert.

Canadian National Rys. are reported as planning to equip the outer docks at Victoria with improved cranes and other machinery for handling lumber cargoes. It is stated to be the intention to develop the export lumber trade to South Africa, via the Panama Canal for the Canadian Government Merchant Marine.

The C.P.R. s.s. Charmer is being overhauled at Victoria. She has a wooden hull, and was built at San Francisco, Cal., in 1886, being known formerly as Premier. She was placed in service in 1887 between Vancouver and U.S. ports, and has been operated continuously in the coast service ever since. In 1892 she was sunk by the U.S. s.s. Williamette in Puget Sound.

In connection with the loss of the C.P.R. s.s. Princess Sophia on the Vanderbilt Reef, in the Lynn Canal, Alaska, Oct. 15, 1918, a U.S. court at Seattle, Wash., has decided against the C.P.R. appeal to limit its liability to $8,000, representing the fares and freight charges on the trip, thus opening the way for possible claims of $3,500,000. Claims for approximately $2,500,000 are stated to have been filed. It is announced that the company has appealed against the judgment.

The Grand Trunk Pacific Coast Steamship Co.'s autumn schedule was put into force Oct. 9, the s.s. Prince Rupert sailing from Victoria and Seattle on Sundays, from Vancouver on Mondays, arriving at Prince Rupert Wednesdays, and returning to Vancouver on Saturdays, and Seattle and Victoria on Sundays. The s.s. Prince John is running on the Vancouver, Prince Rupert and Queen Charlotte Islands route, sailing from Vancouver on Fridays, and returning on the following Tuesday week. The s.s. Prince Albert is taking the direct freight service between Vancouver, Seattle, Tacoma and coal ports, and Prince Rupert.

Mainly About Marine People.

Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and of the Naval Service, who represented the St. Lawrence-St. George district of Montreal, in the last Dominion Parliament, is again a candidate in that constituency.

T. Barons, who is said to have been the wheelsman on the Michigan Central Rd.'s s.s. Transfer, the first car ferry steamship to cross the Detroit River, between Windsor and Detroit, in 1873, died at Windsor, Ont., Sept. 30, aged 71.

Captain C. Bissett, master of Canadian Government Merchant Marine s.s. Canadian Importer, which was disabled at sea recently while en route to Australia, and which is now at Victoria for overhaul, is a Canadian by birth and has been connected with navigation all his life. His handling of the Canadian Importer throughout the disaster has been favorably commented on. During the war he was engaged in chasing submarines in the Mediterranean Sea.

G. M. Bosworth, Chairman, Canadian Canadian Pacific Steamships, Ltd., and Mrs. Bosworth, are spending a few weeks at Hot Springs, Virginia.

W. F. Bullen, who died at Victoria, B. C., Oct. 2, aged 64, following a paralytic seizure, was one of the pioneers of shipbuilding there. He was born at London, Ont., Jan. 11, 1857, and moved to Victoria in 1878, when he became associated with the Albion Iron Works, and severed his connection with that company in 1893, when he founded the British Columbia Marine Railway Co., at Esquimalt, and built the first Crandall type of marine railway on the Pacific coast. A branch was afterwards formed in Vancouver, and a shipbuilding plant was added in 1898 to the original plant. Among the ships built at this plant were the British Yukon Navigation Co.'s s.s. Casca; C.P.R. steamships Princess Beatrice, Princess Royal and Princess Maquinna, and the Dominion Marine Department's steamships Lillooet and Madge. The plant was sold to Yarrows Ltd., in Jan. 1914.

Capt. R. F. Carter, who was, for 35 years, master of the steamboat Maid of the Mist, which plies on the Niagara River, immediately below the Horseshoe Falls, died at his home at Niagara Falls, N.Y., Oct. 6, aged 75. He was well known to visitors to the Falls, and had a fund of interesting anecdotes connected with the district. He had taken part in several daring rescues from the river.

A. C. Fellows, Assistant Chief Engineer, Quebec Harbor Commissioners, was presented with a travelling bag by his associates, Oct. 10, on leaving Canada to take a position in East Africa.

Lieut.-Col. F. A. Gascoigne, D.S.O., Secretary-Treasurer, Canadian Pacific Steamships Ltd., was married at Montreal, Oct. 5, to Miss Louise Nellis.

W. I. Gear, Vice President, Robert Reford Co., and Mrs. Gear, who have been travelling on the European Continent, are expected to return to Montreal early in December.

F. L. Hawken has been appointed canal overseer, Morrisburg, Ont., under the Railways and Canals and the Marine Departments.

C. A. Lebel, heretofore assistant agent, is reported to have been appointed acting agent, Marine Department, Montreal, vice R. A. Wiallard, resigned.

Captain A. Simms, master of the Boston & Yarmouth Steamship Co.'s s.s. Prince Arthur, dropped dead from heart failure on the bridge of his ship, shortly after arrival at Yarmouth, N.S., Sept. 30. He was 58 years old and had been in the company's service for over 40 years.

R. A. Wiallard, agent, Marine Department, Montreal, has resigned, effective Nov. 16, and in the meantime he has been granted leave of absence. He entered the civil service about 20 years ago, as private secretary to Hon. L. P. Brodeur, then Minister of Inland Revenue, and went with that Minister to the Marine Department, in 1906. He was appointed agent for the Department at Montreal in 1909. During the war, he served for 4½ years as a private in the French army, the latter portion in the railway transport, and was awarded the British military medal.

Canadian Built Ships Offered in England.—The motor auxiliary ships Cap Finisterre, Cap Horn, Cap Vert and Cap Vincent, built by William Lyall Shipbuilding Co., North Vancouver, B.C., in 1918, for the French Government, were offered for sale by public auction, without reserve, in London, Eng., Oct. 4. The Cap Finisterre and Cap Vincent were then lying at Alexandria, Egypt, and the Cap Vert and Capt Horn at Spezia. They are classed 12 A1 at Lloyd's, and have about 1,800 d.w. tons capacity on a 20 ft. draft. The two at Alexandria, each have two oil engines, placed aft, 8 cylinders 14 x 18 in., by Sheffield Car Co., and the other two have, each, two 200 h.p. oil engines, placed aft, 8 cylinders 11½ x 15 in., by Atlas Imperial Engine Co. The ships are of the five masted schooner type, with twin screws.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Keywest-Oliver Mowat Collision.

Held at Montreal, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and A. Lefebvre, into the collision between Keystone Transports' s.s. Keywest and the schooner Oliver Mowat, owned by R. G. K. Hepburn and Capt. T. L. VanDusen, Picton, Ont., in Lake Ontario, about 1½ miles west of Main Ducks, Capt. VanDusen, the master, and two of the crew losing their lives, Sept. 1. The schooner was employed in the coal trade between Oswego, N.Y., and Picton, and was outbound from Picton, under full sail. The evidence showed that she was on a starboard tack, close hauled, and sailing about 4 miles an hour. The side lights were stated to be in position and burning brightly. A torch light was carried, to meet the requirements of article 9 of the Rules of the Road for the Great Lakes, and which was brought out by the mate, and lighted at a certain stage, but the wheelsman stated that, after it was lighted, he did not see the glare or the reflection of the torch, but that the mate returned carrying a lantern. The court, having had experience of sailing ships, stated that had the torch been in working order, the glare reflection of the torch, supposedly in readiness for use in emergency, as required by the rules, would have been plainly perceived by the wheelsman, and it therefore, unhesitatingly, came to the conclusion that it had been neglected, that the oil for the torch had not been supplied, or had evaporated to such an extent as to render the torch ineffective. The schooner was being navigated properly, and had a perfect right to remain in her course, and maintain her speed against all other ships. A lookout was kept by both mate and wheelsman, as they saw the steamship's lights at some distance. In the course of the hearing, the question of undermanning was not mentioned, but as the schooner was permitted to sail with a crew of four men by existing authorities, the court had no reflection or criticism to launch on the subject. The make of the side lights, though they were not in accordance with adopted makes, did not contribute to the collision, but the court held that the non-effectiveness of the torch light, and the failure to exhibit the flare, indirectly contributed to it. With regard to the loss of life, the Keywest, very properly, remained in the gap for about 10 minutes, sufficiently long to permit the crew of the schooner to escape, which the survivors did, and the opinion was expressed that had the boat been lowered, it might have been the means of saving another of the crew at least. The loss of the master was attributed to his chivalry in waiting to offer help to the cook, the only woman of the crew, and had he shown the sauve qui peut inclination as the survivors did, he would have been present to enlighten the court as to what happened immediately after the impact. It seems peculiar that, on the dangerous approach of the Keywest, more peremptory measures were not taken to awaken the master, than to tap at his window, and no evidence was offered as to what, if any, means were taken to rouse the others. The court paid tribute to the late Capt. VanDusen for his unselfish conduct, preserving fresh in the minds of the service and the public generally, unalterable devotion to duty, and what it implies. This also was applied to the mate, J. Corby, who, for lack of evidence, the court assumed, stood loyally by his captain, and also lost his life.

So far as the Keywest was concerned, she had all her lights, as required by the regulations, and her speed was justified, in view of the weather. The master, D. W. Whiteley, was on watch, and his second officer, C. F. Gildnan, was a man of limited navigation experience, but possessed no certificate. The master, though it was his watch, was resting on a sofa within the wheelhouse, and could not by any means view the exterior surroundings. He was not asleep, but was in such a position that he could not be considered as keeping his watch. The second officer had been engaged in taking bearings of the Main Ducks and the False Ducks, immediately prior to the collision, and had returned to the wheelhouse, and noted the results of his observations in the scrap log. The lookout man, engaged as a watchman, was, for some time before, and at the time of, the collision, in the galley lighting a fire in the stove, the second officer, for a minute before the collision, keeping a lookout through the only open window in the wheelhouse. From the evidence, and judging of its own experience, the court came to the conclusion that the lookout kept on the Keywest was not worthy of the name. A proper person should be detailed for the duty, and placed in a position where he can have a full range of visibility without hindrance. Before the impact, on the appearance of the red light, the second officer ordered the helm starboard a quarter, then hard a starboard, which were also the master's orders. Under other circumstances, had there been time for reflection, such an order would have been considered improper, but under the circumstances it could be considered proper, as its effect with a sufficient margin of time, would have resulted in a more glancing blow, and in this instance it can be considered as a manoeuver performed in the agony of collision. After the order hard a starboard was given, the door of the wheelhouse had to be opened to reach the telegraph to give the order, admittedly tardy, of full speed astern. The master's action in remaining in the gap caused in the schooner was proper, and his withdrawing from the gap to clear from the sinking schooner was also timely seamanship. The distance he withdraw was, according to the evidence, vague, and the court considered it nearer a quarter than a half mile, but why, when clear of the schooner's rigging he did not bring his ship to a stop, and promptly lower a boat, is surprising. If this had been done, another life might have been saved. The time taken, when the boat was eventually lowered, was considered by the court to be too long.

It therefore found that the master of the s.s. Keywest, D. W. Whiteley, was in default, and suspended his certificate, 9,011, for one year from Sept. 16, stating that as he is a young man it may serve him as a warning that as master of a ship has responsibilities with regard to the protection of property entrusted to his care, require constant vigilance, attention, presence of mind and alertness. It also found the second officer, C. F. Gildnan, in default, but as he does not hold a certificate, he cannot be dealt with other than by a severe reprimand, and a warning that a proper lookout is necessary at all times, and that he should take means to meet that requirement as well as any other in future. The court eulogized chief engineer Horton for the excellent keeping of the scrap and official logs. It considered that the schooner contributed indirectly to the collision, in not meeting the requirements of article 9 of the Rules of the Road for the Great Lakes, and that the loss of life is attributable primarily to the collision, but as prompt help was given by the Keywest, criminal intent or neglect to adopt proper means of rescue cannot be launched against the Keywest.

Stranding of s.s. Innerton.

Held at Quebec, Que., by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. C. Lapierre and R. G. Sprague, as nautical assessors, into the stranding of the s.s. Innerton on the east end of Red Island, in the St. Lawrence River, Sept. 12. The evidence showed that a pilot was taken on at Father Point, during a dense fog, and the ship was eventually anchored off Barnaby Island, and later the anchor was lifted and a course was set for the Red Island lightship, the weather becoming clear, with little or no wind, and an ebb tide flowing. The master, A. Harvey, had left orders to be called when the fog cleared, and this was done, but having been on deck for several hours, he fell asleep, and the ship proceeded. The lightship was first seen about 2½ hours before the accident, on the port bow, and was kept so. The compass showed 2 deg. of deviation, the error having been ascertained by the pilot, Arthur Lachance. The second officer, P. Allan, stated that when he was relieved by the first officer, John Davies, the weather was clear, and the Red Island light was showing the four flashes at regular intervals, while the pilot stated that the weather was misleading, and that he thought the Red Island light was not showing the number of flashes. The second officer also said that the pilot appeared to be awake and was sober, which was also attested to by the other officers. The course was maintained, keeping the lightship on the port side, yet it was the intention to pass it on the starboard side of the ship. Before the pilot realized the blunder, he had altered the course to port a quarter of a point, and shortly after, the ship was on the rocks, and a starboard order was given and the engines stopped. The first officer had looked at the chart, and saw there was water deep enough to navigate between Red Island and the lightship, likewise to the north, so that the pilot's action did not raise any apprehension in his mind, and as the weather was clear, there was no necessity for the master's presence on the bridge, hence he was not called until the accident occurred. The pilot had no reason or excuse to offer for his conduct in permitting the ship to proceed for such a long time after passing the lightship,but insinuated that the Red Island light did not give the usual flashes, and that the weather was such as to mislead, both of which contentions were absolutely refuted by other witnesses. The court stated that it had ascertained that the pilot's

work had not been very satisfactory in the past, and it failed to find any excuse for placing the ship in such a predicament. It was admitted that he was sober, and it cannot be said that he was non compos mentis. His attempt to cast reflections on the workings of the light was considered as subterfuge, as the second officer, who was bright, intelligent and evidently observant, declared that weather conditions, visibility and aids, were of the best. The only conclusion possible was that the casualty was inexcusable, and the court found that the master and his officers were free from blame, and were therefore exonerated, while the pilot, Arthur Lachance, was found solely in default, and the court, having in mind his previous record, cancelled his license.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

57. Sept. 3.—152. British Columbia, Vancouver Island, west coast, entrance to Quatsino Sound, uncharted rock. 153. British Columbia, Kootenay Lake, Rhinoceros Point, light established. 154. British Columbia Upper Arrow Lake, Arrowhead, light established.

58. Sept. 6.—155. Ontario, Lake Huron, Georgian Bay, Shebeshekong Channel, Pike Channel, improvements and additions to aids to navigation. 156. United States, St. Mary River, West Neebish Channel construction operations, caution. 157. United States, St. Clair River, Port Huron ship channel. (U.S. channel), floating lights established and buoys discontinued and moved.

59. Sept. 7.—158. Nova Scotia, west coast, Yarmouth harbor, buoys established. 159. Nova Scotia, Northumberland Strait, Caribou Channel, Gull Island and Doctor Island, beacons to be discontinued. 160. New Brunswick, north coast, Northumberland Strait, Richibucto Cape, color of range light.

60. Sept. 12.—161. Ontario, Lake Ontario, between False Ducks and Main Ducks Islands, wreck, buoys to be established. 162. Ontario, Lake Huron, Georgian Bay, new edition of chart. 163. Manitoba, Lake Winnipegosis, entrance to Pine Creek, buoys established.

61. Sept. 15.—164. Canada, seaplane stations established, warning to mariners. 165. Quebec, Gulf of St. Lawrence, Magdalen Islands, Amherst Island, character of light to be changed.

63. Sept. 17.—169. Ontario, Great Lakes and River St. Lawrence, dates to which lights will be kept in operation.

65. Sept. 28.—172. Nova Scotia, Bay of Fundy, Advocate Harbor, color of light to be changed. 173. Nova Scotia, south coast, Liscomb Island, new lighthouse tower, characteristic of light to be changed temporarily. 174. Quebec, River St. Lawrence, between Quebec and Montreal, Berthierville Channel, buoys established.

66. Sept. 29.—175. New Brunswick, Bay of Fundy, Petitcodiac River, McFarlane Point, light extinguished. 176. New Brunswick, east coast, Shippigan Gully, rearrangement of lights at entrance. 177. General, new flags to be flown by German and Austrian merchant ships.

67. Oct. 4.—178. Prince Edward Island, north coast, St. Peter harbor, temporary range lights established. 179. Quebec, Gulf of St. Lawrence, Chaleur Bay, Paspebiac, new lighthouse tower erected. 180. Quebec, River St. Lawrence, between Quebec and Montreal, Lake St. Peter, Nicolet River, range lights established.

68. Oct. 6.—181. British Columbia, Barkley Sound, entrance to Alberni Canal, off Cherry Point, uncharted reef reported. 182. British Columbia, Vancouver Island, Victoria harbor, chart issued. 183. British Columbia, Seaforth channel, entrance to Raven cove, uncharted rock.

69. Oct. 11.—184. Quebec, River St. Lawrence, Lake St. Louis, Dorval, light to be increased in power. 185. Quebec, River St. Lawrence, Lake St. Louis, Pointe Claire, light to be increased in power. 18*. Ontario, Lake Huron, Georgian Bay, entrance to Key Inlet, gas buoy replaced by spar buoy.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canada Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.— Capt. R. D. Simpson, Owen Sound, Ont.

Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Railway Board of Adjustment No. 1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 131 Charron St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Canadian Traffic League, A. H. Thorpe, 25 Balsam Ave., Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Webster, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Frontier Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Ocean Services Ltd., Vancouver, B.C.

Ship Plate Prices.—A London, Eng., press cablegram of Oct. 17 says that the northeast coast steel manufacturers have made a drastic cut of 70 shillings a ton in the price of ship plates, which are now 10 guineas a ton, compared with £24 10s. at the beginning of this year. The manufacturers declare that they are not merely sacrificing profits but are incurring big losses in order to encourage trade.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Brill Co. Ltd., which has been incorporated under the Dominion Companies Act, with an authorized capital of $300,000 and office at Preston, Ont., has leased the Preston Car & Coach Co.'s plant there, with the option of buying it, and took over the responsibility of its operation, and all contracts held by the P.C. & C. Co. as of Sept. 1. The Canadian Brill Co.'s directors are:—S. W. Curwen, President, J. G. Brill Co., Philadelphia, Pa., President; H. K. Hauck, General Manager, G. C. Kuhlman Car Co., Cleveland, Ohio, First Vice President; A. W. N. Clare, Preston, Second Vice President; H. D. Scully, Preston, General Manager; E. P. Rawle, Treasurer, J. G. Brill Co., Philadelphia; D. B. Dean, Sales Manager, G. C. Kuhlman Car Co., Cleveland, and Robt. Gowns, of the company's solicitors office, Toronto. The J. G. Brill Co., Philadelphia, has subscribed for $200,000 of the stock and is paying for it as the money is required. H. J. Titman, Superintendent, G.C. Kuhlman Car Co., has been appointed Superintendent at Preston, and will devote his whole time to the plant there for the first year or two. The company has the following orders on hand:—Timiskaming & Northern Ontario Ry., 6 standard cabooses; Toronto Transportation Commission, 50 motor cars; Hydro Electric Power Commission of Ontario, 25 one-man safety cars, of which 18 are for Hydro Electric Railways, Essex Division, and 7 for Guelph Radial Ry.; Winnipeg Electric Ry., 5 one-man safety cars; and British Columbia Electric Ry., 10 one-man safety cars.

Independent Pneumatic Tool Co., Chicago, has removed its Toronto office, which is in charge of Wm. McCrae, from 32 Front St. West, to 163 Dufferin St., where larger premises have been secured, for carrying pneumatic tools, electric tools, spare parts, and accessories.

Lyman Tube & Supply Co., Montreal. C. P. Lyman, of the Lyman Tube & Supply Co., was killed near Albany, N.Y., Oct. 20, when his automobile overturned in a ditch, as he turned to avoid a collision with another car.

Northern Crane Works, Walkerville, Ont., has issued bulletin 504C, describing and illustrating the Northern standard type E electric crane.

Shipbuilding in the United States.—The U.S. Bureau of Navigation reports that during August, 73 ships with an aggregate of 78,415 gross tons, were built. Of these ships, 9 with a total of 64,120 tons; 3 barges, total 1,053 tons, and 1 motor boat of 29 tons, were of steel. Of the 9 steel steamships, 5, total 41,481 tons, were launched on the Atlantic seabord; 3, total 21,232 tons, were launched on the Pacific seaboard, and 1 of 1,407 tons was launched on the Great Lakes. In addition to the foregoing, 2 oil tank steamships totalling 11,790 tons, were built on foreign account.

STREET CARS FOR SALE

The Toronto Transportation Commission will receive tenders for the following 340 single-end city service street cars:

Group	Number	Description
A	4	18′ Single Truck Closed Motor Cars
B	2	20′ " " " " "
C	15	21′ " " " " "
D	117	22′ " " " " "
E	30	23′ " " Convertible Motor Cars
H	1	27′ Double " " " "
J	1	30′ " " " " "
K	12	25′ " " Closed " "
L	34	30′ " " " " "
Q	3	36′ " " " " "
T	2	16′ Single " " Trailer "
U	33	19′ " " Convertible " "
V	69	22′ " " Closed " "
W	17	18′ " " " " "
	340	

The single truck motor cars are mounted on Blackwell, Curtis and Peckham trucks and are equipped with G.E. 67 and G.E. 1000 motors, K-10 controllers and hand brakes. The trailers are mounted on special trailer gear.

The double truck motor cars are mounted on Curtis and Brill trucks and are equipped with G.E. 80, G.E. 67 and G.E. 1000 motors, K-6 and K-10 controllers and Magann storage air brakes.

A stock of spare equipment is carried for the above cars and will be disposed of to parties purchasing the cars. The wheel gauge of the cars is 4′ 10⅞″.

These cars are now in Toronto and can be inspected upon application to the Head Office of the Commission, Ryrie Building, Toronto, Ontario. Tenders will be based on the cars being loaded by the Commission on their siding in Toronto.

Tenders addressed to the Chairman, sealed and endorsed "Tenders for Street Cars," to be delivered at the Commission's Office, Room 219 Ryrie Building.

The highest or any tender will not necessarily be accepted.

TORONTO TRANSPORTATION COMMISSION

NOTICE.

The Canadian Northern Railway Company.

Referring to the Trust Deed securing the 5% Income Charge Convertible Debenture Stock of The Canadian Northern Railway Company, the Directors regret to announce that the earnings of the Company for the half-year ended June 30th, 1921, are insufficient to enable them to declare any interest to be payable on the said stock on November 2nd, next.

By order of the Board.

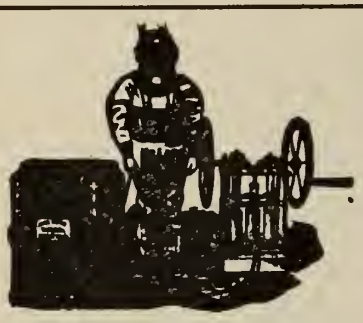
R. P. ORMSBY,
Secretary.

Toronto, October 8th, 1921.

CANADIAN BRONZE LIMITED

Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITTS. Miscellaneous Brass Castings for Railroads.

Works and Office: 69 Delorimier Avenue, MONTREAL, QUE.



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and Contractors' Equipment

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John J. Gartshore
58 Front Street West
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Geo. P. Nichols & Bro.

Turntable Tractors

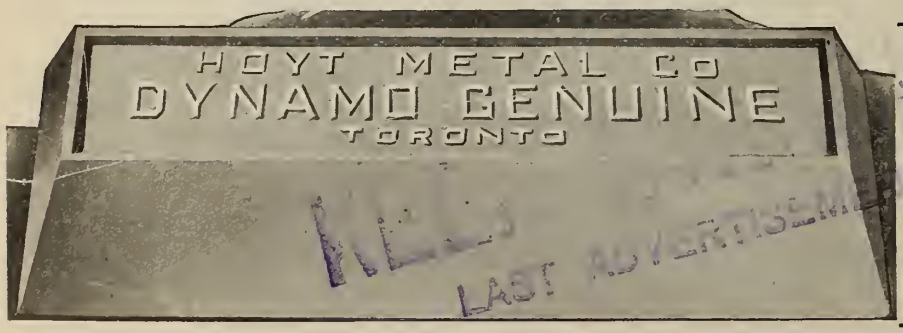
More than one hundred railroads use over 700 Nichols' Electric Tractors.

Transfer Tables

Eighty-five railroads and car builders use nearly 200 Nichols' Electric Transfer Tables.

There's a Reason

2137 Fulton St., Chicago



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MONTREAL TORONTO WINNIPEG

General Railway Signal Company of Canada, Limited

Consulting Railway Operating Engineers

Reports, Freight and Passenger Yards and Terminals, Single Track Capacity, Side Track Location, Interlocking and Block Signal Design and Construction.

Head Office - Lachine Quebec

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under

Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.

Allow five words where replies are to be sent to a box number. Minimum order—$1.

Rates under other headings and for display advertisements on application.

For Sale and Classified Advertising

For Sale—Construction Plant

The Toronto Transportation Commission Offer For Sale the Following Construction Plant:

3 LOCOMOTIVES, 3′ gauge, Four-Wheel-Connected, Saddle-Tank 10″ x 16″ cylinders, 4′ 6″ wheel base, weight 36,500 lbs., manufactured by H. K. Porter Company.

20 DUMP CARS, 3′ gauge, two-way dump, 4 cubic yards' capacity, diamond frame arch bar trucks, manufactured by Kilbourne & Jacobs Mfg. Company.

3 FLAT CARS, 3′ gauge, steel underframe, 8′ x 40′ platform, 40,000 lbs. capacity, diamond frame arch bar trucks, manufactured by Kilbourne & Jacobs Mfg. Company.

250 TONS RAIL, 45-lb. A.S.C.E., with bolts, plates and switches.

THEW SHOVEL, Model No. 1, revolving, 1¼-yard dipper, weighs 26 tons and is mounted on traction wheels.

MARION SHOVEL, Model No. 35, revolving, 1¼-yard dipper, weighs 38 tons and is mounted on traction wheels.

All the above plant is in good order. It can be seen at Danforth Avenue Car House, 1635 Danforth Avenue, except the Marion shovel, which is at Kennedy Avenue and Glenholme Drive.

Tenders addressed to the Chairman, sealed and endorsed "Tender for Construction Plant", to be delivered at the Commission's Office, Room 219 Ryrie Building, on or before noon on Friday, Nov. 18th, 1921. The highest or any tender will not necessarily be accepted.

TORONTO TRANSPORTATION COMMISSION

TANKS WILL NEVER BE CHEAPER

At our prices we should sell a tank every thirty minutes!
We sell all kinds and any kind of tanks and guarantee them.
New and used tanks in any part of the country.
Steel storage and pressure tanks
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Largest dealers in tanks

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For Sale

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FOR SALE

H.M.S. "CHARYBDIS"—late 2nd Class Cruiser converted to Merchant use.

As and where she lies at Bermuda Dockyard.

Without guarantee in her present condition.

Length, 320 feet.
Breadth, 49 feet 6 ins.
Depth in hold, 25 feet 6 ins.
Register gross tonnage, 2,730.
Steel hull sheathed with teak and coppered.

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Two anchors and cable.

Has refrigerating machinery with insulating space 34,440 cubic feet. Deadweight capacity, 1,460 tons. Bunker capacity, 566 tons. Tenders will be considered inclusive or exclusive of refrigerating machinery.

Main Engines.—Twin screw, triple expansion inverted vertical type of 7,000 I.H.P. Fitted with main and auxiliary surface condensers of gun metal with brass and usual auxiliary machinery.

Boilers.—Originally fitted with eight; six in number, return tube marine type now on board, and one on wharf.

Propellers (with 2 spare blades) are of gun metal. Offers will be received by the Captain in Charge, H.M. Dockyard, Bermuda, until noon on Saturday, 31st December, 1921, and forms of tender can be obtained from the Commander-in-Charge, H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,
Deputy Minister of the Naval Service.

Ottawa, September 23, 1921.

Unauthorized publication of this advertisement will not be paid for.

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THE DOMINION SHIPBUILDING & REPAIR COMPANY, LIMITED.

The Company's yards are being dismantled and the Liquidator now has for sale the following, either en bloc or separately:

MACHINERY—

Set of Steel Shear Legs, electrically operated, capacity 100 tons; Gantry Cranes, Overhead Travelling Shop Cranes, Locomotive Steam Cranes, Jib Cranes, Air Compressors, maximum capacity 4,500 cubic feet; Oil Burning Furnaces, Cast Iron Slabs and Electric Winches; Rivet Making Machine and complete set of Dies, Punches, Shears, Counter sinks; Cold Presses; Horizontal Rolls; Spacing Table; Wood-working Machinery; Steam Hammers; Pipe Machines; Lathes; Shapers; Planers; Boring Mills; Drill Presses; Milling Machines; Slotting Machines; Radial Drills; Key Seaters; Power Hack Saws; Grinders; Air Tools and Miscellaneous Hand Tools; Burners and Electric Welders, and other machinery.

MERCHANDISE—

Plates; channels; angles; flats; rounds; squares; valves; fittings; marine supplies equipment; one new Marine Engine and other merchandise.

Enquiries for detailed particulars solicited by letter or personal application, and assets may be inspected at the Company's plant at the foot of Spadina Ave., Toronto.

Dated at Toronto this 30th day of September, 1921.

OSLER WADE,
32 Front St. W., Toronto.
McMASTER, MONTGOMERY, FLEURY & CO.,
901 Temple Bldg., Toronto, his solicitors.

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VIVIAN T. BARTRAM

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Subscriptions are based on the service furnished and are available only by reputable wholesale jobbing, and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. Correspondence invited.

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Gen. Man. Western Canada, Toronto.

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WE have unsurpassed facilities for meeting your every requirement of these products promptly and satisfactorily.

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Angular, Concave, Convex, Form CUTTERS, End Mills, Worm Hobs, Generating Hobs, Hollow Mills.

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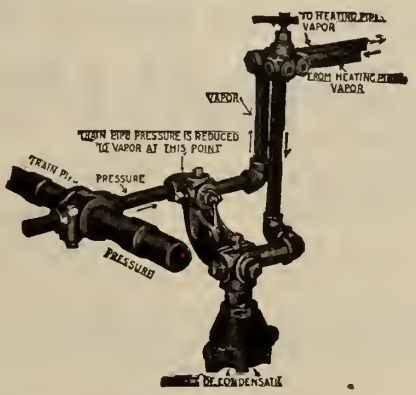

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STEEL RAILWAY BRIDGES
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STEEL STRUCTURES OF EVERY DESCRIPTION

YOUR INQUIRIES WILL RECEIVE PROMPT ATTENTION

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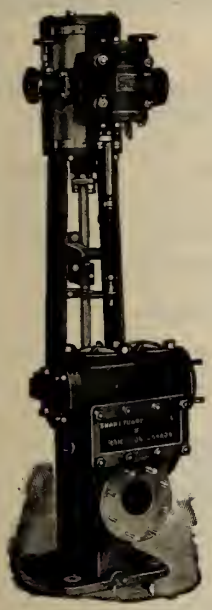
Quality *Service*



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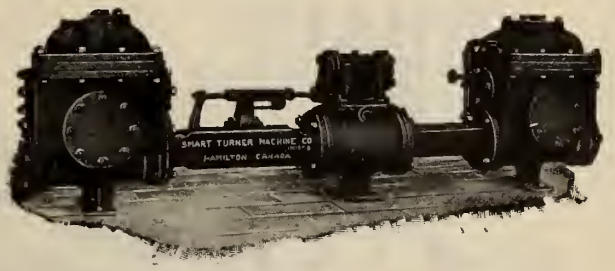

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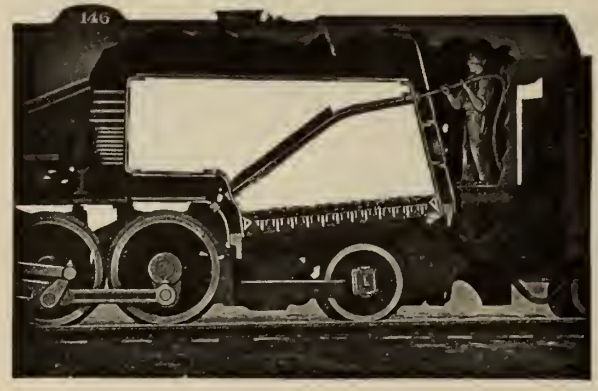

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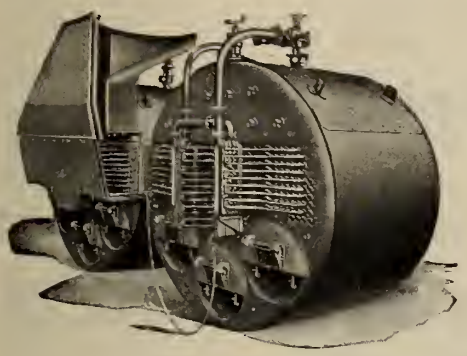

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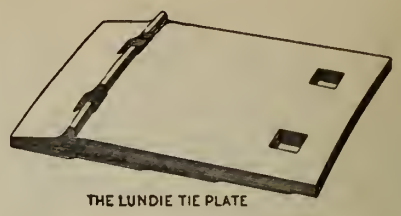

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Alphabetical List of Advertisers

A

Algoma Steel Corporation 50
American Steel Foundries 2
Arnold Co. 47
*Association of Manufacturers of Chilled Car Wheels ..... —

B

Babcock & Wilcox 52
Barrett Co. 19
Bartram, V. T. 47
Berry Bros. 48
Bertram, John, & Sons Co. ....Cover 4
Bowser, S. F., Co. 30
Bradstreet Company 47
British Empire Steel Corp. 20
Brown Hoisting Machinery Co... 3
Brydges, Ltd. 34
Buffalo Brake Beam Co. 28
Butterfield & Co. 48

C

Canada Foundries & Forgings Ltd. 47
Canada Grip Nut Co. ..... —
Canada Iron Foundries, Ltd. 48
Canada Machinery Corporation .. 24
Canada Steamship Lines, Ltd. 26
Canadian Bridge Co. 56
Canadian Bronze Co. 44
Canadian Car & Foundry Co. 12
Canadian Clothel Refrigerating Co. Ltd. 29
Canadian Consolidated Rubber Co. 9
Canadian Fairbanks-Morse Co. .. 33
Canadian General Electric Co..... 13
Canadian Gold Car Heating and Lighting Co. 60
Canadian Government Merchant Marine, Ltd. 8
Canadian Johns-Manville Co. 41
Canadian National Carbon Co. 50
Canadian National Railways 58
Canadian Pacific Railway 58
Canadian Railway and Marine World , ...40 and 63
Canadian Ramapo Iron Works Ltd. 50
Canadian Steel Foundries, Ltd. .. —
Canadian Steel-Tire & Wheel Co. 34
Canadian Vickers, Ltd. 53
Canadian Westinghouse Co. 30
Carr, C. E. A., Co. 52
Carter White Lead Co. 58
*Chase, L. C., & Co. ..... —
Coghlin, B. J., Co. 1
Collingwood Shipbuilding Co. 29
Commercial Acetylene Supply Co. 40
Consolidated Steel Corp. 5
Corbet Foundry & Machine Co... 45
Crane Limited 23
Curtiss-Willis Co. 45

D

Date, John 44
Dearborn Chemical Co. of Canada 4
Diamond Saw & Stamping Works 56
Diamond State Fibre Co. of Canada 22
Directory Publishing Co. 60
Dominion Brakeshoe Co. 53
Dominion Bridge Co. 55
Dominion Oxygen Co. 17
Dominion Steel Products Co. 36
Dominion Towing & Wrecking Co. 60
Dominion Wire Rope Co. 21
Duner Co. 58

E

Engineering & Machine Works of Canada 54

F

Fairmont Gas Engine & Railway Motor Car Co. 23
Flannery Bolt Co. 38
Franklin Railway Supply Co. of Canada 33

G

Galena Signal Oil Co. 18
Galt Malleable Iron Co. 60
Garlock Packing Co. 46
Gartshore, J. J. 44
General Railway Signal Co. of Canada 44
General Supply Co. of Canada 10 and 11
Grand Trunk Railway 24
Griffin & Brinkerhoff 45

H

Hamilton Bridge Works Ltd..... 49
Hart-Otis Car Co. 21
Hopkins, F. H., & Co. 21
Hoyt Metal Co. 44
Hunt, Robert W., & Co. 47
Hunt-Spiller Mfg. Corporation.... 27

I

Imperial Bank of Canada 60
*Imp. Guar. & Accident Ins. Co. —
Inglis, John, Co. 26
International Correspondence Schools . . .. —
International Machinery & Supply Co. 35

J

Joliette Castings & Forgings Ltd. 51

K

Kennedy, The William, & Sons, Ltd. 2
Krauser, Webb. G. 6

L

Lewis, Rice, & Son 51
Lincoln Electric Co. ..... —
Lundie Engineering Corporation 60
*Luther Grinder Mfg. Co. 58

M

McAvity, T., & Sons 37
Marconi Wireless Telegraph Co. 53
Miller, F. W., Heating Co. 56
Miller, Roger, & Son 56
Miner, W. H. 35
Montreal Locomotive Works, Ltd. 25

N

National Lock Washer Co. 15
National Pneumatic Co. 22
Nichols, G. P., & Bro. 44
Nicholson File Co. 23
Northern Crane Works Ltd. 47
Northern Electric Co. ..... —
Norton, A. O., Ltd. 32

O

Ohio Brass Co. 14
Orton & Steinbrenner Co. 49

P

Page-Hersey Tubes, Ltd. 31
Peacock Bros. 16
Pedlar People, Ltd. 36
Piper, The Hiram L., Co. 47
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 31

R

Rail Joint Co. of Canada 52
Railway & Power Engineering Corp. 37
Reid Newfoundland Co. 38
Russell, J. E. 41

S

Safety Car Htg. & Ltg. Co. 32
Sinclair, Angus 47
Slater, N., Co. 39
Smart-Turner Machine Co. 51
Standard Car Truck Co. 54
Standard Underground Cable Co. of Canada 47
Star Brass Works 28
Steel Co. of Canada 7
Strauss Bascule Bridge Co. 47
Superheater Co. 55
Symington Co., The T. H. 25

T

Taylor & Arnold Engineering Co. 60
Toronto Drydock Co. 41
Toronto Transportation Commission . . ..43 and 45
Tuco Products Corporation 54
Turnbull, Harvard, & Co. 39

U

Union Draft Gear Co. 6
Universal Draft Gear Attachment Co. 6
Universal Lubricating Co. 55

V

Vapor Car Heating Co. of Canada. 49

Y

*Yarrows Ltd. 27

*Alternate months.

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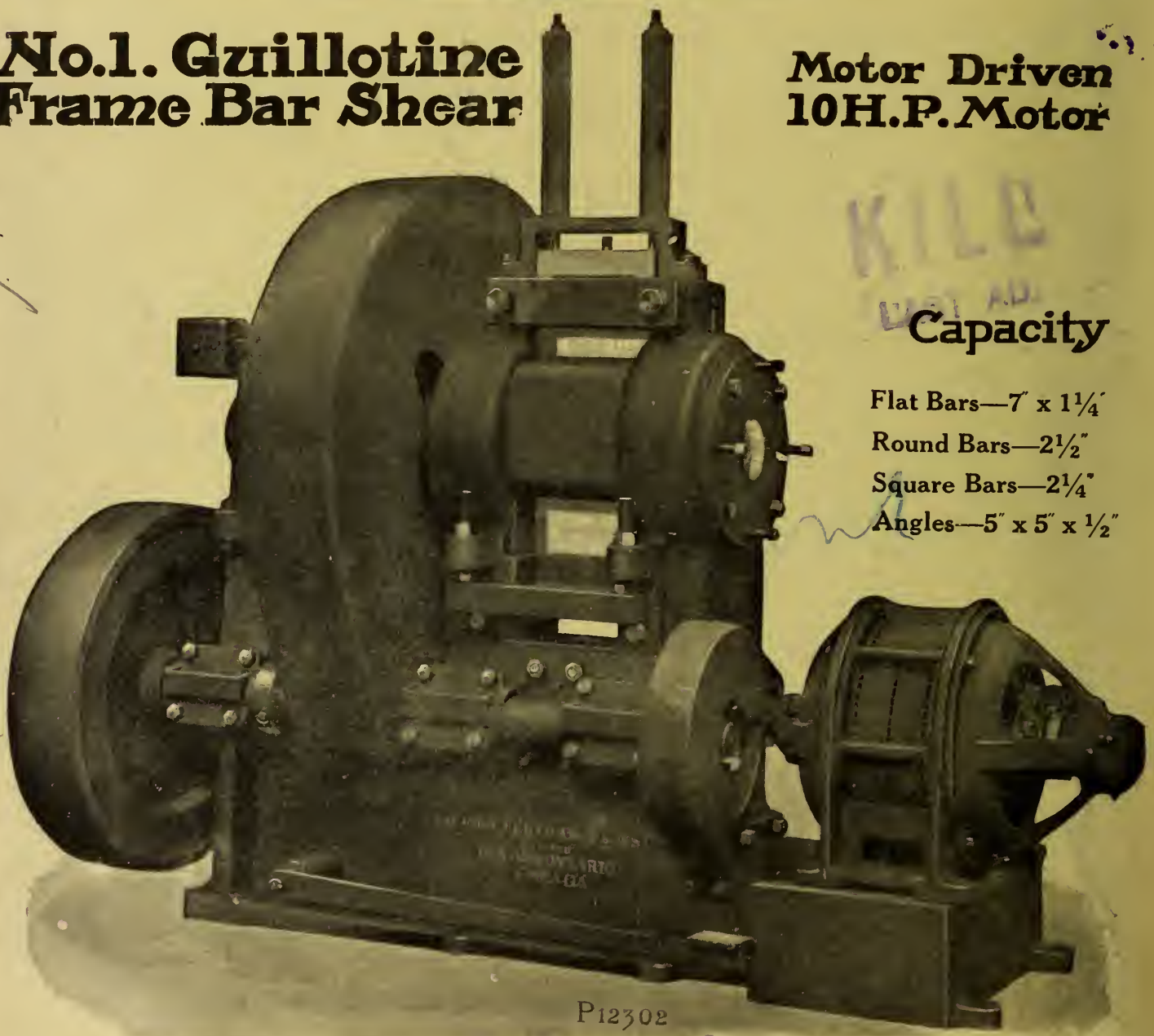

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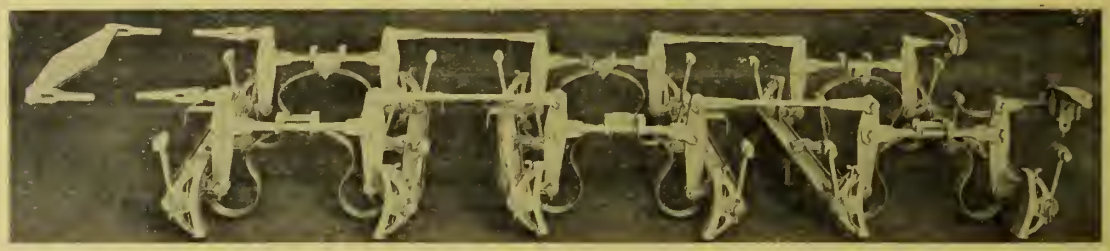

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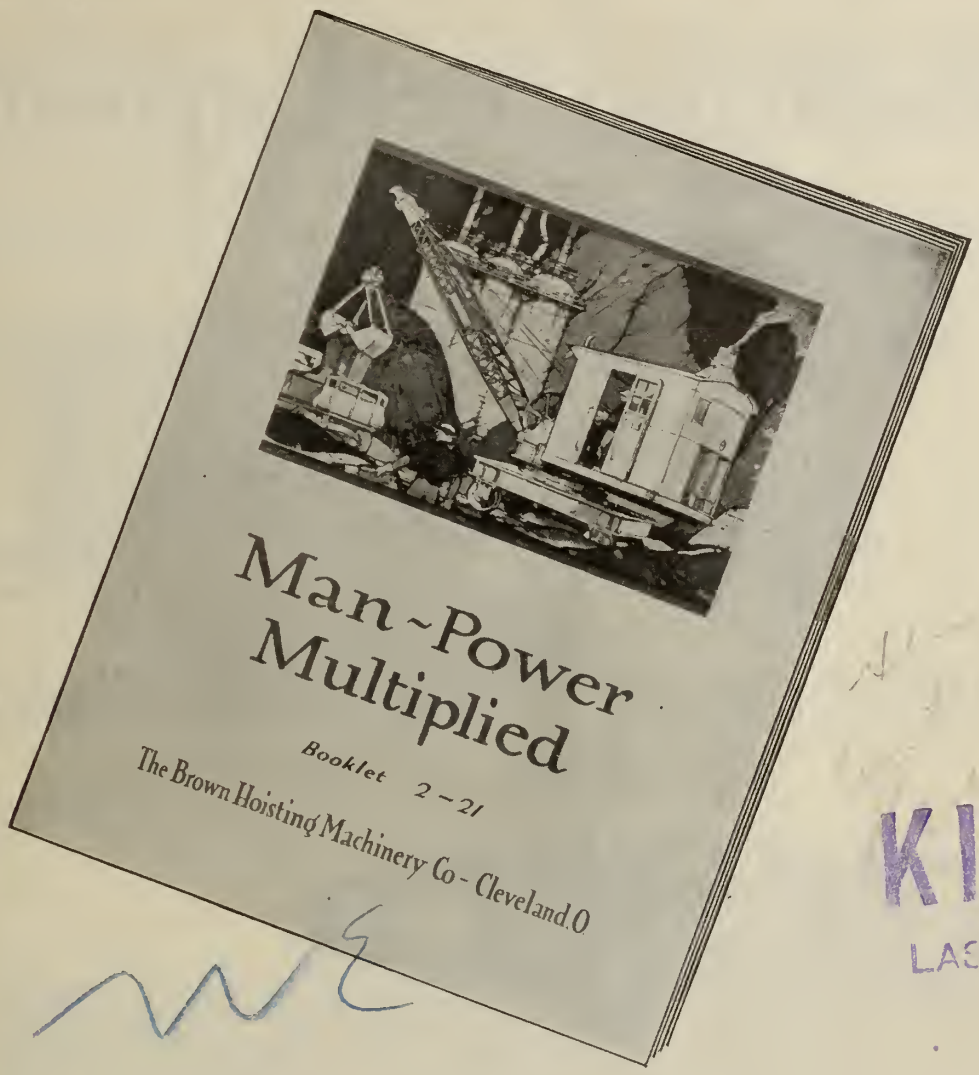

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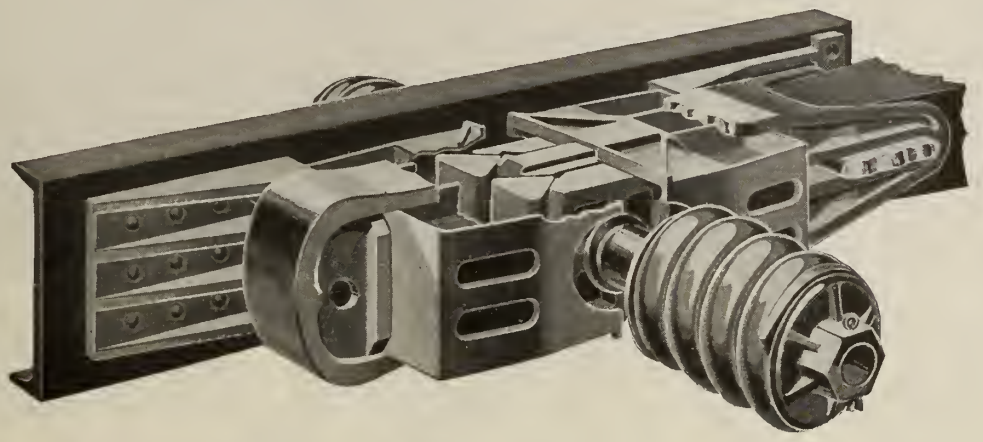
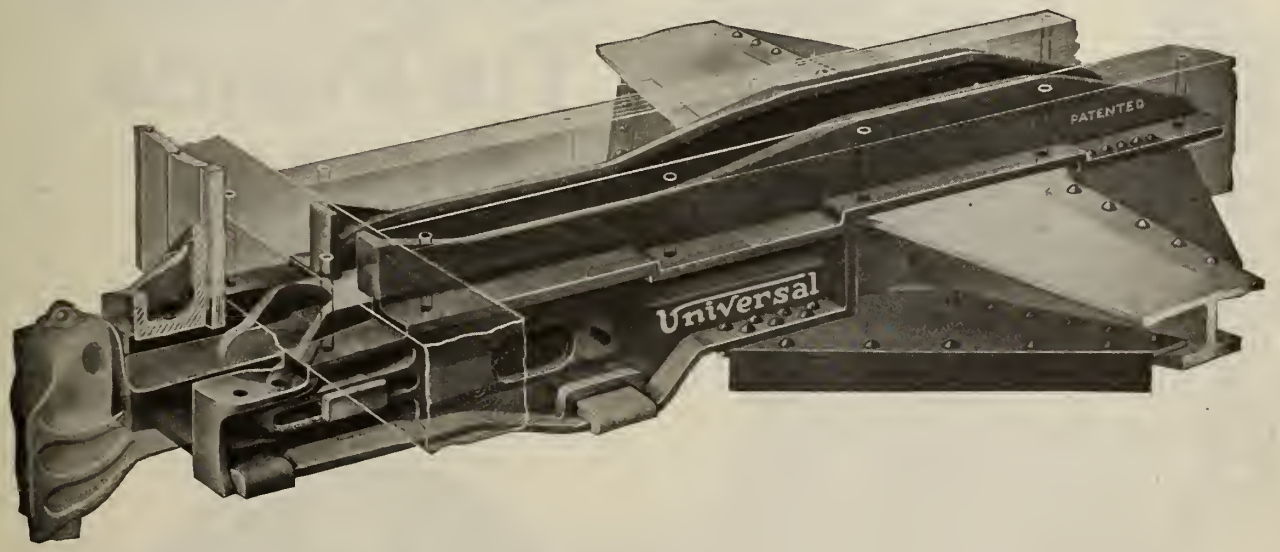
Cable Codes: Consolidated Steel Corporation, Western Union, A B C Fifth Edition Improved, Scott's 10th Edition, Bentley's Complete Phrase, Lieber's

CARDWELL FRICTION DRAFT GEAR
MADE IN CANADA



Universal ATTACHMENTS
MADE IN CANADA



REENFORCING DRAFT ARMS
TANDEM SPRING DRAFT RIGGING
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CAST STEEL YOKES
DRAFT LUGS or PLATES
FRICTIONLESS SIDE BEARINGS

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WEBB. G. KRAUSER
Transportation Building, MONTREAL

RAILWAY TRACK MATERIAL

KILE
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Angle Bars
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THE STEEL COMPANY OF CANADA LIMITED

HAMILTON MONTREAL

66 Vessels

Canada's Commerce Carriers

Total Tonnage 390,000

Canadian Government Merchant Marine, Limited

REGULAR FREIGHT SERVICES

From Montreal and Quebec in Summer
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To the United Kingdom, Liverpool, London, Glasgow, Cardiff, Swansea, etc.
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To St. John's, Newfoundland.

From Vancouver, B.C.

To Sydney and Melbourne, Australia.
To Auckland, Wellington, Dunedin, and Lyttleton, New Zealand.
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Sailings every ten days.
From Vancouver and Vancouver Island ports.
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REGULAR FREIGHT AND PASSENGER SERVICE

Every three weeks from Montreal in Summer, and Halifax, N.S., in Winter,
To Nassau, Bahamas, Kingston, Jamaica, and Belize, British Honduras.
Superior First Class Accommodation. Excellent Cuisine.

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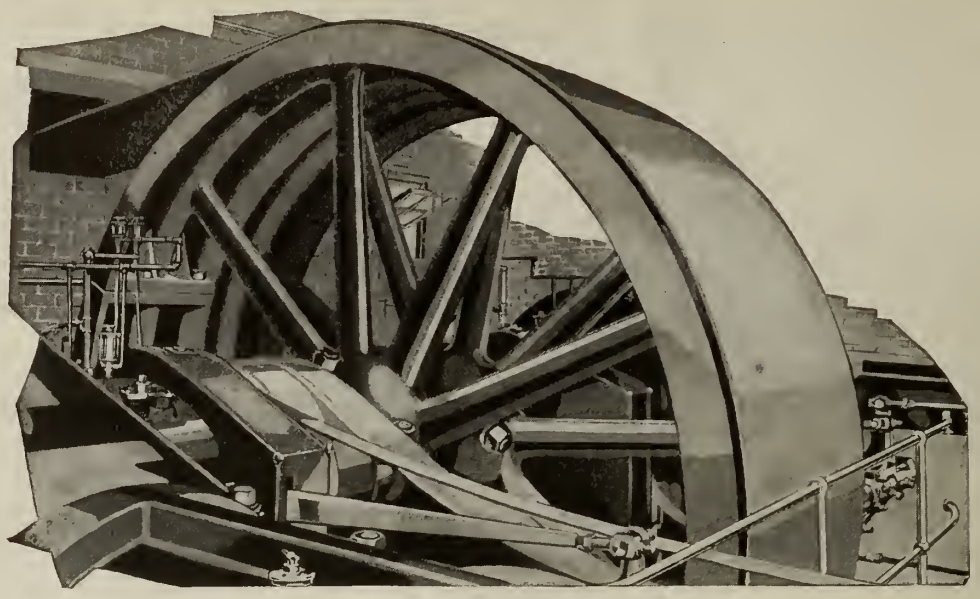
Canadian National Railways



Inbuilt Belting Strength

Transmission troubles due to stretch and slipping are eliminated by *Dominion Friction Surface Belting*. "Plus Service" construction and exceptional pulley gripping power make it unrivalled for reliability and economy in all drives. Every Dominion Friction Surface Belt installed means so much more power conserved.

Without any obligation to you, our nearest Service Branch will send an experienced belting man to study your transmission requirements and submit recommendations for your approval.

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Service Branches:

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Montreal	London	Winnipeg	Calgary	Victoria

DOMINION RUBBER SYSTEM PRODUCTS

Belting

Transmission: "Dominion," "Keewatin," "Para."
Conveyor: "Rockproof," "Canadian," "Hibcat"
Elevator: "Dominion," "Rockproof."
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Air: "Kushion Kover," "4810 Airtite," "Star."
Steam: "Indestructible," "Rockproof," "Para."
Water: "Indestructible," "Para," "Kushion Kover," "Star."
Suction: "Para," "Star," "Trade."
Garden: "Canadian," "Dominion,"

Packing

Sheet: "Join-Tite," "Star," "Importers."
Rod: "Cabestos," "Valve-Bestos," "Canadian."
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Mats, Matting and Flooring.
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DOMINION RUBBER SYSTEM AND ASSOCIATED COMPANIES

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BEAVERDUCT has been adopted by the Toronto Transportation Commission for use on their new street cars. Once again, quality has fittingly demonstrated its ability to withstand competition.

Beaverduct is "Made in Canada" in a modern plant under the supervision of the best engineers available. Beaverduct is produced under the underwriters' inspection. Its use on such an installation as the new Toronto Street Cars is a fitting testimonial of its superiority.

Good conduit can only be produced in a plant when the equipment permits only absolutely clean material being used. Electrical apparatus and plating solutions must be kept up to the mark under scientific management. The proper application of the enamel, after the galvanizing of the outside, is of vital importance. And, lastly, rigid inspection.

Always specify "Beaverduct"

Canadian General Electric Co., Limited

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Q & C Rolled

Dependable Service—

The tide of buying preference has turned to those products whose trade marks carry the assurance of dependable service.

There is a constancy about the economical and endurance qualities of the Q & C Rolled Steel Step Joint that steadily wins careful joint purchasers. It has been our aim to build the strongest and most economical compromise joint made, putting into its structure the results that only honest metal, devoted workmanship, and design could obtain.

Combined with their feature of strength—which under actual test has been proven many times stronger than cast metal— Q & C Rolled Steel Step Joints embody the factors of safety and economy. By our process of manufacture a rolled steel joint

Steel Step Joints

with the Bonzano and Thomson features is pressed to fit any rail section. This process involves heat treatment which further strengthens the joint and also permits pressing to a perfect fit. On your road you want the Step Joints that are most efficient. A card will bring you any information. Write us today.

We Also Manufacture

Derails, Replacers, Rail Braces, Rail Benders, Rail Saws, Snow Plows, Snow Flangers, Guard Rail Clamps, Guard Rail Braces, Electric Snow Melters, Rolled Steel Step Joints, Bonzano-Thomson Rail Joints.

The General Supply Co., of Canada

LIMITED

MONTREAL 356-360 Sparks St. WINNIPEG
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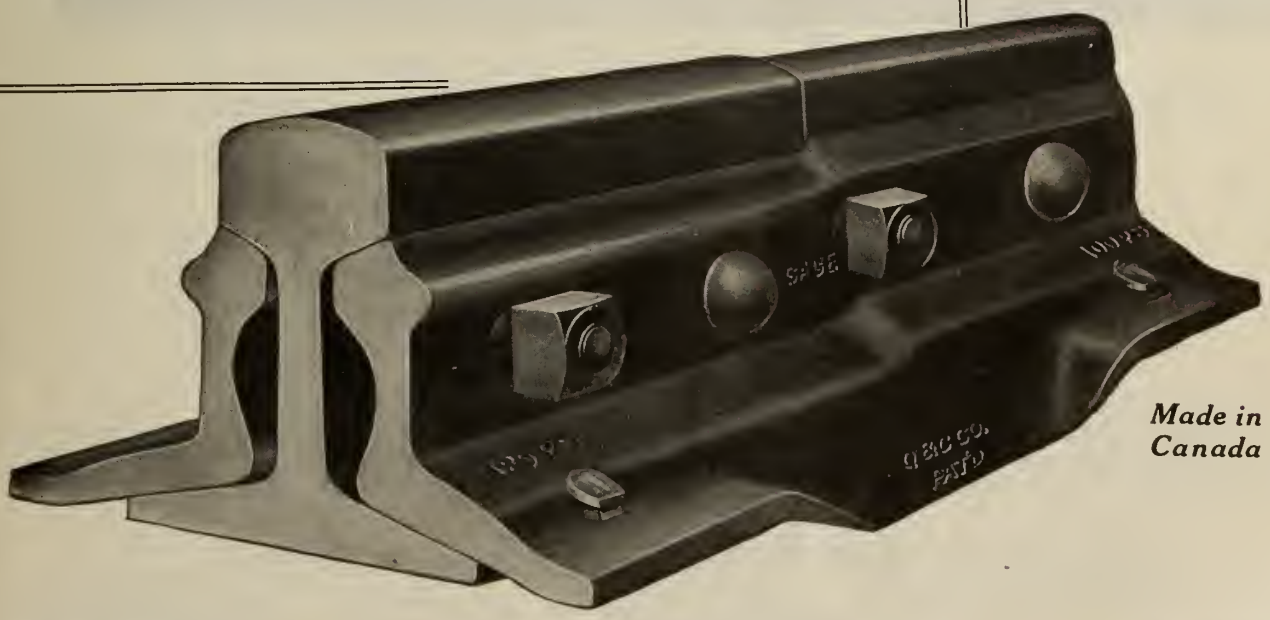
NORTH BAY MONCTON



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KILL
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HIGHEST QUALITY

BASIC OPEN-HEARTH STEEL

CASTINGS

for every purpose for which they are required.

From 1 lb. to 100,000 lbs. each.

CANADIAN STEEL FOUNDRIES LIMITED

General Offices:

TRANSPORTATION BUILDING - MONTREAL

HIPOWERS
HELP CARRY THE LOAD

MECHANICAL

Hipowers possess high reactive pressures to distribute the force of train blows to all bolts, cushion the heads and nuts and compensate for any wear and stretch of bolt.

OPERATION

Hipowers prevent bolt breakage, eliminate battering of rail ends, reduce breakage of angle bars and minimize the cost of retightening track joints—all of which are expensive items in operating costs.

SAFETY

Hipowers effectively and permanently maintain the bolted security of track jointed parts over which trains must be safely directed to their destination.

THE NATIONAL LOCK WASHER CO.

Established 1886

Newark, N. J.

New York
Nashville
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Chicago
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The New Weir Evaporator

WEIR PATENT
CONTINUOUS BRINING &
AUTOMATIC FEEDING.

Embodies Three Important Improvements

1. The Patent Brine Ejector.
2. The Automatic Feed Regulator.
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These devices ensure uniform efficiency, simplify working, and lessen costs of upkeep.

They are fully described and illustrated in our New Evaporator Booklet—Send for it.

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PEACOCK BROTHERS, Limited, Montreal

Branch Offices: Toronto and Vancouver

Reduce Costs In Three Ways

Item one—*Mileage:* Galena Car, Engine, Coach and Valve Oils give most miles to the pint. Not sometimes, but *always*.

Item two—*Fuel:* The superior lubricating efficiency of Galena Oils reduces the frictional load and conserves power in the prime mover, effecting substantial savings in fuel.

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These are three characteristics of Galena Oils that have been demonstrated too often in competitive tests to admit of dispute. Any one of the three provides sufficient saving in operating costs to offset their slight price difference over ordinary oils.

The cost of oils, as compared with other maintenance costs, is a small item. But *lubrication*—not oil—is what the railway uses, and the cost of fuel and repairs is greatly dependent upon the quality of the lubrication secured.

When these factors are considered, the *real* cost of cheap oils shows up as about double the cost of Galena brands.

"Galena Quality Is Our Bond and Your Security!"

GALENA SERVICE

TRIGRAM GSOC TRADE MARK

GALENA-SIGNAL OIL CO.
OF CANADA LIMITED
TORONTO MONTREAL

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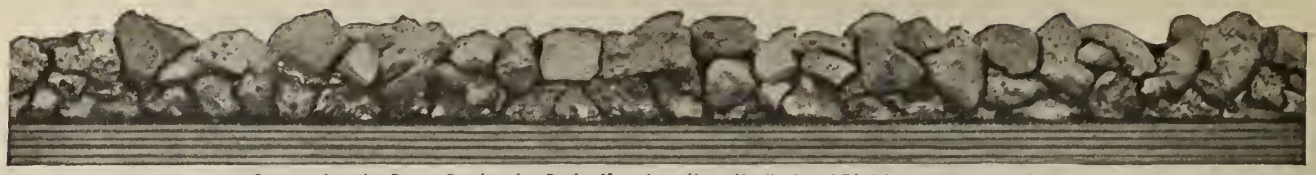


Cross-section of a Barrett Specification Roof. Note the uniform distribution of Pitch between the layers of Felt.

Right Construction is *Half* the Roof—

STUDY these illustrations. They graphically show the successive steps in the building-up of a Barrett Specification Roof over a concrete roof-deck. The Barrett Specification describes in detail the manner in which the roof shall be laid, because *right construction is just as important as the use of right materials.*

The Barrett Specification Roof for flat or nearly flat roofed buildings, consists of several alternate layers of Specification Pitch and Specification Felt, with a surface covering of gravel or slag. These materials are used because 60 years' experience has proved—

—that no other bitumen has the weather-resisting properties of this high grade pitch;
—that no other kind of felt has the lasting tensile strength of this carefully selected felt;
—that no other surfacing material renders a roof so highly fire-resistant as gravel or slag which serves the further purpose of holding in place the extra-thick *poured* top coat of Barrett Specification Pitch.

The concrete roof-deck is heavily mopped with a uniform coating of Barrett Specification Pitch.

Right: Laying the Barrett Specification Tarred Felt on the pitch seal coat. Four plies with pitch in between are laid over the entire roof surface, each ply overlapping three-fourths of the preceding ply.

Left: Mopping on the Barrett Specification Pitch. Each layer of felt is hermetically sealed to the adjoining layer by the pitch waterproofing. In no spot do the layers touch each other.

Have your roofing contract call for the 20- or 10-year Surety Bond Guaranty. This is issued free of charge through the Montreal Branch of the U. S. Fidelity and Guaranty Company. Then you will be sure that Barrett Specification materials will be applied, in sufficient quantities and by proper methods. For all Barrett Specification Bonded Roofs are constructed under the watchful eye of an experienced Barrett inspector who is present on the job to see that the Specification is strictly complied with.

Before specifying or closing contract for a Barrett Specification Roof, be sure to read carefully all the stipulations in the Specification.

Full details regarding these Bonded Roofs and copies of The Barrett Specifications sent free on request.

Below: Pouring final coat of hot Barrett Specification Pitch and embedding thick wearing surface of gravel or slag after entire roof has received four plies of felt and pitch.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N. B. HALIFAX, N. S.

Barrett Specification Roofs

Bonded for 20 and 10 Years

Dominion Iron & Steel Co., Ltd. *Nova Scotia Steel & Coal Co., Ltd.*

Dominion Coal Co., Ltd. *Halifax Shipyards Ltd.*

Eastern Car Co., Limited

STEEL PRODUCTS,

of every description

STEAM COALS,

"Old Sydney", "Dominion"

"Springhill"

British Empire Steel Corporation

Limited

120 St. James St.

Montreal, - Quebec.

49 *The map above shows the location of the 49 foundries in the United States and Canada, represented by the Association of Manufacturers of Chilled Car Wheels*

Chicago	3	Boston	Huntingdon W Va
St. Louis	2	Detroit	Wilmington, Del
Buffalo	4	St. Paul	Houston, Tex
Pittsburg	2	Kansas City, Kan	Hannibal Mo
Cleveland	2	Denver	Reading, Pa
Amherst N.S.		Tacoma	Baltimore
Montreal		Rochester, N.Y.	Richmond, Va
Mich. City, Ind		Sayre, Pa	Ft. William, Ont
Louisville		Berwick, Pa.	St. Thomas,
Mt Vernon, Ill		Albany	Hamilton,
Ft. Wayne, Ind		Toronto	Ramapo, N.Y.
Birmingham		New Glasgow N.S.	Marshall, Tex
Atlanta		Madison, Ill.	Los Angeles
Savannah			Council Bluffs

AMERICAN RAILROAD ASSOCIATION STANDARDS

650 lb wheel for 60,000 Capacity Cars
700 lb. wheel for 80,000 Capacity Cars
750 lb. wheel for 100,000 Capacity Cars
850 lb. wheel for 140,000 Capacity Cars

The Standard Wheel for Seventy Years

Where CHILLED IRON WHEELS

are made for Railway and Street Car Service

Capacity 20,000 per day
25,000,000 in Service

Association of Manufacturers of Chilled Car Wheels

1847 Mc Cormick Bldg.
CHICAGO

Saving Time on Toronto's Streets

THE tracks on Toronto's streets were deplorable. The Transportation Commission knew this. Their very first job on taking over the Street Railway was a policy to correct these conditions.

People of the community are marvelling at the speed with which new tracks are being completed.

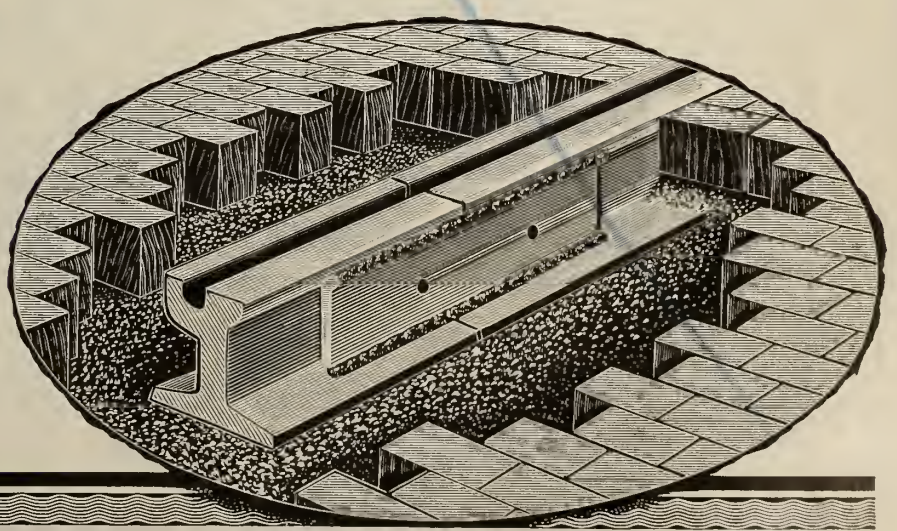
But the efficient Lincoln Carbon Arc Process is a great help. It is the very apex of efficiency. It joins rails with remarkable rapidity. It is being used entirely by the Toronto Transportation Commission as well as by every large Street Railway in the U.S.

The Lincoln Carbon Arc Process is something that every Engineer of Maintenance and Way should know about. We have some very interesting particulars that we will place in the hands of any reader of Canadian Railway and Marine World on request.

THE LINCOLN ELECTRIC COMPANY of Canada Ltd.

Head Office and Works: 136 John St., Toronto. Phone, Adel. 7200.

Montreal Branch: Coristine Building.



A Lincoln Welded Joint similar to those now being made on Toronto's streets.

Dearborn Service Saves Dollars In Locomotive Operation

It is a case of *real saving,* accomplished on a scale the extent of which it is difficult to compute, when it is remembered that the savings relate to such matters as fuel, lubrication, boiler washing, time of the locomotive in service, life of boiler tubes, and repair outlay, all items that enter into the *daily operating expense.*

With the use of Dearborn Treatment considerable increase in the mileage between boiler washings is accomplished. This, in turn produces a saving in fuel, and boiler washing expense, and reduces the time the locomotive is out of service.

There is also a vast saving in fuel consumption due to keeping the heating surfaces free from scale.

In the prevention of foaming by the use of Dearborn Treatment, the fuel saving is a large item,—as well as water and lubrication,—in addition to which the operating conditions are greatly improved, and engines are enabled to haul full tonnage with no delays because of foaming.

Dearborn methods of Water Treatment are scientific, yet simple, practical, and inexpensive. Send samples of your bad water supplies for analysis, and let us advise regarding treatment. There is no charge for the analytical work.

Dearborn Chemical Company
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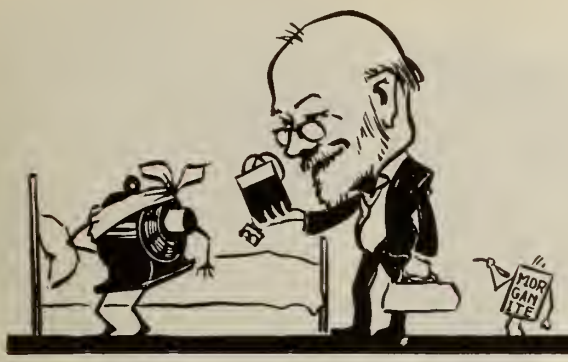

For Motors and Generators not up to par

MORGANITE BRUSHES

OFTENTIMES motor troubles are due to inferior and unsuitable brushes. One sure way to eliminate such troubles is to equip motors with the right grade of *Morganite Brushes.*

The time and thought put into the selection of the most suitable grade of brush for any given set of conditions are amply justified by the results obtained.

Morganite brushes are made in an infinite variety of shapes and sizes and in the following distinctive classes:

Standard Morganite Brushes
Hard Morganite Brushes
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Our research laboratories have rendered the most valuable help to the electrical profession. We will be glad to know *your* brush requirements and to recommend the proper *Morganite Brush* for any general or specific use.

Manufactured by

The MORGAN CRUCIBLE COMPANY Ltd.

Factories: London, Eng., New York, U.S.A., Buenos Aires, S.A.

Sole Agents and Representatives for Canada

RAILWAY & POWER ENGINEERING CORP. LTD.

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At The

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THE fact that uniformly pure Prest-O-Lite Dissolved Acetylene is obtainable in easily portable and instantly accessible cylinders has greatly enhanced the value of the oxy-acetylene process to Engineers and Contractors.

Not only is it feasible to quickly transport

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DISSOLVED ACETYLENE

to any job, anywhere — but Prest-O-Lite cylinders permit the use of highly pure welding and cutting gas in any desired quantity—large or small. And Prest-O-Lite Service, functioning through a chain of centrally situated plants and warehouses, insures a never-failing supply of Prest-O-Lite Dissolved Acetylene when and where you want it.

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FROM ONE OF THE OLDEST MAKERS IN CANADA

THE DOMINION WIRE ROPE CO., LIMITED

Head Office: MONTREAL Branches: TORONTO, WINNIPEG

The Improved Hart Convertible Car

Unloads Clean Without Extra Hand Labor

Old Level Floor Car. Note Ballast Left by Plow.

For Ballasting Center Dump or Side Dump

For Coal or General Service

Improved Car Unloaded by Top Plow. Has no Ballast to be Shovelled out by Hand.

The Car With Gravity Discharge Pockets

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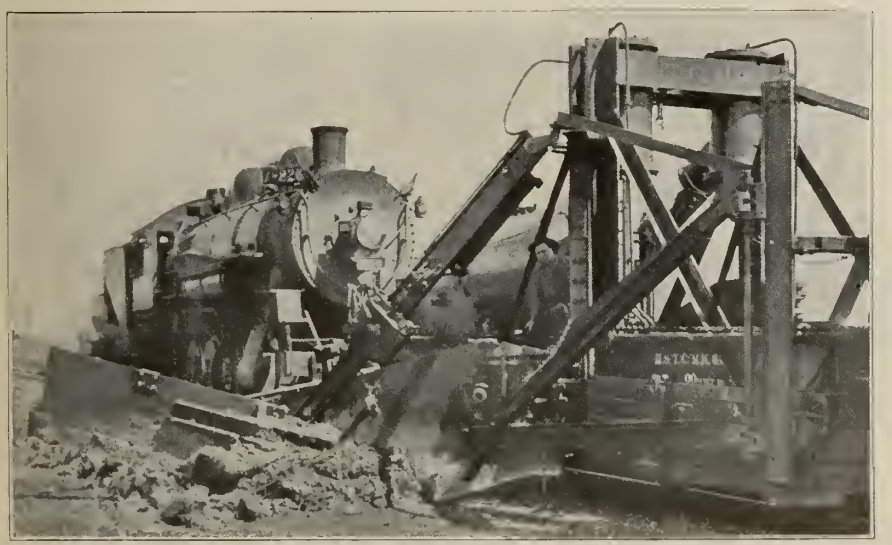
The HART-OTIS CAR CO., Limited, MONTREAL



Do you know that there have been two recent improvements made in the

"Jordan" Spreader?

viz: A ditching attachment and a means of sloping sub-grade and banks in spreading for second tracks and in disposing of waste material adjacent to the track.

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WINTER SPORTS *in the* Algonquin Park of Ontario

BRACING CLIMATE 2,000 FEET ABOVE SEA

SKATING SNOWSHOEING
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Owned and Operated by the Grand Trunk Railway System.

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Open for the Reception of Guests December 15th, 1921, to March 15th, 1922.

The Algonquin Park is Easily Accessible.
200 miles north of Toronto, 169 miles west of Ottawa.

For full information and Illustrated Booklet write to any Agent, Grand Trunk Railway System, or to

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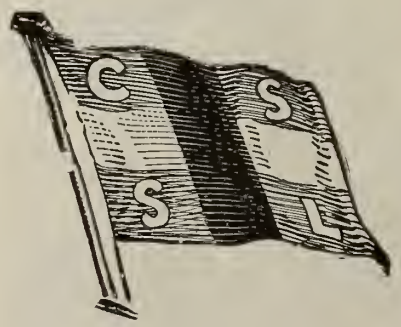

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CANADA STEAMSHIP LINES, LIMITED

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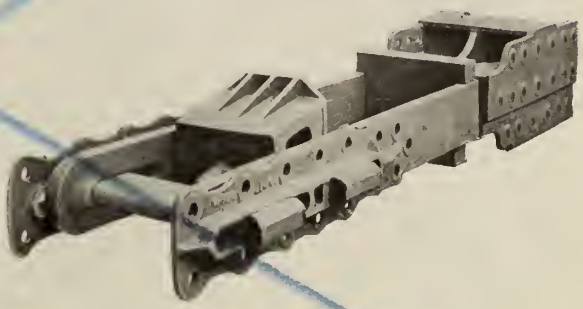
Symington Railway Specialties

Made in Canada

Symington Malleable Iron Journal Box equipped with Malleable Iron Torsion Spring Lid.

Farlow Draft Attachment for Springs and Friction Gear, Accessible—Efficient—No Castings in Tension.



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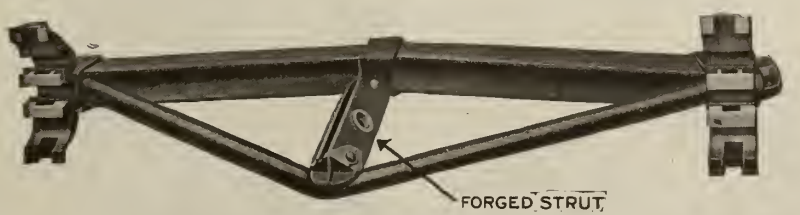

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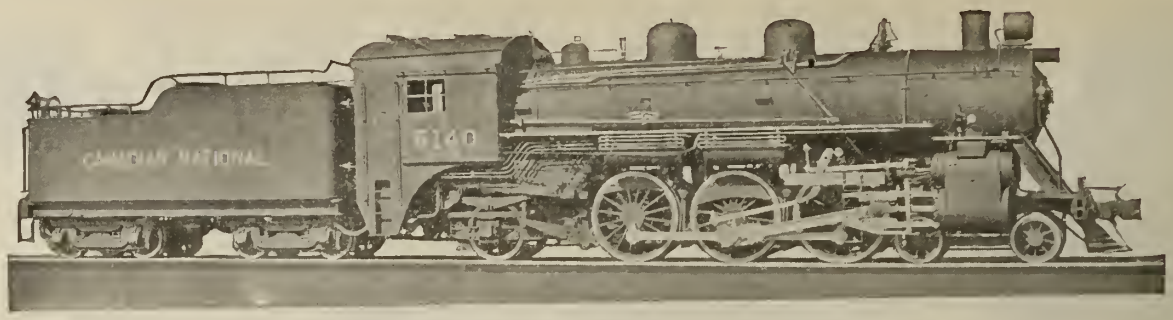

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Built for the Canadian National Railways

We are specialists in building locomotives.

We build all types and sizes, also all kinds of spare and repair parts for locomotives and tenders.

Our experience puts us in a position to give you expert advice as to what particular type and size of locomotive is best suited to your needs.

Montreal Locomotive Works, Limited

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The Collingwood Shipbuilding Co.

Limited

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PLANT FITTED WITH MODERN APPLIANCES FOR QUICK WORK

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Two Dry Docks and Shops

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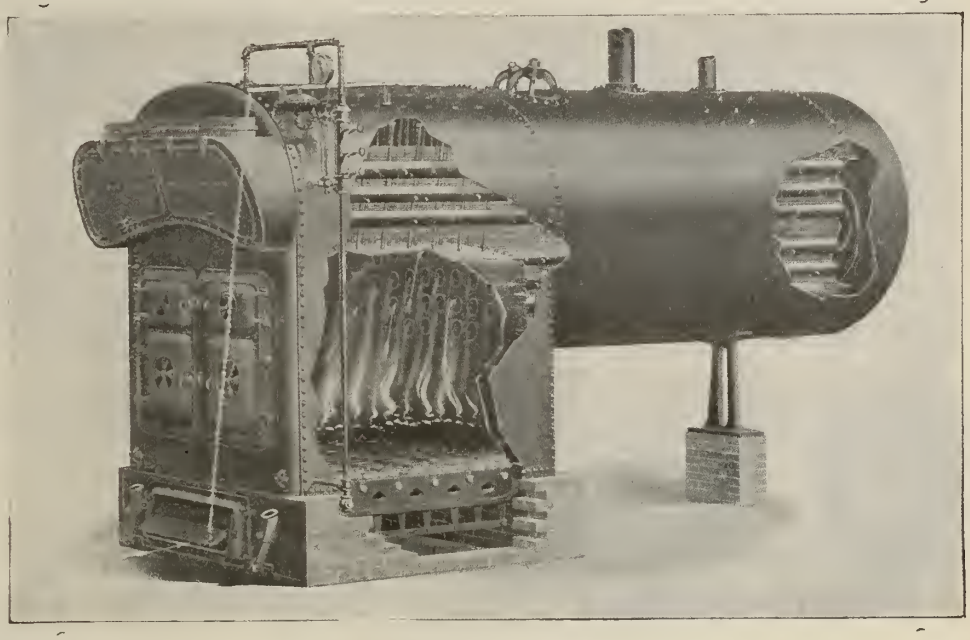

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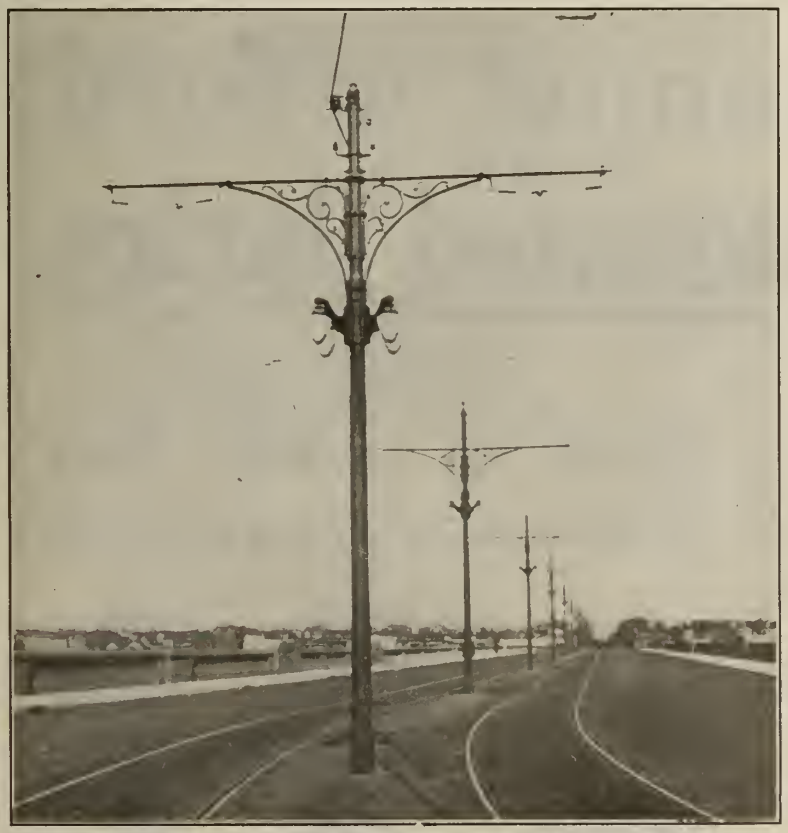

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P H

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NEAT, UNIFORM AND ORNAMENTAL
in appearance, combined with
GREAT DURABILITY, STIFFNESS AND STRENGTH
make them ideal for
ELECTRIC LIGHT AND POWER
TELEPHONE, TELEGRAPH
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HUNT-SPILLER GUN IRON

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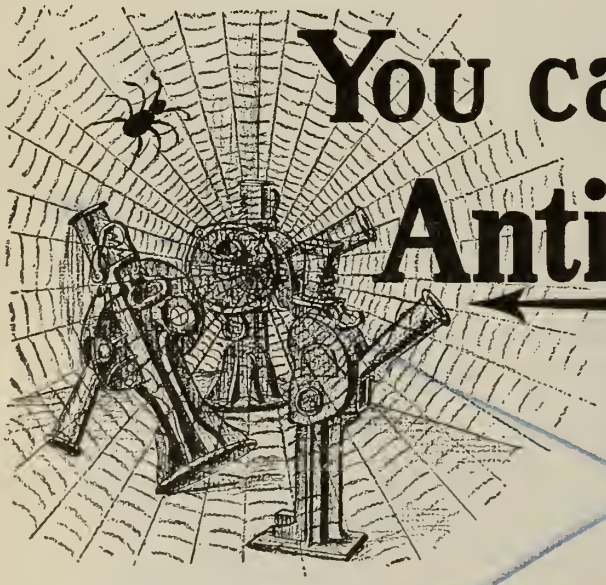

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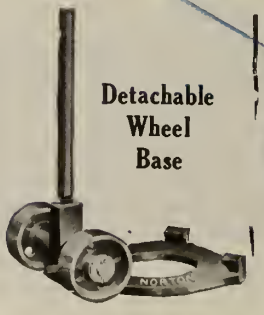

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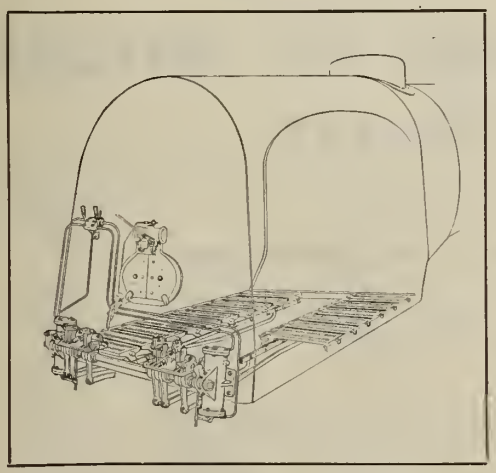

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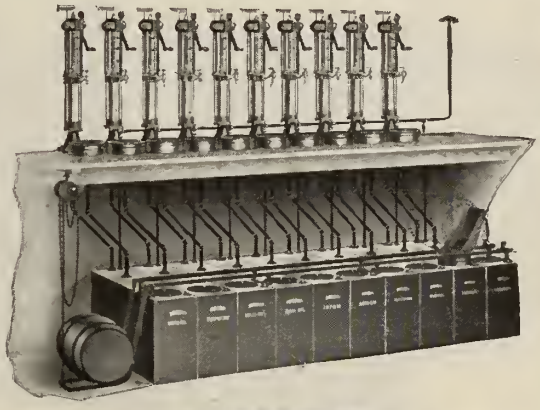

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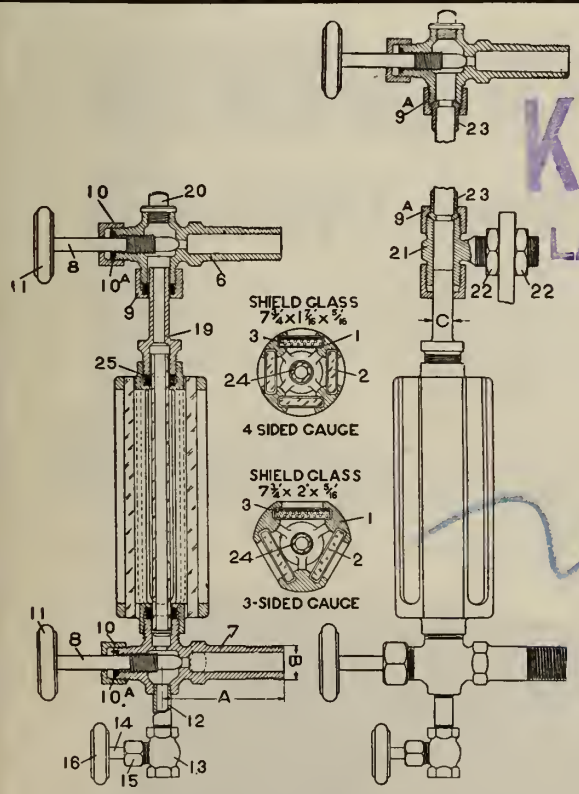

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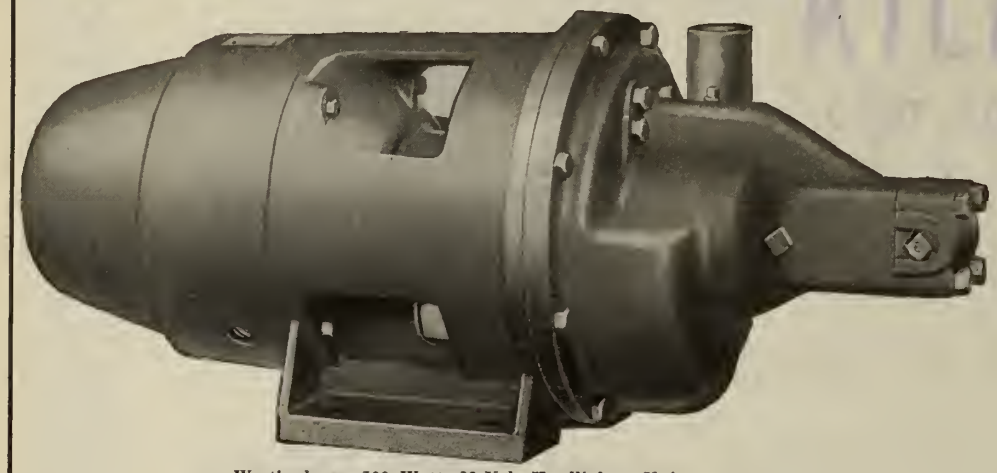

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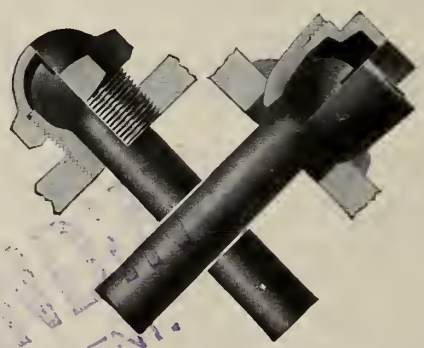

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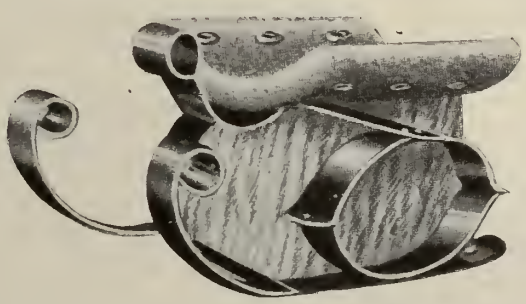

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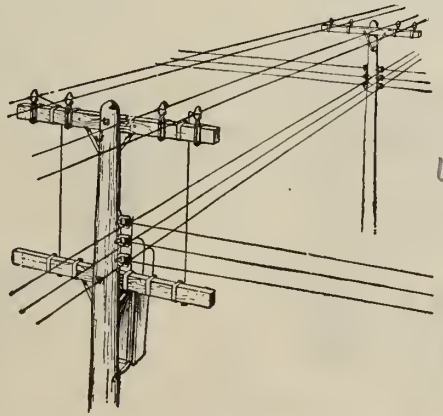

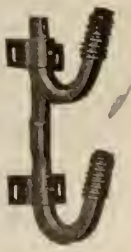

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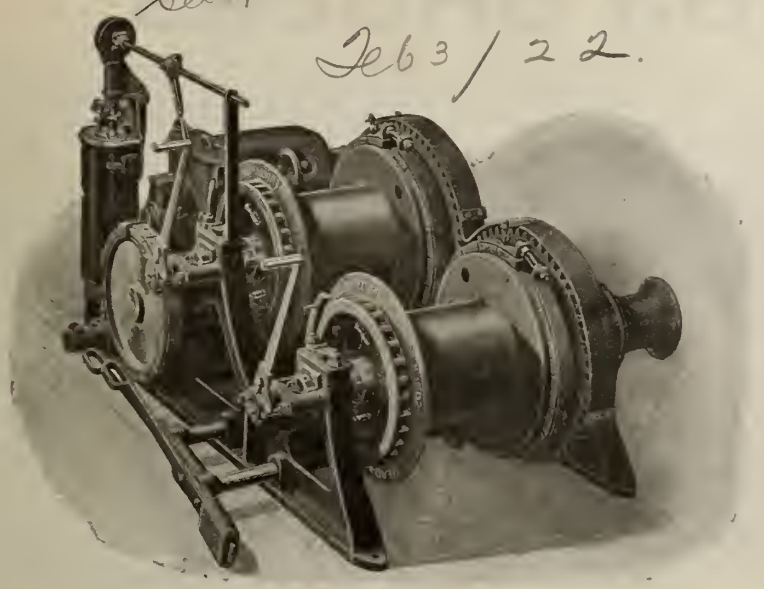

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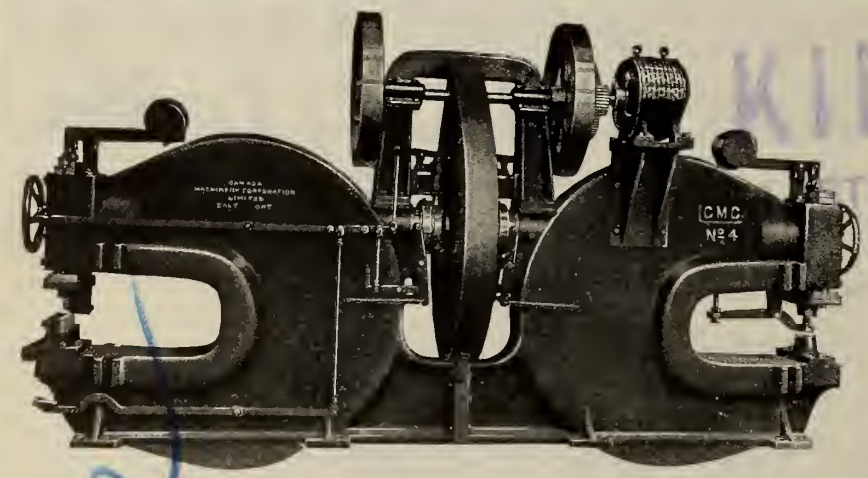

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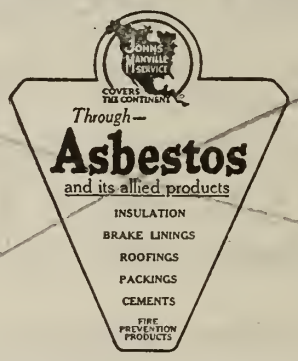

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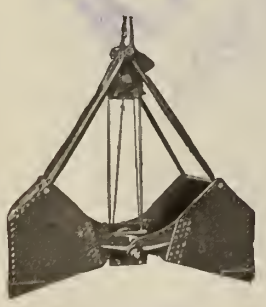

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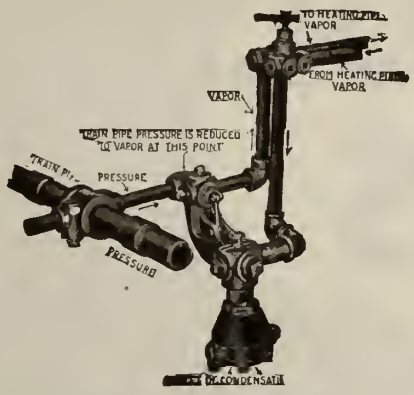

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Canadian Railway and Marine World

December, 1921

Canadian National Railways' New Locomotive Terminal at Moncton.

The importance of the locomotive terminal in relation to the whole scheme of railway operation is realized more fully now than at any time in the past. While the investment in locomotive terminal facilities is small, as compared to the total investment in road and equipment, yet on the investment in these facilities, and on the manner in which it is expended, depends to a large extent the character of the transportation service rendered, and the return on the total investment. A locomotive terminal should be such that all locomotives working out of, or turning at, the point where it is located, can be handled with the maximum of economy and dispatch, and such that a continuing high degree of locomotive maintenance between shoppings is effected. Experience indicates that the two functions are interdependent, in that at a terminal where the turning and handling facilities are thoroughly adequate, the running repairs are generally of a high order; conversely, when fire cleaning, coaling, watering and other facilities are inadequate, and locomotives remain bunched on the shop tracks awaiting their turn to get into the house, it will generally be found that the running repairs are made on a "one more trip" basis.

In line with a policy of providing necessary and adequate facilities as business demands, the Canadian National Rys. are constructing new facilities for locomotive handling and running repairs at Moncton, N.B. Fig. 1 is a plan of the terminal layout, showing some of the principal tracks and buildings. As is evident, the location of the new locomotive terminal facilities carries with it the possibility of greatly extending the yard facilities, although it is not contemplated that this latter work will be done in the near future. The present yard tracks extend about east and west, south of the Y at the entrance to the terminal from the north, while the old 12-stall locomotive house, indicated by A on the plan, and a 24-stll house immediately adjoining, indicated by B, are located south of the yard, toward the west end. The old main line of the St. John Subdivision, shown in its original position in fig. 1, has been moved south as also shown. St. John Subdivision trains are using this track for the time being, the station and yard connections being shown. The new locomotive facilities are being constructed north of the temporary St. John Subdivision main line, the reason for moving the old main line being to permit of their re-location. The permanent main tracks for the St. John Subdivision will be located to the north of the new locomotive house, as indicated. A westerly extension to the existing yard will be possible, and will be undertaken as business requires, when the present locomotive handling facilities, shown in fig. 1 at A and B are removed, which will be done on completion of the new facilities. Yard capacity will ultimately be extended by constructing a new yard to the south and west of the new locomotive house, when increase in business warrants, so that eventually the terminal will have east and west yards, with adequate track connection between.

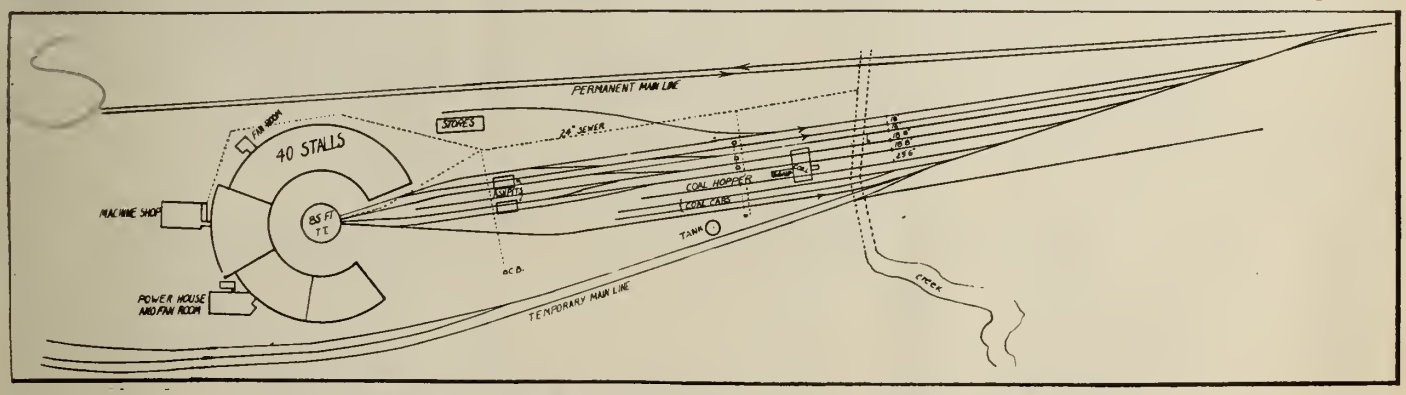


Fig. 1. General layout, Canadian National Railways Locomotive Terminal, etc., Moncton, N.B.

Passenger trains from Montreal, which run into Moncton over the Campbellton Division, have hitherto entered from the north, passing over the east leg of the Y, to the station, and continuing on their way to Truro and Halifax as shown. A cutoff has been built which will bring the Campbellton Division trains in from the west, over the St. John Subdivision main line, the cutoff leaving the Campbellton Division about 3 miles west of the station and reaching the St. John Subdivision track about 2 miles west of the station. The Moncton railway shops are located as shown by the inset sketch map, fig. 1, the Campbellton Division trains passing near them. This inset also shows the location of the cutoff. The track between the terminal and the point where the cutoff leaves the Campbellton Division will be retained. Originally Intercolonial tracks entered from the north and later the National Transcontinental also came in from the north, closely parallel, but the Intercolonial track was taken up, and all movements to and from the terminal in this direction are now made over the N.T.R. rails.

Fig. 2 shows the layout of the new locomotive facilities. The system of tracks leading from the locomotive house as shown in fig. 2, connect the new track, the switches being shown at E, E, E, E, in fig. 1, the two figures being referred to, in connection with each other, in order to show the location of the locomotive handling tracks in relation to the terminal layout as a whole. The facility in movement of locomotives to passenger trains at the station from the new house is evident, no reverse movements being required. The location of the old locomotive houses involved considerable reverse movement to get locomotives to port to that probability. The locations of coaling plant, sandhouse, water columns and ash pit in the new layout indicates that locomotives will be handled with the minimum of lost motion and reverse movement, while the fact of there being two inbound and two outbound tracks to and from the turntable gives further support to that probability. The locations of the machine shop, power house and stores building are also shown in fig. 2. The facilities provided by the locomotive houses which have been used up to the present, as shown in fig. 1 at A and B, are not adequate to handle the locomotives required for the present business. A is a 12-stall house, of wood construction; B, a 24-stall house, of brick, was such that, since its construction, additions had to be built on the stalls to accommodate the larger power now being operated. The freight car repair yard and building, shown in fig. 1, are entirely modern and adequate, and will be retained in their present position in the new terminal scheme.

The new locomotive house will be of brick, on concrete foundations, with tar and gravel roof. There will be 40 stalls altogether, 33 being 100 ft. long, while 7 (nos. 20 to 26 inclusive) will be 120 ft. long. The long stalls are to be equipped with drop pits for driving, engine truck and tender truck wheels. Fig. 3 shows a cross section through one of the long stalls. The locomotive house will be connected by passageways to the machine shop and power house, the passage to the machine shop being between stalls 22 and 23, and that to the power house between stalls 28 and 29. All pits will be of concrete, with slope and drainage facilities so arranged that there will be no possibility of water accumulating in them. The turntable to be used will be the 85 ft. one formerly in use at the old 24-stall house. It will be driven by air

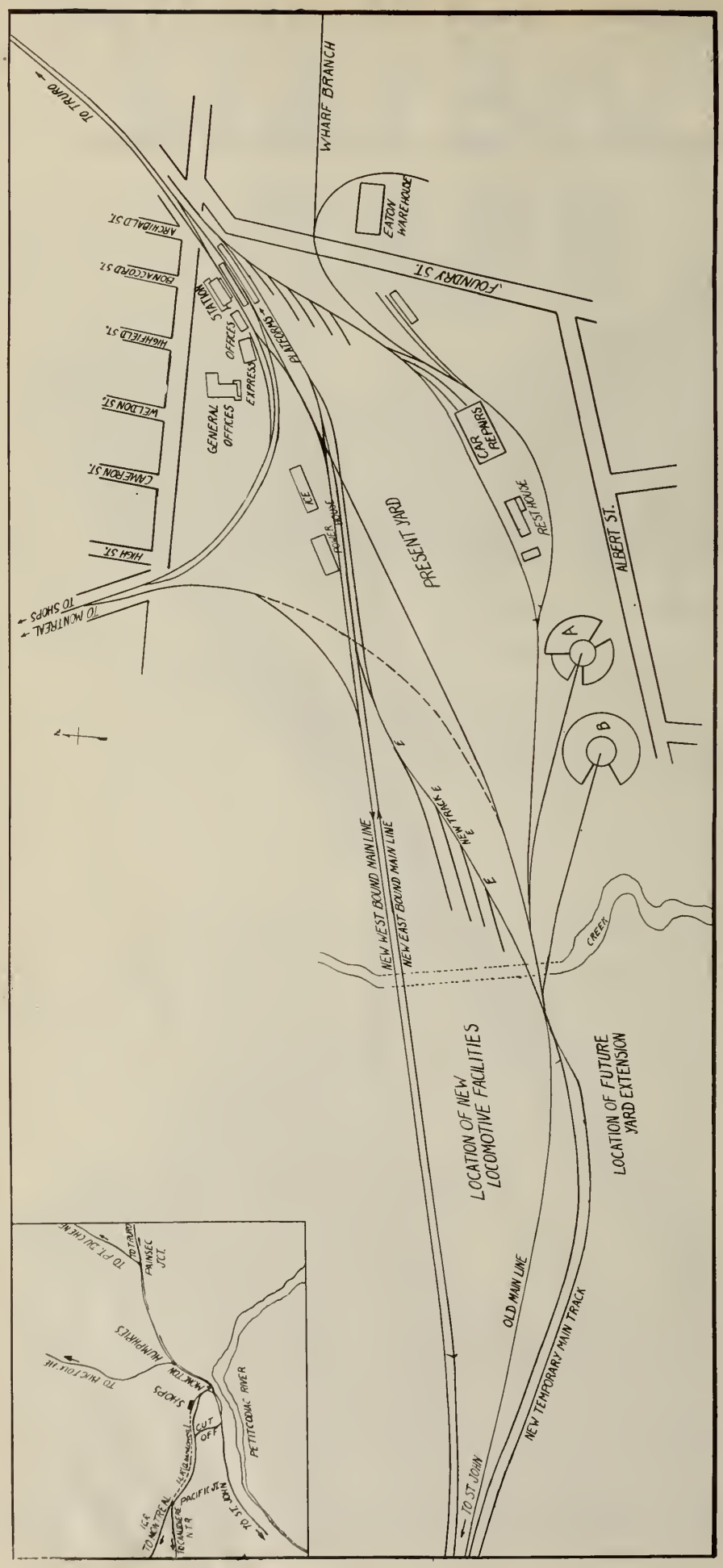


Fig. 2. Layout, Canadian National Railways Terminal, Moncton, N.B.

motor. Ample window space will provide good natural lighting, while artificial lighting will be by electricity, generated at the main shops north of the terminal, and carried over railway wires to the terminal facilities. Heating is to be by mechanical hot air system installed in the power house, the heating duct being shown in fig. 3. One of the fans in connection with the heating system will be adjacent to the power house, the other being in a fan room at the other side of the long stalls of the house. The house is to be equipped with a most complete system of piping, for water, steam and compressed air, and it is the intention to install a hot-well to receive blow off steam and water from locomotives, and exhaust steam from the power house, for use in connection with the washing out of locomotive boilers. The smoke jacks will be of wood.

The machine shop, 83 ft. 10 in. x 53 ft. 4 in., of brick, on concrete foundations, with tar and gravel roofing, is adjacent to the locomotive house, and connected thereto, as shown in figs. 2 and 4. The height from floor to underside of roof at side will be 25 ft. 8 in., the roof sloping gently to both sides from the center. The floor will be of 3-inch plank laid on cedar sills, placed 4 ft. center to center. Good natural lighting will be provided by numerous large windows, and artificial lighting by electricity generated at the main shops. The machine shop is to be heated by the same system as the locomotive house, heating ducts carrying hot air from the mechanical hot air plant in the power house. Lavatory facilities will be installed, and a notable addition will be the first aid room in the northeast corner of the building, to be fitted with complete equipment for emergency surgical work. The usual machinery incidental to the equipment of a locomotive terminal machine shop, including lathes, shapers, drills, etc., will be installed, some of this being obtained from the machine shop in connection with the locomotive house used previously. The machines will be motor driven, current coming from the main shops. Handy jib cranes will be installed. It is not the intention to fit the machine shop with the tools and machines necessary for locomotive repairs classed as heavy, but simply to equip it for taking care of current running repairs efficiently. While it may be necessary to equip the machine shop of a locomotive terminal located far from a back shop, with equipment enabling it to make repairs somewhat more extensive than the usual class of running repairs, the close proximity of the large Moncton shops precludes the necessity of so equipping the machine shop for the new locomotive house.

The power house, 87 x 45 ft., also of brick, on concrete foundations, with tar and gravel roof, is adjacent to the locomotive house, as shown by fig. 2. The boiler room, at the west end of the building, is to be equipped with two 250 h.p. boilers, stoker fired. The coal storage space will be located conveniently to the boilers, a trestle on which coal cars are to be run, and a hopper of large capacity being constructed on the south side of the building, at the west end. A brick wall with a 3 ft. door opening will divide the boiler room from the machinery room. A complete equipment of pumps, air compressor, etc., will be installed in the machinery section of the power house, which will have a concrete floor 6 in. thick, will be heated by the same hot air

system which heats the locomotive house and machine shop, and will have sufficient window area to ensure adequate natural lighting. The fan room will be at the east end of the building, adjacent to the locomotive house. Air will be drawn in among steam pipes, arranged in coils, and driven through ducts leading to the locomotive house, machine shop, and other portions of the power house. Some of the power house equipment will be obtained from the old locomotive terminal power house.

The stores building is located between the new main line of the St. John Subdivision and the tracks leading to the new locomotive house, as shown by fig. 2. Fig. 5 shows the floor plan of this building. It will be 99 ft. 4 in. long by 32 ft. 8 in. wide, of similar construction to the other buildings, and will be served by a track connecting to the most northerly of the locomotive house tracks, and running to the north side of the building. Platforms, the dimensions of which are given in fig. 5, are to be provided at both sides and at the stores end of the building, with ramps on both sides at that end. The interior arrangement is indicated by fig. 5. The offices are to be at the west end of the building, and will consist of separate rooms for the locomotive foreman, clerk, timekeeper and storekeeper respectively. A locker room for locomotive crews, equipped with modern lockers for clothes and personal effects, will be a feature of the arrangement, while a separate room for the posting of bulletins, and for crews to register in and out, will also be included in the layout. These two latter rooms, and the offices, are to have hardwood floors. The oil room, in the central part of the building, is to be equipped with a set of measuring pumps. The east end of the building will be equipped with eight racks of shelving, each 10 ft. long, 10 ft. high and 4 ft. wide, for storage of miscellaneous supplies, leaving a space of about 14 ft. for the storage of heavier supplies and parts. The building will be heated by steam coils, the steam being piped from the boiler room in the power house.

The coaling plant, a 350-ton installation, located as shown in fig. 2, is to be of wood, and arranged to serve three tracks. The coal will be unloaded in the hopper at the south side of the coaling plant, and elevated by a motor driven bucket conveyor system.

The sand house, adjacent to the coaling plant, will be equipped to serve the same tracks. The sand will be dried by special stoves located on the ground floor of the sand house, and elevated to the storage bin by compressed air.

The water tank, of steel construction, will be of 150,000 gall. capacity. The water service equipment will consist, in addition, of 4 standpipes located in a row west of the coaling plant, so as to serve all tracks. The water is obtained from the city mains.

The two ash pits will be located as shown in fig. 2, so that each will serve two tracks. A track between the pits, located so that cars on it will not interfere with movements to and from the turntable, is provided for handling cinder cars. The firebrick lined pits will be much deeper than usual, and with a good slope to the sides. A self propelling small clamshell crane, used in connection with the handling of coal at the terminal, will be used in filling cinder cars from the ash pits, operating on the track

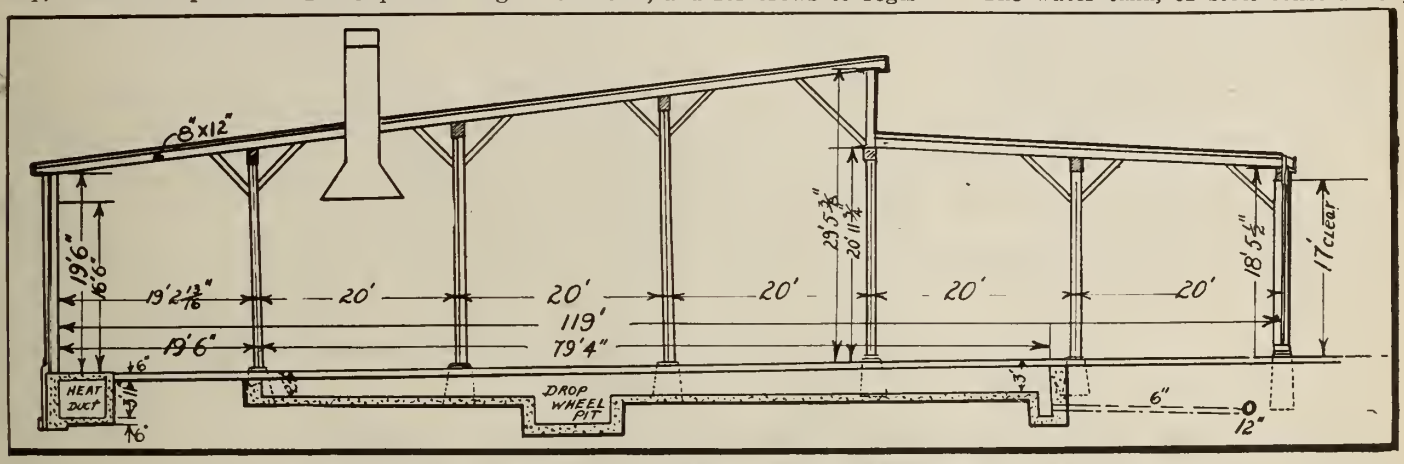


Fig. 3. Cross section through drop wheel pit stall, Canadian National Railways, Locomotive House, Moncton, N.B.

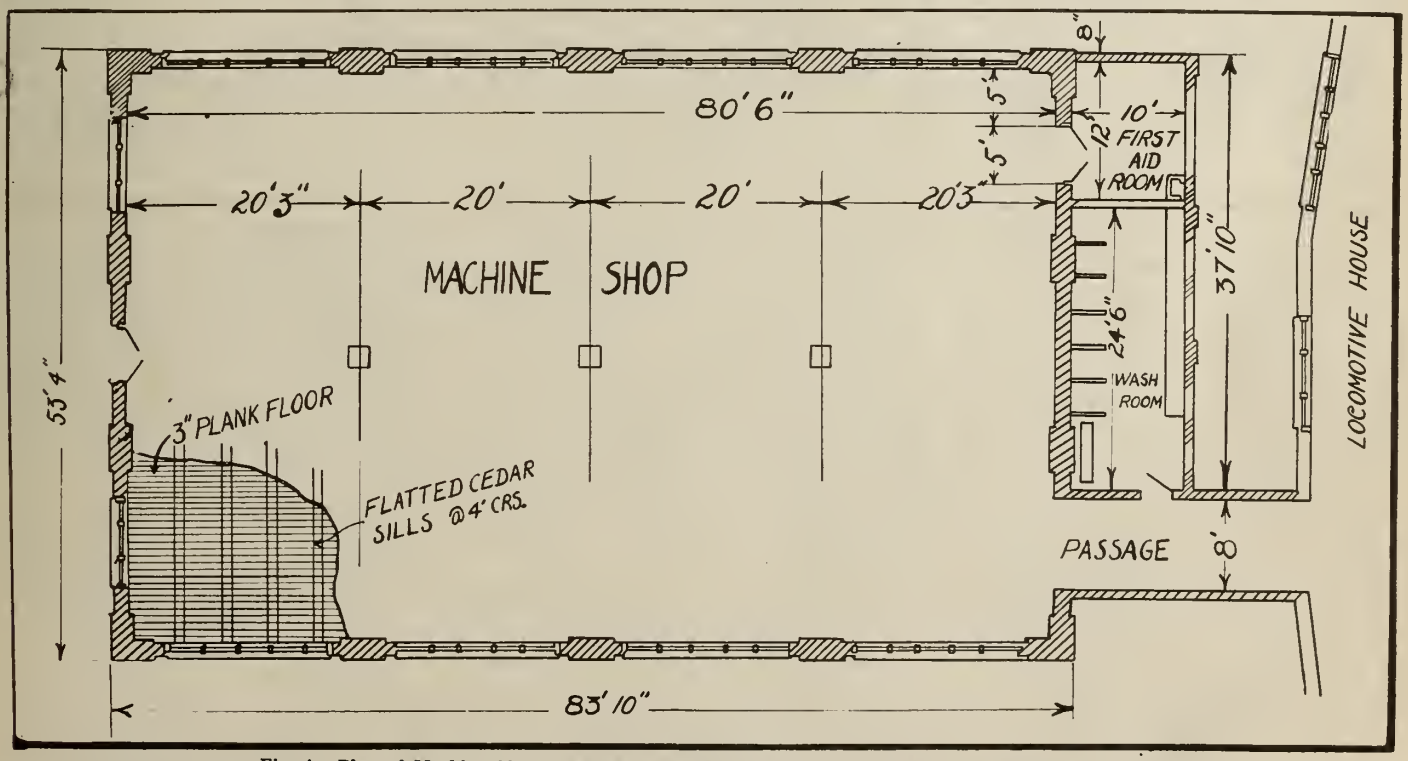


Fig. 4. Plan of Machine Shop, Canadian National Railways Locomotive Terminal, Moncton, N.B.

between the pits.

The new locomotive terminal will take care of the locomotives operating between Truro and Moncton, Springhill Subdivision, 124.75 miles; between Point du Chene and Moncton, Point du Chene Subdivision, Moncton Division, 19.11 miles; between Moncton and St. John, St. John Subdivision, Moncton Division, 89.31 miles; between Moncton and Buctouche, Buctouche Subdivision, Moncton Division, 32.4 miles; between Moncton and Napadogan, the western terminus of Chipman Subdivision, Edmundston Division, 106.67 miles west of Pacific Jct. and 117.49 miles west of Moncton, on the N.T.R., and between Moncton and Campbellton, Harcourt and Bathurst Subdivisions, Campbellton Division, 185.57 miles; a total of 568.63 miles.

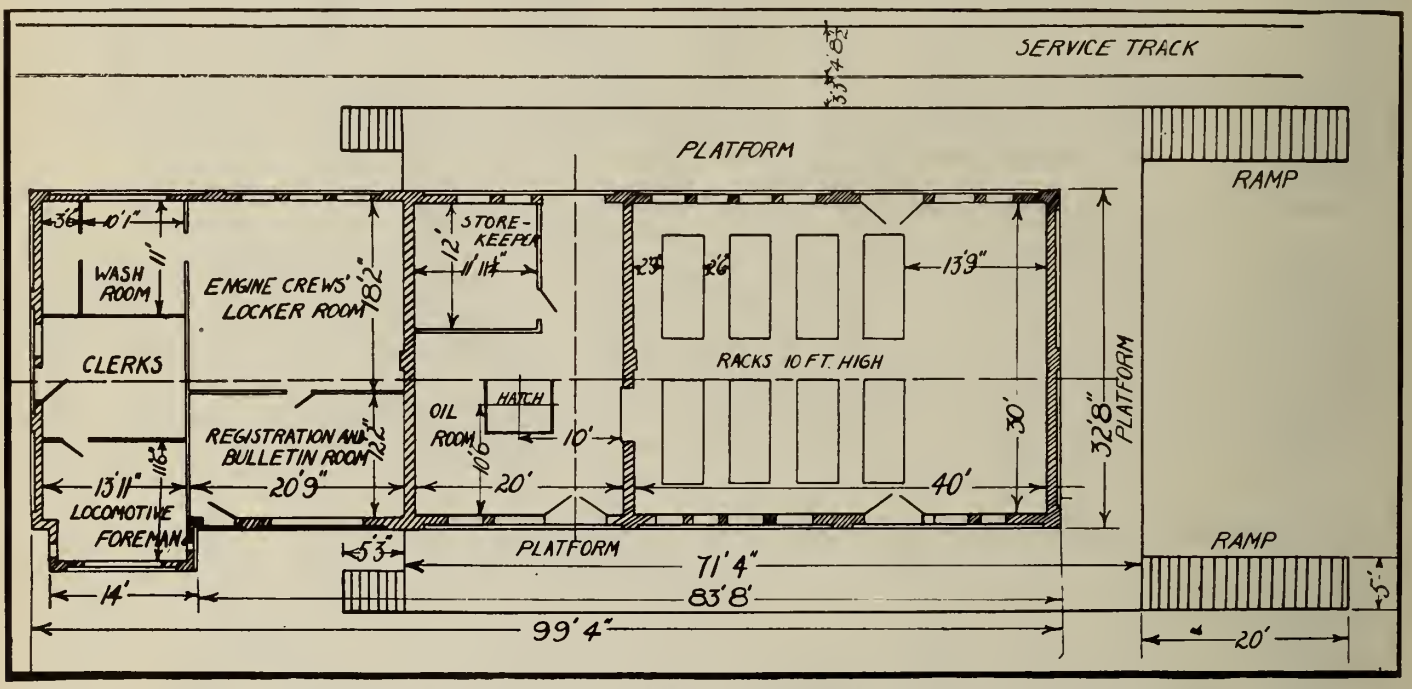


Fig. 5. Floor plan, Stores and Office Building, Canadian National Railways Locomotive Terminal, Moncton, N.B.

The design and construction of the buildings are being carried on under the supervision of A. F. Stewart, Chief Engineer, Canadian Government Rys. and National Transcontinental Ry. east of Armstrong, Ont.; H. J. Crudge, Assistant Engineer of Buildings, and R. G. Gage, Signal and Electrical Engineer, have charge of the buildings and mechanical equipment, respectively. The work in the field is under the direct supervision of S. B. Wass, Construction Engineer. H. L. Currie and E. R. Evans, Assistant Engineers, are in charge respectively of the buildings and grading. Work was begun on the new facilities in May, and it is expected that they will be in operation early in the winter.

Railway Companies' Duties as to Fencing.

The Board of Railway Commissioners has issued the following circular: Numerous complaints are being made to the Board as to inefficient fencing by railway companies along their right of way, and it appears to the Board that, in many cases, these complaints are being viewed from the wrong standpoint. For many years prior to 1911, the Railway Act contained a provision that, in some cases, fencing was not required unless specifically so ordered by the Board. This is found in the Railway Act, 1906, sec. 254, subsec. (4), which reads as follows:—

"254. (4) Wherever the railway passes through any locality in which the lands on either side of the railway are not inclosed and either settled or improved, the company shall not be required to erect and maintain such fences, gates and cattle guards unless the Board otherwise orders or directs."

The acts of 1911, chap. 22, repealed sec. 9, subsec. (4) of sec. 254 and enacted the following in lieu thereof:—

"4. The Board may, upon application made to it by the company, relieve the company, temporarily or otherwise, from erecting and maintaining such fences, gates and cattle guards where the railway passes through any locality in which, in the opinion of the Board, such works and structures are unnecessary."

This is in the present Railway Act as sec. 274, subsec. (4). It will thus be seen that it is the duty of every railway company to fence every portion of its right of way, unless specifically relieved from so doing by an order of the Board, and, in the future, the Board is of opinion that, whenever an application is made for fencing, it should go as a matter of right, unless the railway company can show valid reasons why it should be brought under the provisions of the present act, sec. 274, subsec. (4).

Rule for Replacing Car Ends When Broken Out.

The American Railway Association Mechanical Division committee on car construction's report, submitted at the annual meeting at Atlantic City, N.J., June, 1920, contained a proposed rule, which was submitted to letter ballot, requiring that when ends of cars are broken they should be replaced with ends specified for new cars. This letter ballot failed to receive sufficient votes for adoption. The matter was considered by the general committee, and, owing to the evident misunderstanding of the purport of the recommendation, that committee ordered a special letter ballot to be taken restating the proposition and recommending an affirmative vote. the proposition as restated was as follows:—"On house cars (other than refrigerator cars) with steel underframes or steel center sills having a center sill area of not less than 24 sq. in., when an end requires repairs consisting of new posts and braces, the ends shall be replaced with ends specified for new cars, this to be done by or under the direction of the car owners."

The total number of memberships represented in the Mechanical Division on car matter is 349, and the cars owned and controlled by these members 2,683,-274. Votes for car standards are on the basis of one vote for each 1,000 cars owned or controlled. The majority requisite for approval is two-thirds of the votes cast. The vote on the foregoing proposition was as follows:—Voting Yes, 208 memberships, representing 1,935,188 cars owned or controlled, 1,923 votes. Voting No, 103 memberships, representing 700,000 cars owned or controlled, 688 votes. Not voting, 38 memberships, representing 48,085 cars owned or controlled, 51 votes. The foregoing proposition has been approved by the Mechanical Division's general committee, and by the American Railway Association's directors.

Therefore, that the proposition to adopt a rule for replacing ends of cars when broken out, in effect as of the effective date of the Rules of Interchange for 1921, is approved, the word "shall" in the fourth line to be changed to "should."

An Authority on Age.—A Toronto subscriber writes: "I was talking with a friend the other day, who told me of a case in which biographical data published in Canadian Railway and Marine World had been used in proving the age of a person for insurance purposes, so that I can see its value in addition to that of current interest."

Edmonton Track Connections. — The Board of Railway Commissioners passed order 31,693, Oct 21, authorizing the Canadian Pacific, the Edmonton, Dunvegan & British Columbia, and the Canadian National Railways to operate over connecting tracks at Edmonton, Alta.

The Grouping of Railways in Great Britain.

The Railways Act, which has been passed by the British Parliament, provides for the future of the English, Scotch and Welsh railway systems after their having been under Government control from Aug. 15, 1914. The bill became operative Aug. 15 (four days before it was actually assented to), on which day the railways reverted to the several owning companies for operation. The act provides for the payment to the railways by the Government of the sum of £60,000,000 as completion of compensation arising out of the period of Government control, one half of this amount is to be paid at the end of this year, and the remaining half at the end of 1922.

As introduced by Sir Eric Geddes, Minister of Transport, on May 12, the bill was divided into six parts, and contained over 700 sections. A summary of it was given in Canadian Railway and Marine World for August, pg. 429. In passing through the two houses a number of amendments were made in each part of the bill, but in almost every case they affected matters of detail only, and did not touch the general plan of the measure or alter any of its principles.

The first part of the act provides for the amalgamation of the railway systems into four groups, instead of six as proposed at the outset, the proposed two Scottish groups being merged respectively in the Northwestern-Midland Group, and the Northeastern and Eastern Group. Another change made was to bring the Cambrian Ry. as a constituent company in the Western Group; and some minor changes were made in the subsidiaries of several of the groups. Determined efforts were made up to the end to detach the Hull & Barnsley Ry. from the Northeastern and Eastern Group, and to leave it as an independent line, but without avail.

The act provides for the amalgamation of what are termed the constituent companies, and then upon completion of this process, for the absorption by the four amalgamated companies of the various subsidiary companies situated within the territory. The companies are given until Jan. 1, 1923, to carry out the amalgamations provided for, and in the event of their not being carried out by agreement, a tribunal is provided for the settlement of the plan for their amalgamation. Under the plan laid down the only company which will retain its corporate identity is the Great Western Ry. Co.

Following are particulars of the four groups, the constituent companies of each and the mileages:

(1) Southern Group:—

	Mileage	Total
(1)Southern Group:—		
London & Southwestern	1,035	
London, Brighton & South Coast	487	
London & Southeastern and London, Chatham & Dover	637	
		2,159
Together with 15 subsidiary companies.		
(2) Western Group:—		
Great Western	2,996	
Cambrian	300	
Barry	47	
Cardiff	135	
Rhymney	51	
Taff Vale	124	
Alexandria Docks & Ry. (Newport)	9	
		3,662
Together with 35 subsidiary companies.		
(3) Northwestern and Midland Group:—		
London & Northwestern	2,015	
Midland	1,520	
Lancashire & Yorkshire	601	
North Staffordshire	218	
Furness	139	
Calendonian	1,118	
Glasgow & Southwestern	493	
Highland	492	
		6,596
Together with 28 subsidiary companies.		
(4) Northeastern and Eastern Group:—		
Northeastern	1,757	
Great Central	629	
Great Eastern	1,191	
Great Northern	1,053	
Hull & Barnsley	78	
North British	1,399	
Great North of Scotland	334	
		6,441
Together with 24 subsidiary companies.		
Total mileage of constituent companies		18,858

At the outbreak of the war the 30 principal railways in England, Scotland and Wales were reported to have had a total of 18,463 miles, or 395 miles less than the aggregate mileage of the 25 constituent companies of the four groups mentioned above. Of the remaining principal railways, there are six metropolitan lines in London, having a total length of 126 miles, and the Maryport & Carlisle Ry., 43 miles. The mileages of other independent lines is negligible. The mileages of subsidiary companies in many cases are included in the mileages of the several constituent companies, on account of the fact that they are controlled or operated by the larger companies. The mileages of lines in Ireland owned, controlled or operated by the Great Western Ry., the London & Northwestern Ry., and the Midland Ry., are apparently not included in the mileages given in the above table.

Each of the four groups has large terminal accommodation in London, the Southern Group having Waterloo, Victoria, Charing Cross and London Bridge; the Western Group, Paddington; the Northwestern and Midland Group, Euston, St. Pancras, Fenchurch St.; and the Northeastern and Eastern Group, Marylebone, Liverpool St., Kings Cross. The Northwestern and Midland Group is particularly well situated for import and export business from the port of London, through the Midland Ry.'s ownership of the old London, Tilbury & Southend Ry., operating from Fenchurch St., along the north shore of the Thames, and past the great new docks at Tilbury. The English Channel ports are served entirely by the London & Southwestern Ry. and the Great Western Ry.; Bristol, Bristol Channel and all Welsh ports, by the Western and Northwestern and Midland Groups; Liverpool and Manchester and Cheshire ports, by the Western, Northwestern and Midland, and Northeastern and Eastern Groups; while the Northeastern and Eastern Group has practically the monopoly of the east coast ports north of London, Goole being the only important port reached by the Lancashire & Yorkshire Ry. of the Northwestern-Midland Group.

On looking at a map with the lines marked off in their separate groups, it will be seen that practically the whole of the mining and industrial areas of England and Scotland are served by the Northwestern and Midland, and the Northeastern and Eastern Groups, each with three terminal stations in London, and each having an east to west connection between the North and the Irish seas, the former by the Lancashire & Yorkshire Ry., and the latter by the old Manchester, Sheffield & Lincolnshire Ry., (now part of the Great Central Ry.), and the Hull & Barnsley Ry. The Western Group, in addition to covering the south Welsh industrial field, cuts into the west side of central industrial England, with lines into Wolverhampton, the Shropshire and north Welsh coal and iron fields, and Birkenhead, while both the London & Northwestern Ry. and the Midland Ry. cut into the south Wales industrial district, by lines from Craven Arms and Hereford respectively.

The area of England, which is predominantly agricultural, is served by the Southern and Western Groups, and by the Great Eastern Ry., of the Northeastern and Eastern Group. The chief military and naval centers of Britain are served by the Southern Group lines, Plymouth and Devonport being served also by the Great Western Ry. The Great Eastern Ry. carries on a continental passenger route via Harwich; the Southern Group lines operate daily steamboats to Belgium and France, by Queenboro, Dover, Folkestone and Newhaven; and the Great Western Ry. operates steamboats to the Channel Isles and France via Weymouth; while the Southern and Western Groups divide most of the overseas mail traffic between them via Southampton and Plymouth.

The amalgamations tribunal will probably be called upon to adjust matters affecting joint lines, particularly those owned jointly by constituent companies of different groups. Three such lines may be referred to in particular. The Somerset & Dorset Ry. extends from Bath to Bournemouth, with branches to three coal ports on the southern shore of the Bristol Channel, and serves the east Somerset coal field. This line is owned jointly by the London & Southwestern Ry. and the Midland Ry., the Midland Ry. controlling the larger share. The territory through which it runs does not appear to belong legitimately to the Northwestern and Midland region, but it gives advantageous connections between central industrial England and the south coast. The second joint line of importance is the Shrewsbury & Hereford Ry., owned jointly by the London & Northwestern Ry. and the Great Western Ry. This is an important link for both companies for their traffic between industrial England and industrial south Wales. The third joint concern is what is known as the Cheshire Lines Committee, which operates a number of small lines in the industrial districts of Cheshire, owned either separately by each of the owning companies or jointly by any two, or by the whole three. The three companies concerned are the Midland Ry., the Great Central Ry., and the Great Northern Ry.

The future of the Irish lines has still to be settled, and whether it will be by the Imperial Government and Parliament, or by any separate legislature for Ireland, is still a matter of doubt. The only reason for mentioning this at present is the fact that constituent companies of two of the British groups are interested in steamships running to Ireland and are owners of railways in Ireland. These are the Great Western Ry., which runs steamboats from Milford Haven and Fishguard to Waterford and Rosslare respectively, and owns jointly with the Great Southern & Western Ry. of Ireland 107 miles of line which con-

nect Rosslare, via Wexford, with Cork. The London & Northwestern Ry. operates steamboats from Holyhead to Northwall and has about 5 miles of railway thence into Dublin; a line of steamboats from Holyhead to Greenore, operating in connection therewith the Dundalk, Newry & Greenore Ry., about 40 miles; and in conjunction with the Lancashire & Yorkshire Ry., operates steamboats between Fleetwood and Belfast. The Midland Ry. has been operating steamboats to Belfast, first from Morecambe, then from Barrow and latterly from Heysham, and about 20 years ago bought control of the Belfast & Northern Counties Ry., 263 miles. The Glasgow & Southwestern Ry. and the Belfast & Northern Counties Ry. are jointly interested in the mail steamboat line operated between Stranaer, Scotland, and Larne, Ireland.

The first effect of the return of the railways to private operation was shown in the new timetables which in most cases went into operation on Oct. 3. There is a general return to the pre-war services, although in only a few cases have the actual performances of 1914 been restored. On the big lines, the services have, in many cases, been accelerated, and a number of new services have been arranged by combinations of companies. All the old fast trains from London to the great industrial centers of mid and north England, and the trains to Scotland have practically been restored, some changes being made in their routing, and in the stopping points, the former speed being maintained. The Great Western Ry. shows the greatest change, it now having arranged for 13 particular services, on which there are non-stop runs varying in length from 75½ to 225¼ miles, with a rate of from 54.6 miles to 61 miles an hour. Some special features of the new trains are the daily Penzance-Aberdeen run, of 785 miles, which is the longest through service arranged, although it is not the longest that could be operated, as it would be possible to run to Wick or Thurso, a considerable distance farther north, but in a territory where there is little travel. This train will be operated over the Great Western, Great Central, North Eastern, and North British Railways, each company supplying part of the rolling stock. The Great Western Ry. is also associated with the Midland and North Eastern Railways in the operation of a daily train between Plymouth and Newcastle-on-Tyne; and with the London & North Western Ry. in a daily service via Crewe to Liverpool and Manchester. The London & South Western, the Great Western and the Midland Railways are associated in the operation of a daily service between Bournemouth and Sheffield.

In regard to possible future developments of traffic, a deputation recently waited on the Minister of Transportation to obtain approval of the construction of a tunnel under the Thames, from near Tilbury, on the north shore, and connecting line, at an estimated cost of £10,000-, 000. This tunnel would connect the Midland Ry. with the South Eastern-Chatham Ry., and so afford a through connection outside London for passenger traffic between the midlands and northern England and Dover for the continental traffic. The proposal was favorably received, but it is not expected that any construction will be done for a considerable time.

Birthdays of Transportation Men in December.

Many happy returns of the day to:—

E. T. Agate, ex-Assistant Superintendent, Lake Superior Division, Canadian Northern Ry., Capreol, Ont., now of Pittsford, N.Y., born there, Dec. 7, 1874.

A. G. Albertsen, General Agent, Passenger Department, C.P.R., Minneapolis, Minn., born at Copenhagen, Denmark, Dec. 31, 1887.

J. H. Barber, Engineer, Toronto Terminals Division, Ontario District, C.P.R., Toronto, born at Cobourg, Ont., Dec. 20, 1856.

W. E. G. Bishop, District Freight and Passenger Agent, Canadian National Rys., Cochrane, Ont., born at Central Clarence, N.S., Dec. 4, 1888.

H. E. Bissell, Right of Way Department, Canadian National Rys., Winnipeg, born near Noyan, Que., Dec. 31, 1867.

N. E. Brooks, ex-Engineer, Maintenance of Way, Western Lines, C.P.R., now at Sherbrooke, Que., born there, Dec. 25, 1866.

W. W. Butler, President, Canadian Car & Foundry Co., Montreal, born at Danville, Ohio, Dec. 9, 1862.

J. M. Cameron, General Superintendent, Alberta District, C.P.R., Calgary, born at Lochaber, N.S., Dec. 18, 1867.

W. C. Casey, General Agent, Passenger Department, Ocean Traffic, C.P.R., Winnipeg, born at Moncton, N.B., Dec. 12, 1882.

G. W. Caye, General Purchasing Agent, G.T.R., Montreal, born at Malone, N.Y., Dec. 1, 1865.

R. J. Foreman, Foreign Freight Agent, Canadian National-Grand Trunk Rys., Montreal, born at Toronto, Dec. 31, 1878.

A. H. Foster, Manager, Brantford Municipal Ry., Brantford, Ont., born at Guelph, Ont., Dec. 24, 1888.

W. H. Gardiner, City Freight Agent, C.P.R., and District Freight Agent, Esquimalt & Nanaimo Ry., Victoria, B.C., born there, Dec. 6, 1859.

A. J. Gorrie, ex-Superintendent District 1, Transcontinental Division, Canadian Government Rys., Quebec, now of Toronto, born at Raith, Kirkcaldy, Scotland, Dec. 10, 1868.

W. H. Grant, General Tie Agent, Canadian National-Grand Trunk Pacific Rys., Toronto, born at Acton, Ont., Dec. 8, 1858.

F. P. Gutelius, Vice President and General Manager, Delaware & Hudson Rd., Albany, N.Y., born at Mifflinburg, Pa., Dec. 21, 1864.

J. T. Hallisey, Superintendent, Halifax Division, Maritime District, Canadian National Rys., Truro, N.S., born at Beaver Bank, N.S., Dec. 29, 1862.

D. B. Hanna, President, Canadian National Rys., Canadian Government Merchant Marine Ltd., etc., Toronto, born at Thornliebank, Scotland, Dec. 20, 1858.

R. W. D. Harris, ex-Trainmaster, Moose Jaw Division, Saskatchewan District, C.P.R., Moose Jaw, now of Tappen, B.C., born at Victoria, B.C., Dec. 12, 1879.

H. E. Heal, Canadian Passenger Agent, Pennsylvania Rd., Toronto, born at Bowmanville, Ont., Dec. 17, 1891.

J. J. Hennigar, District Freight Agent, Great Lakes Transportation Co., Windsor, Ont., born at Topeka, Kan., Dec. 21, 1884.

W. J. Kelly, Superintendent of Telegraphs and Telephones, Timiskaming & Northern Ontario Ry., North Bay, Ont., born at Renfrew, Ont., Dec. 17, 1875.

L. S. Landers, Division Engineer, Canadian National Rys., Edmundston, N.B., born at Farnham, Que., Dec. 15, 1888.

J. G. Legrand, Bridge Engineer, Western Lines, Canadian National Rys., and Grand Trunk Pacific Ry., Winnipeg, born at Sompuis, France, Dec. 24, 1861.

J. M. MacArthur, Superintendent, Medicine Hat Division, Alberta District, Medicine Hat, Alta., born at Toronto, Dec. 8, 1885.

A. McGowan, Master Car Builder, Canadian National Rys. Western Lines and Grand Trunk Pacific Ry., Winnipeg, born at Perth, Scotland, Dec. 5, 1868.

J. T. McGrath, ex-Superintendent of Motive Power and Equipment, Chicago & Alton Rd., Bloomington, Ill., born at Toronto, Dec. 6, 1869.

A. T. McKean, Division Freight Agent, C.P.R., Calgary, Alta., born at St. John, N.B., Dec. 18, 1886.

Capt. R. McKillop, Superintendent, London Division, Ontario District, C.P.R., London, Ont., born at Perth, Scotland, Dec. 26, 1884.

A. D. MacTier, Vice President, Eastern Lines, C.P.R., Montreal, born at Blairgowrie, Scotland, Dec. 27, 1867.

J. C. O'Donnell, General Superintendent, Maritime District, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Cobden, Ont., Dec. 17, 1879.

Alfred Price, General Manager, Eastern Lines, C.P.R., Montreal, born at Toronto, Dec. 6, 1861.

W. J. Radford, Assistant Manager, Toronto Suburban Ry., Toronto, born at Boldre, Hants, Eng., Dec. 23, 1870.

G. D. Robinson, ex-European Freight Agent, Canadian Pacific Ocean Services Ltd., Montreal, born at St. John, N.B., Dec. 7, 1877.

H. W. Sharpe, Master Mechanic, Quebec District, Canadian National Rys., Quebec, Que., born at Campbellton, N.B., Dec. 6, 1869.

G. E. Smart, Mechanical Assistant (Car Department) to Vice President, Operation and Maintenance, Canadian National Rys., Toronto, born at Edinburgh, Scotland, Dec. 23, 1873.

M. F. Tompkins, General Freight Agent, Eastern Lines, Canadian National Rys., Moncton, N.B., born at Margaree, N.S., Dec. 6, 1878.

H. H. Vaughan, ex-Assistant to Vice President, C.P.R., now consulting engineer, Montreal, born at Forest Hill, Essex, Eng., Dec. 26, 1868.

R. C. Vaughan, Vice President, Purchases, Supplies and Stores, Canadian National Rys., Toronto, born there, Dec. 1, 1883.

A. P. Walker, Assistant Engineer, Ontario District, C.P.R., Toronto, born at West Hartlepool, Eng., Dec. 9, 1860.

E. B. Walker, Electrical Engineer, Canadian National Rys., Toronto, born there, Dec. 15, 1879.

J. B. Way, Freight and Ticket Agent, C.P.R., Sault Ste. Marie, Ont., born at Port Hope, Ont., Dec. 10, 1865.

N. F. Judah, formerly Auditor, Edmonton, Dunvegan & British Columbia Ry., and now in business as Manufacturer's Agent at Edmonton, Alta., in renewing his subscription writes:—"I am not now engaged in transportation work, but Canadian Railway and Marine World is excellent, and I need it, in order to keep in touch with former railway associations and transportation matters in general."

Canadian Pacific Railway September Earnings and Expenses.

The C.P.R.'s figures for September reflect a continuation of the improvement in both railway operating conditions and business conditions throughout the country. The gross earnings, $19,494,761, were the largest for any month of 1921 up to the end of September, exceeding those of August, the next best month, by $2,885,496, and being but $59,526 smaller than those of Sept. 1920.

The last general rate increase took effect Sept. 13, 1920, on which date the new freight and passenger rates were put into actual application. In September of this year, the passenger rates which applied before the increase of Sept. 1920 were again in effect, while, in addition to the 5% reduction in freight rates made Jan. 1 in accordance with the Board of Railway Commissioners' order, many individual freight rate reductions had been put into effect and were applicable to the traffic handled throughout the month. (See Canadian Railway and Marine World for October, pg. 522). It appears, therefore, in view of these rate conditions, that the traffic handled by the C.P.R. in Sept. 1921 was almost, if not quite, as large as that handled in Sept. 1920.

The operating expenses for the month, $15,174,711, decreased $925,921 from Sept. 1920, so that while the gross decreased as noted above, the net earnings increased $411,395, being $4,320,049 for Sept. 1921. The operating ratio for the month was 77.8, a substantial improvement over August.

For the first nine months of 1921, gross earnings were $11,049,775 less than in the first nine months of 1920; but operating expenses, being $13,793,307 smaller than in the first nine months of 1920, the net earnings have been $2,743,531 greater, the total net earnings to the end of September being $21,900,671.

The fact of gross earnings for the first nine months of this year being smaller by the amount stated above, than for the first nine months of 1920, while freight and passenger rates were considerably higher, indicates the effect which the period of depression from which the country is just emerging has had on C.P.R. traffic. The September figures, however, show that traffic is rapidly working back toward normal, and present indications are that the company will have a somewhat better year than in 1920, in that net earnings will, in addition to meeting fixed charges and dividend requirements, be sufficient to afford a reasonable surplus, as desirable from the country's viewpoint as from that of the railway itself.

While the improvement in C.P.R. net, as noted in Canadian Railway and Marine World from month to month, has been gratifying from a purely railway viewpoint, the fact of these better net earnings being secured on a much lower volume of traffic has not indicated that the commerce and industry of the country has been on a sound and healthy basis. The September figures, however, are gratifying from both the railway and national viewpoints, in that the better showing made by the C.P.R. has been based upon a larger movement of traffic and increased industrial activity. It is only under such conditions that it is proper to say that the railway situation, which after all is inseparably linked up with the general economic situation, is showing permanent improvement. If, as present indications show to be probable, the C.P.R. has a surplus remaining after the conclusion of this year's operations, it will be both an effect and a contributing cause in the return to normalcy in both railway and business conditions, and, further, it will be an assurance that Canada's industrial growth, not extraordinarily rapid of late years, will go forward, unhandicapped by any lack of provision of necessary transportation facilities.

Rules for Operation of Motor, Hand and Push Cars and Velocipedes.

The Railway Association of Canada issued its circular 4, revised, on Nov. 3, as follows:—The following regulations to govern the use and operation of motor cars, hand cars, velocipedes, and push cars, have been prepared by the Association at the Board of Railway Commissioners' suggestion, with a view to assisting in the establishment and observance of safe practices in the handling of the vehicles above mentioned. It is recommended that member railways adopt these rules as standard on their respective lines:—

1. No motor car, hand car, or similar vehicle is to be operated on the railway without permission of the proper authority. Each vehicle of this character must be placed under the control of one individual who will be responsible for its operation.

2. No person or persons, except employes in the discharge of their duty, shall be allowed to ride on such cars on the tracks of the railway unless holding special permission from the proper authority.

3. The person in charge of the operation of car must, when practicable, inform himself of the movement of trains.

4. Immediately after starting, brakes must be tested, to ensure that they are in proper working condition.

5. All cars not in actual use must be lifted off track, or otherwise placed clear of passing trains. They must not be left on or near road crossings. When unattended, they must be locked, and the key retained by the person authorized to use the car.

6. When approaching railway, street, and highway crossings and switches, cars must be under full control and prepared to stop immediately. Cars must not be run over crossings protected by gates until the gates are down, or over crossings protected by flagmen until given "Proceed" signal by flagman.

7. Cars loaded with rails, frogs, ties, or similar material, must not go on main track without protection, as set forth in the company's rules.

8. Rails, frogs, or similar material must not be carried on motor or hand cars, except in cases of emergency, water kegs, track jacks and other tools likely to derail car if they were to fall off, must be carried on side or rear of same.

9. Motor, hand, or push cars must not be attached to a train.

10. Cars must not be run after sunset, or during foggy or stormy weather, except in cases of actual necessity. In such cases, on single track a red light must be displayed to the front and to the rear, and on double track a white light to the front and a red light to the rear. During fogs and storms, flagmen should be sent out in each direction, and the car run no faster than these flagmen can walk.

11. A distance of not less than 500 ft. must be maintained between two motor cars and between hand cars or velocipedes following a moving train and of not less than 250 ft. in the case of hand cars and velocipedes moving in the same direction on the same track.

12. Motor, hand and velocipede cars must be run with great caution around blind curves, and must be stopped frequently so that approaching trains may be heard.

13. Hand cars, unloaded push cars, and velocipedes must be passed from one track to another by lifting cars, instead of turning switches. When necessary to use switches, they are to be turned only under supervision of the foreman, who will be held responsible for seeing that they are left set and locked in proper condition.

14. In all cases a lookout must be kept in each direction, whether on single or double track.

Rules 3, 7, 10, 12 and 14 do not apply to motor cars operated by train order.

Blue Signals for Protection of Workmen.

The Board of Railway Commissioners passed general order 347, Nov. 2, as follows:—Re general order 258, Nov. 25, 1918, and rule 26 of the General Train and Interlocking Rules, approved by order 7563, July 12, 1909, providing that a blue flag by day, and a blue light at night, be displayed at one or both ends of an engine, car, or train for the protection of workmen engaged in, under, or around cars on regular repair tracks. Upon the report and recommendation of the Board's Chief Operating Officer, and reading the submissions filed by the Railway Association of Canada, on behalf of the railway companies, the Board orders that general order 258 be amended by striking out the words, "the day signal (flag) to be 22 by 28 in. in size," in the 6th and 7th lines of paragraph 1 of the order, and substituting therefor the words, "the day signal may be of rigid material, 22 x 28 in. in size, with rounded corners, painted royal blue, with a border of white on both sides, 1½ in. in width."

Record Grain Shipments Through Port McNicoll.

The amount of grain handled by the C.P.R. through Port McNicoll, Ont., this year constitutes a record. The following is a comparison of the number of bushels shipped from Sept. 1 to Oct. 31, 1921, and 1920 respectively.

	1921	1920
Bushels shipped	21,070,949	4,471,814
Bushels shipped per day	345,452	73,309
Total cars shipped	11,098	2,966
Cars shipped per day	182	49

The movement this autumn was assisted very materially by the use of the new 60-ton grain cars, which were placed in service a couple of months ago.

A Train Wrecker's Life Sentence.—H. W. Gates, 59 years of age, pleaded guilty, Nov. 3, to loosening a rail on the G.T.R. near Lapeer, Mich., on Oct. 31, thereby derailing a train and causing serious injury to three persons. He was sentenced to imprisonment for life in the Jackson, Mich., penitentiary.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

31,625. Oct. 5.—Dismissing application of Sutherland Innes Co., that commodity rate on lumber should be extended to cooperage stock generally, and requiring C.P.R. to publish tariffs applying lumber commodity rate of 17c. per 100 lbs. on shipments of cooperage stock from Smiths Falls, Ont., to Montreal.

31,626. Oct. 6.—Approving proposed modifications to interlocking plant at crossing of G.T.R. and Canadian National Rys. at Cobourg, Ont.

31,627. Oct. 6.—Authorizing Canadian Northern Ry. to build spur for H. & F. Murtagh, in s.e. ¼ Sec. 17, Tp. 45, Range 8, west 2nd meridian, Sask.

31,628. Oct. 6.—Authorizing Alberta Public Works Department to build highway crossing over C.P.R. between Secs. 10 and 11, Tp. 12, Range 4, west 4th meridian, Alta.

31,629. Oct. 7.—Ordering that speed of C.P.R. trains over private crossing just south of Bath station, N.B., be limited to 10 miles an hour.

31,630. Oct. 7.—Extending to Nov. 1, time within which Canadian Northern Ry. may complete station building at Dropmore, Man.

31,631. Oct. 7.—Authorizing G.T.R. to build spur for Continental Match Co., Whitchurch Tp., Ont.

31,632. Oct. 6.—Declaring that for the present Toronto, Hamilton & Buffalo Ry. crossing west of Mineral Springs, Ont., is protected to Board's satisfaction.

31,633. Oct. 6.—Amending order 30,995, May 6, directing C.P.R. and G.T.R. to operate trains at 6 miles an hour at Sunnyside station, Ont., by striking out C.P.R.

31,634. Oct. 7.—Authorizing Canadian Northern Saskatchewan Ry. to build its Meeting Lake Branch across a number of highways.

31,635. Oct. 7.—Ordering Canadian National Rys. to fence right of way in Burpee Tp., Ont., by June 1, 1922.

31,636. Oct. 8.—Extending for one year time within which C.P.R. may build spur, authorized by order 30,886, Apr. 11, for Merchants Grain Co., Fort William, Ont.

31,637, to 31,640. Oct. 7.—Authorizing Canadian Northern Ry. to fill in bridges over Rosebud River at mile 327.9 and 328.1; 324.6 and 325.0; 327.6 and 327.8, and 330.7 and 331.1, Alta.

31,641. Oct. 8.—Declaring that for the present Lake Erie & Northern Ry. crossing at mile 5.03 (McRae's crossing), is protected to Board's satisfaction.

31,642. Oct. 8.—Dismissing C.P.R. application to remove station agent at Warden station, Que.

31,643. Oct. 8.—Ordering Canadian National Rys. to fence right of way in n.e. ¼ Sec. 30, Tp. 28, Range 20, west 1st meridian, Man., by Nov. 15.

31,644. Oct. 7.—Rescinding order 29,914 re fire protective appliances on Great Northern Ry. locomotives and ordering company to file before Apr. 1, each year, list by divisions, districts and home terminals of locomotives other than oil burners assigned to service on portions of its Kalispell and Marcus Divisions, B.C., and setting out instructions to be followed respecting their use.

31,645. Oct. 8.—Ordering that crossing of Bay Bridge Road, Belleville, Ont., by C.P.R. and Canadian National Rys., be protected by electric bells and wigwag signals.

31,646. Oct. 7.—Authorizing G.T.R. to install, in lieu of watchman, improved automatic bell and wigwag signals at crossing of Bridge St., Windsor Mills, Que.

31,647. Oct. 15.—Authorizing Vancouver Harbor Commissioners to operate trains over Vancouver, Victoria & Eastern Ry. & Navigation Co.'s tracks, from Burrard Inlet pier, to connection with Canadian National Rys., on south side of False Creek, Vancouver, B.C.

31,648. Oct. 11.—Ordering C.P.R. to file tariffs effective by Dec. 1, showing special class rates from Pacific termini. This order is given in full on another page.

31,649. Oct. 17.—Rescinding order 28,922, Oct. 20, 1919, authorizing Grand Trunk Pacific Ry. to build spur for U.G.G. Sawmills Ltd., at mile 1,222, Cariboo District, B.C.

31,650. Oct. 17.—Ordering Great Northern Ry. to fence right of way on west side in s.w. ¼ Sec., 32, Tp. 8, Range 5, west 1st meridian, Man., by Nov. 30.

31,651. Oct. 13.—Amending order 12,791, Jan. 20, 1911, re Grand Trunk Pacific Ry. crossing by C.P.R., at mile 118 from Regina, Sask., by providing that watchmen at such crossing be appointed by Canadian National Rys. instead of C.P.R.

31,652. Oct. 14.—Authorizing C.P.R. and G. T.R. to install in lieu of watchmen two automatic bells with wigwag signals at crossing at Beaconsfield, Que.

31,653. Oct. 15.—Approving Western Canada Power Co.'s bylaw, authorizing Geo. Kidd, General Manager, W. G. Murrin, Assistant General Manager, and W. D. Power, General Freight and Passenger Agent, British Columbia Electric Ry., to issue tariffs of tolls.

31,654. Oct. 15.—Recommending to Governor in council for approval, Canadian Northern Pacific Ry. plans of temporary lift span at Sumas River bridge, mile 78.8, Port Mann Subdivision, B.C.

31,655. Oct. 11.—Authorizing Canadian National Rys. to connect Canadian Northern Alberta Ry. and Grand Trunk Pacific Ry. in Secs. 25 and 26, Tp. 53, Range 7, west 5th meridian, Alta.

31,656. Oct. 13.—Amending order 12,183, Nov. 5, 1910, re Canadian Northern Ry. crossing by C.P.R. in Sec. 17, Tp. 30, Range 14, west 3rd meridian, Rosetown, Sask., by providing that watchmen be appointed by C.P.R. instead of C. P.R.

31,657. Oct. 18.—Declaring that for the present crossing of Lacroix St., Chatham, Ont., by G.T.R., is protected to Board's satisfaction.

31,658. Oct. 11.—Ordering Canadian National Rys. to erect new station at Endako, B.C., by Sept. 1, 1922.

31,659. Oct. 14.—Amending order 24.017, July 23, 1915, re crossing of Canadian Northern Ry. by C.P.R. at Metrven, Man., by providing that watchman be appointed by C.P.R., instead of C.N.R.

31,660. Oct. 11.—Approving plan of alteration of full interlocker at crossing of Canadian National Rys. by Grand Trunk Pacific Branch Lines Co. at Dana, Sask.

31,661. Oct. 5.—Authorizing Canadian National Rys. to remove station agent at Port Hope, Ont., caretaker to be appointed.

31,662. Oct. 13.—Authorizing Estevan rural municipality No. 5, to carry roadway under trestle crossing Souris valley in Sec. 25, Tp. 2, Range 9, west 2nd meridian.

31,663. Oct. 18.—Authorizing C.P.R. to build spur for J. G. Hargrave & Co., Winnipeg.

31,664. Oct. 18.—Extending for one month from Oct. 3, time within which C.P.R. may complete spur for Knechtel & Sons, and Peplar Bros. Co., Hanover, Ont., as required by order 31,027, May 13.

31,665. Oct. 18.—Authorizing Alberta Public Works Department to make highway crossing over C.P.R. between n.e. and n.w. ¼ Secs. 33, Tp. 38, Range 21, west 4th meridian, Lacombe Easterly Branch, Alta.

31,666. Oct. 18.—Authorizing Canadian National Rys. to operate over swing bridge across Trent Canal, just north of Washago, Ont., when signals are clear, without stopping trains.

31,667. Oct. 18.—Authorizing C.P.R. to build spur for Carbon Gem Mine Co. at mile 59.64, Langdon North Branch, near Carbon, Alta.

31,668. Oct. 17.—Amending order 31,516, Oct. 3, authorizing Toronto, Hamilton & Buffalo Ry. to lower grade of portion of spur for Banwell-Hoxie Wire Fence Co., Hamilton, Ont.

31,669. Oct. 18.—Approving agreement between Bell Telephone Co., and Manvers Municipal Telephone System, Durham County, Ont.

31,670. Oct. 19.—Authorizing North Dumfries Township, Ont., to extend Martin Ave. across Grand River Ry.

31,671. Oct. 19.—Authorizing C.P.R. to cross at grade surveyed road in s.w. ¼ Sec. 29, Tp. 15, Range 13, west 3rd meridian, mile 0.1 Vanguard Subdivision.

31,672. Oct. 19.—Ordering Canadian National Rys. to provide baggage car on through freight train on its Parry Sound-Toronto Branch, scheduling the train to pass Pine Orchard not earlier than 6.45 a.m.; Vandorf, 7.05 a.m.; and Gormley, 7.25 a.m.; theb aggage car, on arrival at Toronto, to be taken into Union Station on a passenger train that will arrive there at 10.15 a.m.

31,673. Oct. 15.—Authorizing N. W. Hawkes, Agent, New England Freight Association Tariff Bureau to publish Supplement to tariff C.R.C. 1, to give effect to proper rates on cotton grain bags, binder twine and binder cord, effective on one day notice.

31,674. Oct. 15.—Authorizing C.P.R. to build spur for Carbon Coal Co., in s.e. ¼ Sec. 14, Tp. 29, Range 23, west 4th meridian, Alta.

31,675. Oct. 20.—Amending order 3494, Aug. 14, 1907, re crossing of Qu'Appelle, Longe Lake & Saskatchewan Ry. by C.P.P. at Saskatoon, Sask., by providing that watchman be appointed by C.P.R. instead of Canadian National Rys.

31,676. Oct. 20.—Authorizing Kitchener Municipal District, 582, Alta, to carry highway over Canadian Northern Western Ry. at Mayerthorpe, Alta.

31,677. Oct. 21.—Authorizing Canadian Northern Ontario Ry. to connect with G.T.R. at Washago, Ont.

31,678. Oct. 20.—Authorizing Fort William Municipal Ry. to operate one man cars over Grand Trunk Ry. spur to Mount McKay Products Ltd., Fort William, Ont.

31,679. Oct. 20.—Approving G.T.R. plan showing re-construction of overhead bridge at Main St., Toronto.

31,680. Oct. 20.—Ordering Grand Trunk Pacific Ry. to appoint caretaker at Gallivan station, Sask.

31,681, 31,682. Oct. 21.—Authorizing Fort William Municipal Ry. to operate one-man electric cars over Grand Trunk Pacific Ry. at Syndicate and Empire Avenues, and over Canadian National Rys. at Arthur and Franklin Sts., Fort William, Ont.

31,683. Oct. 21.—Authorizing C.P.R. to build spur for Rob Roy Mills Ltd., Durham, Ont.

31,684. Oct. 21.—Authorizing Fort William, Ont., Municipal Ry. to operate one-man electric cars over Canadian National Rys. at Victoria Ave., and Vickers St., Fort William, Ont.

31,685. Oct. 21.—Authorizing use of G.T.R. overhead bridge at imlepost 281.03, St. Bruno Parish, Que.

31,686. Oct. 21.—Authorizing Fort William Municipal Ry. to operate one-man electric cars over Grand Trunk Pacific Ry. at Sprague St. and Empire Ave, Fort William, Ont.

31,687. Oct. 21.—Ordering Pere Marquette Rd. to keep all standing cars back 125 ft. from each side of crossing of Murray St., Wallaceburg, Ont., switching movements to be flagged; and declaring that for the present the crossing is sufficiently protected.

31,688. Oct. 12.—Approving location of Canadian National Rys. temporary freight and passenger shelter at Ashmont, Alta.

31,689. Oct. 11.—Amending order 30,348, Nov. 19, requiring C.P.R. to install electric bell at crossing at Barrington, Ont., by striking out provision that 25% of the cost be paid out of railway grade cross fund.

31,690. Oct. 12.—Authorizing Cameron Munipality, Man., to carry highway over C.P.R. between s.e. and s.w. ¼ Sec. 15, Tp. 5, Range 25, west 1st meridian, Man.

31,691. Oct. 13.—Amending order 15,312, Nov. 10, 1911, re C.P.R. crossing of Grand Trunk Pacific Ry., near Wilkie, Sask., by providing that watchman be appointed by C.P.R. instead of G. T.P.R.

31,692. Oct. 21.—Approving location and details of G.T.R. proposed station at St. Polycarpe Jct., Que.

31,693. Oct. 21.—Authorizing C.P.R., Edmonton, Dunvegan & British Columbia Ry., and Canadian National Rys. to operate trains over connecting tracks at Edmonton, Alta.

31,694. Oct. 18.—Ordering C.P.R. and Canadian National Rys. to build interchange track at Montfort Jct., Que.

31,695. Oct. 13.—Ordering that cost of building bridge 4 over Y connecting G.T.R. Toronto Branch, with main line from Hamilton to London, at Burlington Heights, Hamilton, Ont., as approved by order 31,331, be paid by G.T.R.; surfacing required to be paid by City of Hamilton.

31,696, 31,697. Oct. 21.—Approving Sydney & Louisburg Ry. Standard Passenger Tariffs, C.R.C. 3 and C.R.C. 2.

31,698. Oct. 21.—Approving Cumberland Railway & Coal Co. Standard Passenger Tariff, C.R. C. 7.

31,699. Oct. 22.—Authorizing Canadian National Rys. to connect its Duck Lake Subdivision with Grand Trunk Pacific Branch Lines Co.'s Cudworth Subdivision at Holmes, near Prince Albert, Sask.

31,700. Oct. 14.—Authorizing Cape Breton Electric Co. to cross the Canadian National Rys. at Townsend and George Sts. and Victoria Road, Sydney, N.S., and at Commercial St., North Sydney, N.S.

31,701 to 31,703. Oct. 22.—Authorizing Canadian National Rys. to connect with Grand Trunk Pacific Ry. at Union Jct., Riley, and near Camrose, Alta.

31,704. Oct. 24.—Declaring that for present, C.P.R. crossing at Creydon Ave., Mount Dennis, Ont., is protected to Board's satisfaction.

31,705. Oct. 22.—Authorizing Canadian National Rys. to build bridge over Black River at mile 55.9 from Toronto, near Pefferlaw, Ont.

31,706. Oct. 24.—Ordering Canadian National Rys. to build loading platform, of at least two car lengths, at Barwick, Ont.; to be completed by Sept. 1, 1922.

31,707. Oct. 24.—Authorizing Canadian National Rys. to build extension to spur for Arctic Ice Co., Winnipeg, Man.

31,708. Oct. 24.—Ordering Canadian National Rys. to build loading platform, of at least two car lengths, at Devlin station, Ont., to be completed by Sept. 1, 1922.

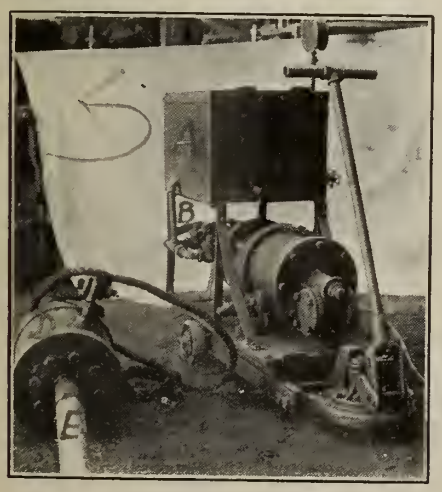
Railway Mechanical Methods and Devices.

Portable Air Jack for Freight Car Work.

The accompanying illustration shows a portable air operated jack, or hoist, used at the G.T.R. car shops, Point St. Charles,

Portable Air Jack.

for short lifts for one end of freight cars under repair. It is made of 1 in. material, the top and bottom covers being secured to the cylinder by 8 studs, ⅝ in., with packing at the joints. The cylinder diameter is 20 in. The air inlet is on the right, and the exhaust on the left.



Portable Hydraulic Ram.

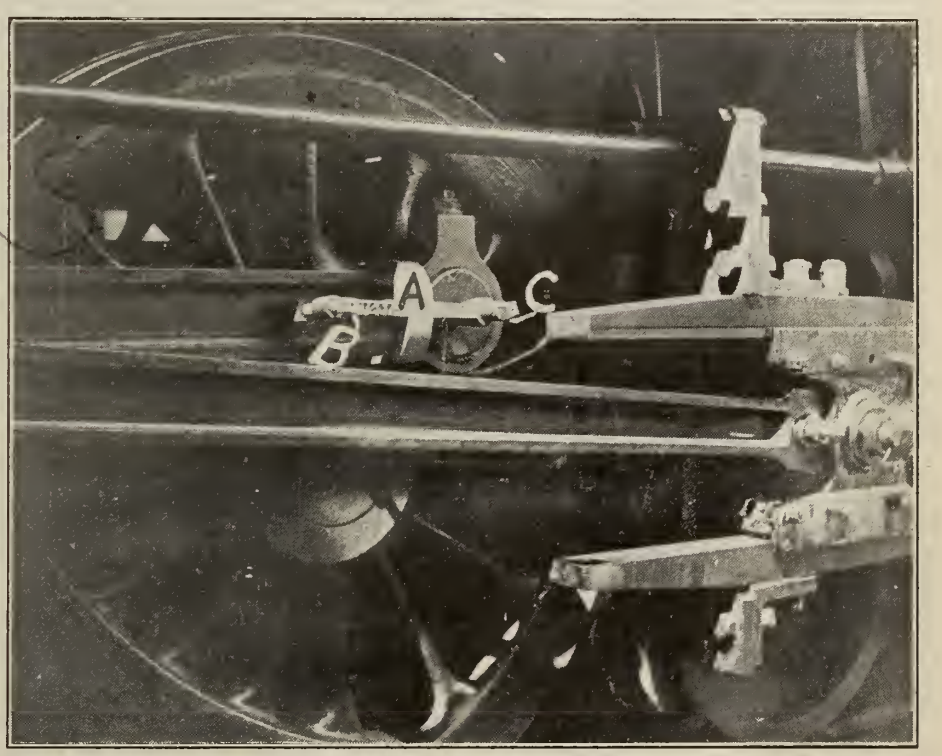
For raising one end of a freight car, two of these jacks are wheeled under it, one at each side, and air pressure from the shop line being turned into the cylinder by a hose connection to the valve on the right, the end of the car is raised quickly. The circular steel lift block, at the top of the piston rod, is cross grooved on top, to produce the maximum friction, while the top of the piston rod, and the bottom of the block, are a little concave and convex respectively, to allow the block a certain amount of play. The cylinder's large diameter, in comparison with the height of the lift, makes these hoists safe, and, on account of being portable, and connected quickly to the air pressure line, the end of a car may be raised quickly by them.

Hydraulic Ram for Putting in Locomotive Cylinder and Valve Bushings.

The illustration shows a portable hydraulic ram, used for forcing in locomotive cylinder and valve chest bushings, at the C.P.R. Angus shops, Montreal, which was designed and assembled at the shops. A is a water tank, built of sheet steel, and mounted on a truck. Use is made of a 9½ in simple air pump, mounted on the truck, with what is ordinarily the steam end of the pump toward the front. The water tank is connected to the intake valves of what is ordinarily the air end of the pump, by pipe B. Pipe C connects the outlet to the cylinder D, in which operates a piston on rod E. In operation, the tank A is filled with water from the shop line, the truck is wheeled to the locomotive in which the bushings are to be put, and the ram cylinder D, with the piston rod, are picked up by the crane and the rod is put through the cylinder and bushing, which latter is placed in position for entering the cylinder. The end of the rod E is threaded, and the block to press against the end of the bushing is held in place by a washer and nut on the end of the rod. The cylinder D being braced in position, and connected by pipe C to the pump, the pump is connected to the air line in the shop, and operated by compressed air at 70-90 lb. pressure. That is, what is ordinarily a steam driven compressor pumping air, becomes an air driven compressor pumping water. The water pressure in cylinder D forces the piston in, starting the bushing into place. On the operation being repeated a few times, the bushing is forced completely into place in the locomotive cylinder. This method of inserting bushings does away with the necessity of heating the locomotive cylinders and valve chests, while the device's portable feature makes it available at any point in the shop.

Device for Tightening Crank Pin Collars.

The accompanying illustration shows a device used at the Quebec Central Ry. shops, at Sherbrooke, Que., in connection with the securing of locomotive crank pin collars. The top and bottom arms of the portion A, which go over and under the side rod, near the end, are flanged at the ends. The set screw B, with square head, passing through the threaded hole in the end of portion A of the device, as shown at the left, presses against the outside of the side rod, while the piece C, passing through the threaded hole in the other end of portion A, as shown at the right, has a square head, and a screw driven point, to engage the slot in the head of the crank pin collar bolt, or set screw, which extends through the crank pin, and is secured by a nut on the inside. With the device set up as shown, a wrench is used on the head of the screw driver C, and, on account of no effort being required to keep the end of the driver C in the slot in the head of the crank pin, the crank pin collar can be tightened up very quickly and thoroughly. We are indebted for this information to E. M. Green, Locomotive Foreman, Q.C.R.



Device for Tightening Crank Pin Collars.

Steam Railway Operating Revenues, Expenses and Other Statistics for August.

The following comparative table, for August, 1921 and 1920, has been arranged in Canadian Railway and Marine World's office, from information supplied by the Dominion Bureau of Statistics' Transportation Branch.

The figures in the column headed "All railways," include all steam railways with an annual operating revenue of $500,000 and over, except the St. Lawrence and Adirondack Ry., which is not able to give the 1920 figures, and is therefore being omitted from 1921 reports, as its inclusion would not show a true comparison. The 1921 figures, however, will be available for comparative purposes for 1922.

The column headed "Canadian Government," includes the Intercolonial, Prince Edward Island, National Trans-

	All railways		Canadian Government		Canadian Northern		Canadian Pacific etc.		Grand Trunk		Grand Trunk Pacific	
	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920	1921	1920
Operating revenues												
Freight	$25,541,021	$25,972,880	$2,075,100	$2,287,104	$3,885,808	$3,631,447	$10,308,242	$10,780,568	$5,018,730	$4,962,579	$1,017,105	$667,550
Passenger	9,830,058	11,029,092	852,150	996,118	1,085,427	1,044,044	4,839,069	5,432,527	1,725,711	2,026,580	217,311	230,962
Mail	597,515	291,822	84,781	44,670	75,028	37,598	281,641	125,391	94,958	46,018	20,953	12,950
Express	1,603,753	1,377,337	155,055	101,458	189,833	141,161	793,347	752,015	332,894	231,991	49,852	33,472
All other	2,371,714	2,562,016	199,304	199,509	402,440	359,137	1,182,296	1,378,927	300,399	298,687	43,688	64,425
Total railway operating revenues	$39,944,063	$41,233,149	$3,366,391	$3,628,861	$5,638,537	$5,213,389	$17,404,597	$18,467,432	$7,472,693	$7,565,858	$1,348,911	$1,039,361
Operating expenses												
Maintenance of way and structures	8,948,807	10,116,585	$1,099,207	$1,255,006	$1,545,678	$2,157,825	$3,511,418	$3,254,916	$1,518,528	$1,208,238	$426,537	$1,194,840
Maintenance of equipment	7,867,634	9,582,190	650,075	819,234	1,084,960	1,238,464	3,473,712	3,845,163	1,283,895	1,574,210	306,923	836,253
Traffic	915,522	810,314	45,181	40,621	130,034	97,531	548,607	443,093	95,892	116,493	29,353	29,687
Transportation	15,616,729	18,570,954	1,573,147	2,160,950	2,644,362	2,961,263	6,218,891	7,784,570	2,950,437	3,060,057	717,030	684,445
Miscellaneous operation	624,698	788,971	56,499	92,496	149,677	124,338	269,764	406,898	48,548	52,167	10,317	36,668
General	845,279	937,296	12,364	55,979	154,692	154,368	316,986	302,576	185,301	208,764	23,507	52,845
All other	Cr. 303,552	Cr. 61,504	.....	.....	288,135	Cr. 68,986	.....	.....	2,280	.....	24,923	.....
Total railway operating expenses	$34,515,119	$40,744,807	$3,436,475	$4,424,289	$5,421,271	$6,668,055	$14,339,382	$16,037,217	$6,084,883	$6,219,932	$1,488,745	$2,834,741
Net operating revenue	5,428,943	488,342	.....	.....	217,266	.....	3,065,215	2,430,214	1,387,810	1,345,926	.....	.....
Net operating deficit	.....	.....	70,084	795,428	.....	1,454,666	.....	.....	.....	.....	1,139,833	1,795,380
Ratio of operating expenses to revenue	86.41%	98.82%	102.08%	121.92%	96.14%	127.90%	82.39%	86.84%	81.43%	82.21%	110.37%	272.73%
Mileage and operating statistics												
Average no. of miles of road operated	38,303.20	37,841.75	4,564.05	4,232.75	9,759.4	9,654.7	13,785.8	13,772.1	3,571	3,571	2,807.3	2,805.3
Tons moved (revenue)	7,862	10,652	551	1,046	990	1,199	2,230	2,890	1,962	2,506	220	191
Tons moved one mile (revenue)	1,809,549	2,516,056	164,822	247,738	289,603	360,421	745,644	1,024,997	365,787	470,449	107,696	74,224
Tons moved (all freight)	9,552	13,620	804	1,231	1,266	1,498	2,909	3,546	2,288	2,781	270	254
Tons moved one mile (all freight)	2,233,779	2,846,574	199,715	274,894	376,908	431,390	908,061	1,204,340	398,107	495,934	126,615	92,342
Passengers carried	4,564	5,127	568	714	529	590	1,646	1,835	1,158	1,298	79	77
Passengers carried one mile	349,863	402,706	35,211	43,814	38,102	44,032	180,757	204,176	55,411	62,438	8,019	8,743
Freight train miles	4,118	4,999	365	516	785	964	1,487	1,908	833	903	253	207
Passenger train miles	4,090	4,375	404	453	568	627	1,898	2,008	701	701	136	158
Mixed train miles	550	589	99	113	141	137	142	168	59	58	30	40
Loaded freight car miles	90,667	117,671	8,551	12,502	14,986	17,815	34,252	48,822	17,111	19,605	4,617	4,228
Empty freight car miles	53,352	39,860	4,636	2,531	10,120	7,817	19,797	14,910	9,252	7,597	4,326	2,426
Passenger car miles	31,815	34,192	3,239	3,736	4,201	4,308	15,479	16,822	4,399	4,580	1,393	1,397
Total amount of pay roll	$20,312,320	$25,430,330	$2,437,382	$2,903,865	$4,080,127	$5,183,084	$7,594,158	$9,669,655	$3,741,478	$4,322,872	$851,743	$1,172,502
Averages per mile of road operated												
Operating revenue	$1,042.83	$1,089.62	$737.58	$857.32	$577.75	$539.98	$1,262.50	$1,340.93	$2,092.61	$2,118.69	$480.50	$370.24
Operating expenses	$901.10	$1,076.72	$752.94	$1,045.25	$555.49	$690.65	$1,040.16	$1,164.47	$1,703.97	$1,741.79	$530.31	$1,009.77
Net operating revenue	$141.73	$12.90	.....	.....	$22.26	.....	$222.34	$176.46	$388.64	$376.90	.....	.....
Net operating deficit	.....	.....	$15.36	$187.93	.....	$150.67	.....	.....	.....	.....	$49.81	$639.53
Tons moved one mile (revenue)	49,357	66,489	36,113	58,528	29,674	37,331	54,088	71,426	102,433	131,742	38,363	26,440
Tons moved one mile (all freight)	58,318	75,223	43,758	64,945	38,620	44,682	65,869	87,433	111,483	138,878	45,102	32,894
Averages per freight and mixed train mile												
Freight receipts	$5.47	$4.65	$4.46	$3.63	$4.19	$3.30	$6.33	$5.19	$5.62	$5.16	$3.58	$2.74
Tons of freight (revenue)	404.9	450.2	354.0	393.7	312.4	327.1	457.5	493.6	409.5	489.4	378.6	299.9
Tons of freight (all freight)	478.4	509.3	428.9	436.8	406.6	391.5	557.2	579.8	445.7	515.9	445.1	373.1
Loaded freight cars	19.4	21.0	18.4	19.9	16.2	16.2	21.0	23.5	19.2	20.4	16.2	17.1
Empty freight cars	11.4	7.1	10.0	4.0	10.9	7.1	12.1	7.2	10.4	7.9	15.1	9.8
Averages per passenger and mixed train mile												
Passenger receipts	$2.18	$2.22	$1.69	$1.76	$1.53	$1.37	$2.37	$2.52	$2.27	$2.67	$3.20	$2.56
Passengers carried	75.4	81.1	69.8	77.4	53.7	57.6	88.6	93.8	72.7	82.2	48.0	43.9
Passenger cars	6.9	6.9	6.4	6.6	5.9	5.6	7.6	7.7	5.8	6.0	8.3	7.0
Averages per freight, passenger and mixed train mile												
Operating revenue	$4.56	$4.14	$3.86	$3.35	$3.77	$3.02	$4.93	$4.52	$4.68	$4.55	$3.20	$2.56
Operating expenses	$3.94	$4.09	$3.95	$4.09	$3.63	$3.86	$4.06	$3.93	$3.81	$3.74	$3.54	$6.98
Aver. length of haul (rev. freight) miles	240.4	236.2	298.8	236.8	292.4	300.5	334.3	354.6	186.4	187.7	488.4	386.6
Average passenger journey, miles	76.6	78.5	61.9	61.3	71.9	74.6	109.8	111.6	47.8	48.1	101.0	113.4
Average tons per loaded freight car	24.6	24.2	23.4	22.0	25.2	24.2	26.5	24.7	23.3	25.3	27.4	21.8
Ratio loaded to total freight car miles	62.9%	74.7%	64.8%	83.2%	59.7%	69.5%	63.4%	76.6%	64.9%	72.1%	51.6%	63.7%
Ratio of pay roll to revenue	50.9%	61.7%	72.4%	80.0%	72.4%	99.4%	43.6%	52.4%	50.1%	57.1%	63.1%	112.8%
Ratio of payroll to operating expenses	58.9%	62.4%	70.9%	65.6%	75.5%	77.7%	53.0%	60.3%	61.5%	69.5%	57.2%	41.4%
Aver. freight receipts per rev. ton mile	1.351c.	1.032c.	1.259c.	.923c.	1.342c.	1.008c.	1.382c.	1.052c.	1.372c.	1.055c.	.944c.	.912c.
Aver. passenger receipt per pass. per mile	2.810c.	2.738c.	2.420c.	2.273c.	2.849c.	2.371c.	2.677c.	2.661c.	3.114c.	3.246c.	2.710c.	2.870c.

Last 2 figures omitted

continental and various local lines in the Maritime Provinces and Quebec, which have been acquired by the Dominion Government and added to the Canadian National Rys.

The column headed "Canadian Northern," includes the lines operated as the Canadian Northern Ry. System, prior to its acquisition by the Dominion Government.

The column headed "Canadian Pacific, etc.," includes also the Montreal and Atlantic, and Esquimalt & Nanaimo Rys.

The column headed "Grand Trunk" includes its Canadian lines only.

The Railways' Operating Statistics for August.

The improvement in the operating and financial condition of Canadian railways was more pronounced in August than in any preceding month of this year. While the gross operating revenues for the railways as a whole were smaller by 3% than in Aug. 1920, despite the increased rates, they were, however, almost $4,000,000 greater than in July 1921. Compared with Aug. 1920, the Canadian Northern and the Grand Trunk Pacific Railways had larger gross operating revenues. While the G.T.R. had larger freight revenues than in Aug. 1920, its passenger revenue showed a large decrease.

Total operating expenses shows a reduction from Aug. 1920 of $6,229,688, or 15%. The reduction in maintenance of way and structures expense was 11.5%, in maintenance of equipment expense $17.8%, and in transportation expense 15.9%. Of the total reduction in operating expenses, 83%, or $5,118,010, is accounted for by a 20% reduction in the total payroll, the July wage cut being responsible for somewhat over half of this decrease, and reduced traffic accounting for the remainder. The cost of materials has also decreased considerably. Steel rails which cost $70 a ton in Aug. 1920 cost $60 in 1921; car axles costing $115 a ton in 1920 cost $100 and $95 in 1921. Bar iron and mild steel also show decreases of from 20 to 30%. The official index number of wholesale prices shows, for Aug. 1921, as compared with Aug. 1920, decreases of 28.8% for iron and steel, 40% for fuel, 32% for lumber, and 15% for miscellaneous building materials.

Canadian Government Rys. total operating expense decreased 22%, transportation expense decreased 27%, and the payroll decreased 16%. The Canadian Northern total operating expense decreased 19%, transportation expense decreased 20% and the payroll decreased 21.5%. The C.P.R. total operating expenses decreased 10%, maintenance of way expense increased 8%, maintenance of equipment expense decreased 9% and transportation expense decreased 20%. The C.P.R. payroll decreased 21%, the decrease in the payroll, $2,075,497, being greater than the decrease in total expenses. G.T.R. maintenance of way expense increased 25%, maintenance of equipment expense decreased 18%, transportation expense decreased 4%, total operating expense decreased 2%, and payroll decreased 13%. The G.T. Pacific shows remarkable reductions in operating expense, the total operating expenses decreasing 47%, maintenance of way 35%, maintenance of equipment 36%, transportation 4.5%, and payroll 27.5%.

For the railways as a whole, the operating ratio for August was 86.41%, against 98.82% for Aug. 1920, it being evident that the improvement which has taken place is large. A large improvement over July, when the operating ratio was 93.67, and preceding months of the year is also evident. The operating ratio of 102 for Canadian Government Rys. is the best attained this year; the operating deficit of $795,427 in Aug. 1920 being reduced to $70,084 in Aug. 1921. On the Canadian Northern, the net operating revenue of $217,266 was the first secured this year. Its operating ratio of 96.14 for Aug. 1921, compares with 108.39 for July 1921 and 127.9 for Aug. 1920. The C.P.R. operating ratio of 82.39 in Aug. 1921 compares favorably with 86.84 in Aug. 1920 and 87.1 in July 1921. The G.T.R., with an operating ratio of 81.43, shows an improvement over Aug. 1920, when it was 82.21, and over July 1921, when it was 85.63. The operating ratio of 110.37 on the G.T. Pacific was the best this year to the end of August; the decrease from 272.73 in Aug. 1920 representing a great improvement.

The reduction in gross operating revenues for the railways as a whole is amply accounted for by the traffic figures. As compared with Aug. 1920, there was a decrease in loaded freight car miles of 13%, in revenue freight ton miles of 24%, and in passengers carried one mile of 13%. As between the two months, the average length of freight haul, and the average passenger journey did not vary materially. Freight train miles decreased 17.6%, which is not so great a decrease proportionately as that in revenue freight ton mileage, which was, as just stated, 24%, and while passenger miles decreased 13%, passenger train mileage decreased only 6.6%. It is thus evident that the railways were still handicapped during August by the necessity of turning out more train miles in proportion to revenue traffic offering than would have been the case if traffic had been more nearly equal to their capacity for handling it.

Freight traffic shows a substantial decline on the Canadian Government, Canadian Northern, Canadian Pacific, and Grand Trunk Rys., but, due largely to a working arrangement with the Canadian Northern, freight traffic on the G.T. Pacific shows a remarkable increase over Aug. 1920. Passenger traffic shows a decline on all roads. For all roads, the average freight receipts per ton mile, 1.351c., show an increase of 30% over those of Aug. 1920. While passenger rates were on the same basis as in Aug. 1920, the results show an increase of 2% in the average receipts per passenger mile.

While, as stated above, revenue freight ton mileage for all roads decreased 24%, and revenue passenger mileage 13%, as compared with Aug. 1920, it is worthy of note that in July 1921, revenue freight ton mileage decreased 30%, and revenue passenger mileage 21%, as compared with July 1920. It is evident from this comparison that August saw Canadian railway traffic relatively increasing in volume, and while train mileage was still large in proportion to traffic handled, the ratio was more favorable than in preceding months, and there is no doubt that the improvement in conditions in this respect was a large factor in securing the favorable, relatively speaking, operating results of the month. Taken as a whole, and with due regard to the decrease in traffic and to the decrease in labor and material costs, maintenance expenditures were such as to indicate that maintenance work was well kept up during the month. It is evident that the wage cut, applying throughout the whole month for the first time, was a large factor in the great decrease in operating expenses recorded.

From the August figures, and from preliminary figures for following months, it is clear that the improvement in the operating and financial position of Canadian railways has been taking place more rapidly recently than during the early part of the year. While the operating ratio of 86.41 for August was still a long way above what may be considered a satisfactory operating ratio, which should not be over 75, for railways which are strictly commercial enterprises, there is reason to believe that the figure is being steadily reduced, and a satisfactory condition for all concerned, is the improvement which is being secured on the movement of an increased traffic. Having due regard for the future transportation requirements of the country, which will inevitably necessitate the expenditure of a large amount of new capital, it may confidently be stated that it is in the national interest that the railways continue to be favored with improvement in their position. While the recent reduction in rates will of course have a tendency to retard the progress toward greater improvement, it is worthy of note that reductions voluntarily made by the railways previously are included in the 10% freight rate reduction. With traffic increasing, it is reasonable to suppose that the decreasing unit costs of handling the increased traffic will compensate for the effect of the rate reduction. While not at all subscribing to the view that prevailing freight rates have acted to retard the movement of freight, we have no hesitation in saying that the reduction in sleeping car and parlor car charges will tend to increase sleeping car and parlor car traffic, and it is probable that gross revenues from these services will suffer little, if any decrease. Taken on the whole, the prospects for the Canadian railway industry are brighter now than at any time during the past four years.

Mexican Trade Investigation. — F. A. Young, Special Representative, Canadian Government Merchant Marine, Toronto, left there at the end of October, via Vancouver, to make a traffic survey in connection with the establishment of a steamship service from British Columbia. His itinerary includes Encenada, Mazatlin, Manzanillo, Salina Cruz, Mexico City and Mexican Gulf ports. He will probably return to Toronto in December.

E. H. Fitzhugh vs. Central Vermont Ry. et al:—The New Hampshire, U.S. A., Supreme Court, towards the end of October, dismissed the defendants' appeal from the lower court's decision, which overruled demurrers filed by defendants, and the action was to be tried on Nov. 14 at Concord, N.H., but up to the time of writing (Nov. 28), the result has not been announced.

Freight Rate Reductions Ordered by Board of Railway Commissioners.

The following statement was issued at Ottawa, Nov. 22:—"The Board of Railway Commissioners has decided that there shall be a general reduction of 10% in all freight rates, applicable to all steam roads under its jurisdiction in Canada. In any case where reductions have aready taken place since Sept. 13, 1920, these shall be considered as a part of the 10% reduction; in cases where the reductions already granted have exceeded 10%, the present rate shall not be increased. There will be no reduction on commodities which were not increased in 1920, such as crushed stone, sand, gravel and milk, and no decrease in services, the charges for which were not increased. The existing rates on coal shall not be disturbed, because they were given special treatment in 1920. There shall be a decrease in all sleeping car, parlor and Pullman car fares of one-half of the increase granted in 1920. The details of decreases will be fully set forth in a general order. The companies shall file tariffs accordingly, effective on Dec. 1."

The Board passed general order 350, Nov. 24, and general order 351, Nov. 26, which are consolidated as follows:—Re increases in freight rates and sleeping and parlor car fares, authorized under the general order 308, Sept. 9, 1920; and re the Board's powers under the Railway Act, 1919, sec. 325. Whereas the Board has decided that there should be a general reduction in the tolls which were increased under its general order 308, it is ordered as follows:—

1. That companies operating steam railways subject to the Board's jurisdiction file tariffs, effective Dec. 1, providing for the following reductions in domestic freight rates within Canada, excepting transcontinental commodity rates (hereinafter mentioned) and rates on coal, crushed stone, sand, and gravel, as follows: (a) In the territory east of and including Westfort, Fort William, and Port Arthur, Ont., rates based upon 25% over the rates in effect prior to Sept. 13, 1920. (b) In the territory west of and including Port Arthur, Fort William, and Westfort, Ont., rates based upon 20% over the rates in effect prior to Sept. 13, 1920. (c) On through rates between eastern and western territories, the above named percentages shall apply to the eastern and western factors respectively. (d) Recognized differentials in commodity rates to be preserved as far as practicable. (e) Transcontinental commodity rates shall be constructed on the basis of an increase of 23 1/3% over the rates in effect prior to Sept. 13, 1920. (f) That rates on cordwood, slabs, edgings and mill refuse for fuel purposes be restored to the basis in effect prior to Sept. 13, 1920.

2. That sleeping and parlor car fares be reduced to the basis of 25% over the fares in effect prior to Sept. 13, 1920.

3. Provided that no rates at present in effect be increased under the provisions of this general order.

4. That this order shall not apply to the minimum class scale established by order in council 1863, nor to switching rates and charges for special services, such as milling-in-transit, stopover, demurrage, and weighing.

5. That, in working out the rates authorized under this order, fractions be disposed of as set out in order in council 1863.

Assistant Chief Commissioner S. J. McLean gave the following judgment:—"Prior to the issuance of my memorandum of Sept. 13, I had expressed, in the Board's preliminary discussions, the opinion that if, on the facts, a rate decrease was found justifiable, it should be a percentage decrease. The increase having been a percentage one, there appeared to be merit in the contention that the decrease should also be a percentage one. My memorandum, above referred to, set out the opinion that the determination of the justifiability of a decrease in rates pivoted on the question of wage reductions, a matter then under consideration before a special tribunal. I was of opinion that until the outcome of this wage investigation was made apparent I was not justified in expressing an opinion as to a rate reduction based on a wage reduction when the latter was still unsettled; that is to say, that until information was available as to the outcome of the pending hearing regarding wage reductions, I was not in a position to express an opinion either as to whether there should be a rate reduction or as to what the extent of a rate reduction might properly be. Owing to the nature and complexity of the agreement between the C.P.R. and its employes, arrived at on Oct. 8, on the eve of the Board's western sittings, in which I participated, I was unable, before leaving for the west, to obtain any information to enable me to measure the amount and effect of what was covered by the agreement in question. Notwithstanding my endeavors, I was unable, until my return from the west, to obtain the necessary information as to the effect and extent of the wage reduction. This information having been obtained, the difficulty in the way of arriving at a conclusion was removed; and I was of opinion that a percentage decrease in rates was justifiable. I am, therefore, in agreement with the Board's decision as communicated in summary form to the public and embodied in a general order making the Board's decision operative."

Commissioners A. C. Boyce and J. G. Rutherford gave the following judgment: "The memorandum of the Assistant Commissioner, relative to the rate reductions now ordered, sets forth very clearly, save in one particular, the position of the two other members of the Board, who did not see their way to concur in the Chief Commissioner's judgment as issued on Sept. 13. During the conferences preceding the issue of that judgment, we were throughout strongly in favor of the policy of requiring from the railway companies substantial reductions in freight rates on basic commodities, such as grain, lumber, pulpwood, coal, ores and other specified raw materials, as being of vastly greater importance than a percentage reduction on all classes of freight, the benefits derived from which will, in many cases, be absorbed before they reach the general public. The principle of the policy advocated by us was illustrated by the substantial reduction in the rates on live stock granted in August last, as also by the special treatment given to the rates on coal, milk and other articles in the Chief Commissioner's judgment granting the rate increases in Sept. 1920. It is further illustrated by the substantial rate reductions on basic commodities which will shortly come into effect in the United States, as a result of the Interstate Commerce Commission's recent orders. As however, we were in a minority, we were prepared to agree in the straight percentage reduction and would have done so, but for the reasons set forth in the Assistant Chief Commissioner's judgment of Sept. 13 (in which we concurred), and in his memorandum of even date on the present situation. We are therefore, in agreement with the Board's decision, as communicated in summary form to the public and embodied in a general order, making the Board's decision operative."

Flood Damages to British Columbia Railways.

During the week preceding Oct. 28, the heaviest rainfall experienced on the southern British Columbia coast was recorded, the fall in Vancouver and vicinity being about 10 in., while along the Coast Range, north of Burrard Inlet, and the Fraser Inlet, the fall was much heavier. There is a record at Lake Buntzen, which is the headwaters of the Coquitlam River, of a rainfall of 14 in. in two days. These conditions resulted in the swelling of all the small rivers and creeks in the Cascade Mountains to flood proportions, with considerabe damage to property. The only case where there was loss of life was in the bursting of an industrial railway bank near Squamish, which resulted in the sweeping away of the mining village of Britannia Beach with the loss of over 30 lives.

The most serious damage suffered by the C.P.R. was at Coquitlam, 17 miles east of Vancouver, where two 80 ft. spans across the Coquitlam River were carried away. Coquitlam, which is the freight terminal for Vancouver, was all flooded, making it impossible to use yard or locomotive house facilities. A number of slides and washouts occurred in the Fraser River Canyon. The bridge across Yale Creek had one pier carried out, and a small lake in the mountains, 17 miles east of North Bend, overflowed and sent a stream down the mountain side to the tracks, carrying out the fill for a distance of 200 ft. to a maximum depth of 110 ft. All this damage occurred on Oct. 28 and 29, and while repairs were being made traffic was diverted via the Great Northern Ry. to Huntington, B.C. Through traffic was resumed on the C.P.R., Nov. 2, and the conditions at Coquitlam became normal two or three days later. On the Kettle Valley Ry., there were a number of slides and washouts on the Coquihalla Pass section, making that line impassable for through traffic from Oct. 28 to Nov. 1.

The Canadian National Ry. appears to have suffered less damage than did the C.P.R. There were a number of small slides and washouts on the Port Mann Subdivision, but these did not cause much delay to traffic. On the Boston Bar Subdivision, however, a large fill was washed out, which necessitated the construction of an 18 bent trestle, and delayed traffic considerably between Oct. 28 and Nov. 1.

Considerable damage was also caused to the Pacific Great Eastern Ry. between Squamish and Clinton. Repairs were, on Nov. 17, reported to be in progress, by the Northern Construction Co., and it was expected to reopen the line for traffic by Nov. 30.

Railway Rolling Stock Orders and Deliveries.

The C.P.R., between Oct. 13 and Nov. 13, received 2 cabooses from its Winnipeg shops.

The G.T.R. has received 600 flat cars, 100,000 lb. capacity, from National Steel Car Corporation, the balance of an order for 1,000 given in 1920.

The C.P.R. bought the private car Cromarty from J. K. L. Ross, one of its directors, recently, and has renamed it Hochelaga.

The G.T.R. is asking prices for the supply of 200 refrigeratar cars for Chicago, New York & Boston Refrigerator Co., one of its subsidiaries.

Montreal Locomotive Works delivered, during October, 3 locomotives, 4-8-2 type, cylinders 22 x 26 in., to South African Rys. They were shipped from Montreal by Elder Dempster & Co.'s s.s. Calgary to Cape Town, and are a portion of an order for 13, details of which were given in our August issue.

The 500 oil tank cars built for the Russian Soviet Government by Canadian Car & Foundry Co. have all been shipped from Montreal by Canadian Government Merchant Marine steamships to Novorossisk, a Black Sea port. The s.s. Canadian Seigneur sailed Nov. 10 with 90 of the cars, and was followed by Canadian Ranger, Nov. 13, with 100 cars, and by Canadian Challenger, Nov. 20, with another 100 cars. We were advised Nov. 22 that the balance of the cars were being loaded that week on the Canadian Commander and Canadian Miller, and that the ships were expected to reach Novorossisk in about 30 days from their respective sailing dates. An Associated Press dispatch, dated Riga, Nov. 9, published in daily papers, said:—"Four ships have arrived at Novorosssisk, a Black Sea port of Russia, with 500 oil tank cars from Canada, says a dispatch received here today from Moscow." This was evidently a pure invention, passed off as "news," as no shipments were made from Montreal prior to Nov. 11.

Oil Tank Car for Russian Soviet Government, built by Canadian Car & Foundry Co.

The Toronto Globe said on Nov. 19:—"A contract said to amount to $2,000,000 for building 3,000 cars for the Canadian National Rys. has been let by the Government to Canadian Car & Foundry Co., Montreal, according to an official of the Brotherhood of Railway Carmen, who was in the city with the intention of bringing it before the Protective Board of the Brotherhood on the National Railways. His information, he intimated, was from a reliable source in Montreal, and he added:—'We are also told that two other companies will receive contracts for car building. Efforts are being made to have the matter kept quiet on account of the election, but we intend to make representations to the Government upon it.' Assuming his information to be correct, the brotherhood officials said the Government's action in letting contracts to a private concern was not consistent with a public ownership policy and its professions to relieve unemployment, since the work would be confined to certain cities, instead of being spread over the country, as would be the case if the Government would insist that the work be done in Canadian National Railways shops, which, he stated, were capable of handling the contracts which the Government was letting to private concerns." The foregoing is a striking illustration of the utter unreliability of a large amount of the so called "news" given in many of the daily papers, especially during elections. Lie after lie is published broadcast, and in the great majority of cases no corrections are given by the papers circulating the false information. No contract for building 3,000 cars, or any other number, has been given by Canadian National Rys. recently, but contracts have been given for repairing 2,000 C.N.R. and 1,000 Grand Trunk Pacific Ry. cars, the reasons for which, with full particulars, were given in Canadian Railway and Marine World for November, pg. 584.

"The Future of Railroading is Electrification" was the subject of a paper read before the Canadian Railway Club in Montreal, Nov. 8, by W. R. Stenemetz, Manager, Heavy Traction Department, Westinghouse Electric & Manufacturing Co., East Pittsburg, Pa.

Reduced Freight Rates for Fodder for Quebec Farmers' Live Stock.

Canadian Railway and Marine World for November stated that the Quebec Minister of Agriculture had announced that owing to the failure of the hay crop he had succeeded in getting the railways to give the following reductions in freight rates: 33 1/3% on corn ex elevators forwarded from Quebec or Montreal or any ports of the Great Lakes to any station in the Province of Quebec; 33 1/3% on grain screenings forwarded from Port Arthur, Fort William, Westfort and Armstrong, to any point in the province; 25% on hay, which restores the rate in effect in Sept. 1920. The reductions on hay will only apply to points within the province. Only farmers and agricultural societies may get the benefit of these lower rates. All cars to be billed to the Quebec Department of Agriculture and to be delivered to buyers upon receipt of an order to the Department.

On Oct. 26 the Montreal Board of Trade's Transportation Bureau wrote the Board of Railway Commissioners as follows:—"I am directed to respectfully ask the Board to disallow, pending a hearing, C.P.R. Tariff C.R.C. E-3891 and C.R.C. E-3892, both effective today and both issued Oct. 21. The first mentioned tariff applies to hay in carloads between C.P.R. stations in the Province of Quebec, and the latter to grain screenings in carloads from Port Arthur, Fort William and Westfort, and to corn in carloads from Montreal and Georgian Bay ports, to stations on the C.P.R. and connections, in the Province of Quebec. The grounds on which disallowance is asked are: 1. Discrimination as between products. There are several kinds of feed manufactured by Canadian millers from Canadian grain entering into direct competition with grain screenings, and also with corn, the latter by the way, being entirely of foreign production. 2. Discrimination as between persons. The railways are in these tariffs favoring those to whom the Quebec Minister of Agriculture will sell the goods, as against all those who would procure their requirements through dealers in the province. 3. The hay, grain screenings and corn to which the tariffs refer are not intended for the Quebec Government's use for its own purposes, nor for free or charitable distribution, but when distributed by sale to certain consumers in the province directly compete with the established grain trade and thereby constitute a special privilege. A similar request for disallowance applies of course to like tariffs of the Canadian Government and Grand Trunk Railways."

The Board of Railway Commissioners passed order 31,821, Nov. 24, dismissing the complaint by the Montreal and Quebec Boards of Trade and the Canadian National Millers Association against the tariffs referred to.

Armistice Day Recognized.—The Canadian National, Canadian Pacific, Grand Trunk, and several other Canadian railways, also the Reid Newfoundland Co.'s railway, observed Armistice Day, Nov. 11, by stopping traffic for two minutes.

The Alberta & Great Waterways Ry. put a revised freight tariff in effect Oct. 22, under which stations to Thornhill, mile 39, are transferred from the Mountain Class to the Prairie Class basis, which means a reduction of about one third in the rates.

Railway Freight Rates in the United States.

As stated in Canadian Railway and Marine World for November, pg. 580, the Interstate Commerce Commission ordered decreases in rates on grain and hay in U.S. western territory to equal one half of the increases granted in Aug. 1920 by ex parte case 74, which were 35% in the western territory, 25% in the mountain-Pacific territory, and 33 1/3% inter-territorial. While the Commission did not make a formal order for the reduction(it issued a statement accompanying its recommendations, say that it expected the new rates to be put into effect by Nov. 20.

Western carriers, during the hearings preceding the issuance of the Commission's decision, opposed the decreases, on the grounds that the saving to the individual farmer would be so small as to be useless; that the daily fluctuations in the prices of grains on the market were greater than the changes which would result from the proposed reductions; that the railways' financial condition was not such that the reductions should be made, and that elevator companies and others concerned in the handling of the grain crop were deriving unjustly large profits from their operations, and were therefore better able to stand a reduction of revenues than were the railways. It was also pointed out that the order to reduce rates was not in keeping with the terms of the Transportation Act, which prescribed a net return to the railways of 6%, whereas they were not earning even half that rate. The Commission, in its decision, attempted to show that the Transportation Act's rate making provisions were taken into consideration, by stating that it calculated on large reductions in operating expenses.

When the Railroad Labor Board issued its statement to the effect that no further wage reductions would be considered till the cases involving working conditions then before it were disposed of, the railways submitted to the Interstate Commerce Commission that the anticipated decreases in operating expenses were far removed, and applied for a large modification in the reductions ordered in western grain and hay rates. A Washington press report of Nov. 21 states that the Commission has refused this application, and that a formal order has been issued, requiring the railways to put the rate decreases into effect on or before Dec. 27.

As in Canada, so in the U.S., the railways have voluntarily made many rate reductions, and on Nov. 16, following a meeting in New York of all member roads of the Association of Railway Executives, the following statement concerning another large reduction was issued by T. De Witt Cuyler, Chairman of the Association:—"—The executives of U.S. railways today determined to make for a period of six months an immediate reduction of 10% in car load freight rates on farm products, any reduction in such rates made since Sept. 1, 1920, to be constituted a part of such 10%, this reduction to be put in effect without waiting for a reduction in wages. This reduction to apply throughout the entire territory of the U.S., except on traffic moving wholly within New England.

"The railways have already reduced freight rates substantially from the level established by the Commission in Aug. 1920. The reductions already made are estimated as accurately as can be to involve a loss of revenue at the rate of $175,000,000 to $200,000,000 annually. These reductions on many roads represent a loss much greater than any corresponding saving realized from reductions in wages already effected. The railways are, furthermore, awaiting decisions of the Labor Board, which it is hoped will relieve the companies from the expense of many onerous and uneconomical working conditions. The railways are not in a financial position to make this sacrifice. Unless there should be some revival in business, the probability of which is purely conjectural, the entire immediate loss involved in this proposed reduction in rates would be taken from the net earnings of the railways. In making this reduction the railways are relying upon the public for effective aid in bringing about the necessary reduction in labor and other costs of transportation, and are hoping for the co-operation of labor itself to that end. They have taken the first step in relieving existing business depression and have given an earnest of their fixed purpose to reduce rates and to relieve at the earliest practicable moment as far as reasonably possible the transportation burden on the public. The resolutions adopted at the meeting today were as follows:—

"1. A reduction, for an experimental period of six months, of 10% in car load rates on wheat, corn, oats, other grain, flour and meal, hay, straw and alfalfa, unmanufactured tobacco, cotton, cottonseed and products, except cottonseed oil and cottonseed meal, citrus fruits, other fresh fruits, potatoes, other fresh vegetables, dried fruits and vegetables, horses and mules, cattle and calves, sheep and goats, hogs, poultry, eggs, butter and cheese, and wool, any reduction in such rates made since Sept. 1, 1920, to constitute a part of this 10%; it being understood that such reduction of 10% shall not apply to traffic moving wholly within New England, and that if the reduction of wages and labor expenses referred to in paragraph 2 hereof is put into effect prior to the expiration of the said experimental period, this limitation of six months shall not apply to the said reduction in rates. It should be noted that the loss of revenue resulting from this reduction would all come out of the net revenue of the carriers.

"2. The necessary steps under the law, including, in case of failure to agree in conference, an application to the U.S. Railroad Labor Board, to be filed as promptly as possible, for a reduction in the wages of employes, with the understanding that, concurrently with such reduction in wages, the benefit of the reduction thus obtained shall, in a manner approved by the Interstate Commerce Commission, be passed on to the public in the reduction of existing railway rates, except in so far as such reductions in rates shall have been made in the meantime.

"3. An application to the Interstate Commerce Commission for a rehearing of the hay and grain case, and meanwhile for a general inquiry by the Commission to ascertain whether, until a substantial reduction can be secured in the labor and other costs of operation, any further reduction in rates could lawfully be required or, with due regard to the transportation industry, is possible."

A Message to G.T.R. Employes.

Howard G. Kelley, President, G.T.R., has issued the following message to all employes:—"I take pleasure in directing your attention to the extracts here presented from the address of Sir Joseph Flavelle, Bart., Chairman of the Board of Directors, G.T.R. System. This message should serve as an inspiration to every man and woman in the service of the railway. Moreover, I would like its full import understood in the home of each G.T.R. worker. It means that at no time in its history has the G.T.R. System been so well equipped to carry on a vast transportation business as it is today. With its property physically sound, and having the loyal and efficient working force to which Sir Joseph alludes, this railway can attain the highest degree of success. Such a result must affect favorably the community as a whole and the future of everyone in the service. To bring an ever increasing amount of business to the road should, therefore, be the aim of every employe, no matter in what department engaged. Have you realized that, through your family and friends, you can be an active and very valuable soliciting agent for freight and passenger traffic? Are you doing your part? From freight transported and passengers carried come the receipts from which the pay rolls are met. Sir Joseph Flavelle's words of commendation are most encouraging. They should evoke a ready response. Let that response take the form of sustained effort and a striving to develop further that spirit of co-operation upon which success depends."

Sir Joseph Flavelle's remarks, to which Mr. Kelley refers, were given in Canadian Railway and Marine World for November, pg. 589.

Inspector of Railway Appliances. — The Civil Service Commission has established the following eligible list as a result of competition for the position of Inspector of Railway Safety Appliances, at an initial salary of $1,920 a year:— James Wm. Reid, Vancouver, B.C. (overseas active service); Thos. H. Sands, Regina, Sask. (overseas active service); Wm. R. Follis, Calgary, Alta.; Michael S. Carrigan, Ottawa, Ont. We were advised by the Board of Railway Commissioners, Nov. 25, that J. W. Reid had been appointed as the Board's Inspector of Railway Safety Appliances at Calgary, Alta.

Railway Section, Engineering Institute of Canada.—Railway engineers, who are members of the Engineering Institute of Canada's Montreal branch, formed a railway section, Nov. 18. P. B. Motley, Engineer of Bridges, C.P.R., is chairman; A. S. Going, Engineer of Construction, G.T.R., is vice chairman, and J. L. Busfield is Secretary. Papers on Signalling were read by C. H. Tillett, Signal Engineer, G.T.R., and by C. W. Parker, Signal Engineer, C.P.R.

Locomotive Boiler Explosion.—A Fort William, Ont., press dispatch of Nov. 17, says that a Canadian National Rys.' locomotive boiler exploded at Alcona, killing G. C. McNab, the locomotive man, and badly scalding Fireman G. Reid. Alcona is on the Lake Superior Subdivision, 186.2 miles northwest of Mission (Fort William), 3.2 miles southeast of Superior Jct., and 9.5 miles east of Sioux Lookout.

The Lieutenant Governor of Ontario's Views on Business Newspapers.

His Honor Colonel Henry Cockshutt, Lieutenant Governor of Ontario, was the principal guest at a luncheon given by the Canadian National Newspapers and Periodicals Association during its annual meeting in Toronto on Nov. 10. The Association's President, Acton Burrows, Proprietor, Canadian Railway and Marine World, in proposing the Lieutenant Governor's health, said:—"Your Honor, I know that I express the feeling of every member of our Association in saying that we deeply appreciate the honor you have done us by being present today, and in consenting to address us, more especially as I believe that this is almost the firt, if not the first, luncheon gathering that you have addressed in Toronto since your appointment. Gentlemen:—It is a matter for congratulation that the position of Lieutenant Governor has again been filled by the appointment of a business man. There was a time—not so very long ago—when the lieutenant governors of this province, as well as many other provinces, were selected principally from among the politicians, or from the legal fraternity. A departure was made when Lt. Col. Hendrie, who, although a politician to some extent, was also a successful business man, was appointed in 1914. His appointment was followed by that of Mr. Lionel Clarke, another successful business man, who had performed great public services for this city, and whose untimely death is universally regretted. Now we have, as Lieutenant Governor, our guest of today, a thoroughly representative business man, who, starting in 1884, to learn systematically from the bottom, the details of a great manufacturing business, became its Secretary-Treasurer in 1888, its Managing Director in 1893, and its President in 1911, and is also on the directorate of several other manufacturing and financial institutions. He has also served his native city of Brantford as President of its Board of Trade, and as Mayor for two years. When the Great War came, he not only organized, but also financed, the 215th Battalion, of which he was Lieut. Colonel, and is now Honorary Colonel. This is a record of which any man might well be proud, and it is no wonder that his recent appointment to the Lieutenant Governorship has met with the most hearty popular approval. On your behalf, I wish him and his gracious wife, a most happy occupancy of Government House. The Lieutenant Governorship is not, as some may think, by any means a sinecure, and a person accepting it makes great personal sacrifices. Its occupancy means a never ending round of public duties of a more or less exacting nature, for not only the Lieutenant Governor, but the members of his family, and it also necessitates the expenditure by the occupant of a very large amount of money beyond the meagre allowances made by the Dominion and Provincial Governments. Your Honor:—The Canadian National Newspapers and Periodicals Association embraces the agricultural, the business, the educational, the religious, and the technical newspapers, and the magazines of Canada. These are actually national publications, the circulation of the great majority of them extending from the Atlantic to the Pacific. I fell sure, Sir, that you, as a business man, know and appreciate the value of the publications embraced in our membership, and it is not necessary for me to dwell on them. I may, however, confidently say that they are performing a great national work, and that they will compare favorably with those of any other country, even with those of the great country to the south of us, with its far larger and more intensive population."

The Lieutenant Governor, in replying, said in part:—"I am especially glad to be with you today, because I believe that the influence of the business press will be one of the most important factors in re-establishing business conditions in Canada on a safe and sane basis. I make a distinction between the business newspapers and the daily press, because I believe that your papers—the business newspapers of Canada—exert a greater influence than the daily press, because of the greater confidence your readers have in them. People read the daily newspapers to keep abreast of the general news of the day. They are interested in what is happening around them and they read to satisfy their desire for excitement or interest or entertainment. What they read in the daily newspapers today is forgotten tomorrow. But this is not the case with the business newspaper. Business men need the service of these papers in the conduct of their everyday business life. I have noted that they usually have a business paper or two in their pocket when they go home Saturday night. I do not say that they read them on Sunday, that I do not know, but I know that they study them carefully, and that a great number of your readers will come to their business on Monday morning with some clipping from your paper in their pockets. They will say to their associates, 'This is the situation, I can show it to you in this clipping.' For that reason, gentlemen, I say that yours is the greater obligation, because you are leaders, because you are helping to build up the business fabric of the country. You should be very careful that everything that appears in your columns bears the imprint of the truth. You must be sure that the news you give is correct beyond question, because there are thousands of your readers ready to set their business course by the same and the advice you give them. I am familiar with a good many of your publications, and I can personally attest to their high character. It is of vital importance that this should be maintained, and that no effort should be spared to give in your columns the maximum of service. In these days, when there is disorganization, dissension, disruption in all walks; business, politics and religion, there is a great place for the business paper to bring out more complete information, to assist in making us all realize we must work for a common cause, the upbuilding of our country. The business men of this country need your assistance. They are looking to you for information and advice, and are expecting it. On your shoulders therefore, perhaps more than on the shoulders of any other single agency, rests the obligation to meet the needs of these trying days, with a sane and sound presentation of the case as it exists at present, a presentation free from private bias, or the desire to serve a popular demand. You can, and I believe will, be one of the largest factors in helping to bring about a satisfactory readjustment of the business conditions of this country."

Aerial Transportation Notes.

Squadron Leader J. L. Gordon, D.F.C., of St. Lambert, Que., has been appointed commandant of the Canadian Air Board's training station at Camp Borden, Ont.

The Canadian Air Board is reported to have decided to buy several new types of machines of the latest designs for testing under Canadian conditions in connection with civil government flying. It is also reported that the Board will proceed with the construction of a Canadian designed and built flying boat.

The following promotions and transfers by the Canada Air Board have been approved by the Civil Service Commission: W. R. Kenny, from Air Substation Superintendent to Air Station Superintendent, Roberval, Que.; A. B. Shearer, from Air Substation Superintendent to Air Station Superintendent, Dartmouth, N. S.; B. D. Hobbs, from Air Certificate Examiner, to Air Station Superintendent, Victoria Beach, Man.; H. L. Holland, from Air Pilot Navigator to Air Substation Superintendent, Ottawa.

Sir Ross Smith, who made the London-Australian flight, proposes to make an all round the world flight at an early date. The programme is to start from London, and to reach Canadian territory from Fort Wrangel, which will be the first point touched on the American continent. A combined seaplane and aeroplane route is being arranged for the trip by the Canadian Air Board. It is said that the stopping places in Canada will be Prince George, B.C.; Edmonton, Alta.; Moose Jaw, Sask.; Winnipeg, Man.; Fort William, Sault Ste. Marie, Ont.; Montreal, Que.; Fredericton, N.B., and Sydney, N.S.

The Civil Service Commission invited applications recently for the position of Air Certificate Examiner for its Commercial Aviation Branch, Western Provinces. The initial salary is $2,940, rising $180 a year to a maximum of $3,300. The duties will be, under the direction of the Controller of Civil Aviation, to examine, approve and recommend the issue of licenses to air pilots, navigators and engineers, and to aerodromes; to assist in laying out of air routes; to conduct examinations in the theory and practice of air pilotage and air navigation, and to perform other related work as required. Candidates must have equivalent to university graduate standing; two years experience in flying; commercial air pilot's and air navigator's certificates, and satisfactory knowledge of the various branches of work required.

The Nova Scotia Evaporators Ltd., has shipped 500 cases of evaporated apples from Windsor, N.S., via Montreal, to Antwerp, and it is stated that further shipments are expected to be made via New York.

The Reid Newfoundland Co. has given notice, in accordance with the provisions of the act passed at the Legislative Assembly's last session, that the following branches will be closed from Jan. 8, 1922, until further notice:—Bonavista Branch, Shoal Harbor to Bonavista; Trepassey Branch, Waterford Bridge to Trepassey; Bay de Verde Branch, Carbonear to Bay de Verde and Grate's Cove.

Traffic Orders by Board of Railway Commissioners.

Canadian Traffic League.

General order 348, Nov. 10.—Re general order 271, Sept. 10, 1919, with respect to Canadian Freight Classification and the Express Classification for Canada, and secs. 322 and 360 of the Railway Act, 1919. Upon reading the submissions filed, the Board orders that general order 271 be amended by adding at the end of page 2 of the order the words, "The Canadian Traffic League."

General order 271 requires that any reissue of the Canadian Freight Classification, or of the Express Classification for Canada, or any supplement to the issue of either, then in force, shall be submitted in printed proof form for the Board's approval before it is made effective. The order also provides that one copy of the proof, and of the notice for publication in the Canada Gazette, shall be furnished to a number of associations, boards of trade, etc., named therein, with the request that fully explained objections, if any, to proposed changes, involving increased cost of transportation, be filed by them with the Board within 30 days of the receipt of the proof and notice. General order 348, given above, adds the Canadian Traffic League to the bodies to be furnished with copies of proofs showing changes proposed.

Freight Car Demurrage Rates.

General order 349, Nov. 23, and the judgment on which it was based, are given in full on another page under "Freight Car Demurrage Rates Ordered by Board of Railway Commissioners."

Reduction of Freight Rates.

General order 350, Nov. 24, and general order 351, together with judgments in connection therewith, are given in full on another page, under "Freight Rate Reductions Ordered by Board of Railway Commissioners."

Sydney & Louisburg Railway Passenger Tariffs.

31,696. Oct. 21.—Granting application of Sydney & Louisburg Ry., under section 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff, C.R.C. 3.

31,697. Oct. 21.—Granting application of Sydney & Louisburg Ry., under sec. 334 of the Railway Act, 1919, for approval of the Standard Passenger Tariff, C.R.C. 2.

Cumberland Railway & Coal Co.'s Passenger Tariff.

31,698. Oct. 25.—Granting application of Cumberland Ry. & Coal Co., under sec. 334 of the Railway Act, 1919, for approval of its Standard Passenger Tariff, C.R.C. 7.

Rates on Sugar Beets to Wallaceburg.

31,709. Oct. 25.—Re application of Dominion Sugar Co. for a reduction in rates charged by railways on sugar beets, in carloads, to Wallaceburg, Ont. Upon hearing the application at Chatham, June 28, 1921, the applicant company, the Canadian Pacific, Grand Trunk and Chatham, Wallaceburg & Lake Erie Railways, and the Michigan Central Rd., being represented; and upon the report of the Board's Chief Traffic Clerk, the Board orders that, in lieu of their present rates, the Canadian Pacific, Grand Trunk, Pere Marquette, Chatham, Wallaceburg & Lake Erie, and Wabash Railways and the Michigan Central Rd. substitute the following mileage rates on sugar beets, in carloads:

Miles	Rate in cents per 100 lb.
Not over 25	4½
Over 25, not over 45	5
Over 45, not over 60	5½
Over 60, not over 75	6
Over 75, not over 80	6½
Over 80, not over 85	7
Over 85, not over 90	7½
Over 90, not over 95	8
Over 95, not over 100	8
Over 100, not over 105	8½
Over 105, not over 110	8½
Over 110, not over 115	9
Over 115, not over 120	9
Over 120, not over 125	9½
Over 125, not over 130	9½
Over 130, not over 135	10
Over 135, not over 140	10
Over 140, not over 145	10½
Over 145, not over 150	10½
Over 150, not over 175	11½
Over 175, not over 200	12½
Over 200, not over 225	13½
Over 225, not over 250	14½
Over 250, not over 275	15½
Over 275, not over 300	16½
Over 300, not over 350	18

The said substituted rates to become effective not later than Nov. 1, 1921. And the Board further orders that on shipments to or from connecting lines, one half cent per 100 lb. be deducted when the rate is 7½c. per 100 lb. or less, subject to a minimum of 4c. per 100 lb.; and when the rate is over 7½c. per 100 lb. one cent per 100 lb. be deducted.

Rules for Carriage of Electrolyte.

31,749. Nov. 9.—Re application of Express Traffic Association of Canada for approval of Supplement 2 to its tariff C.R.C. no. E.T. 694, covering revised rules in connection with carriage of electrolyte. Upon the report and recommendation of the Board's Chief Traffic Clerk, the Board orders that the said supplement be approved.

Supplement to Canadian Freight Classification.

31,784. Nov. 17.—Re application of Canadian Freight Association, on behalf of railway companies subject to the Board's jurisdiction, for approval of proposed Supplement 16 to Canadian Freight Classification 16. Upon it appearing that the said Supplement has been issued to provide for the cancellation of rule 24, as published in Supplement 15 to the said Classification, by agreement with the shippers, the Board orders that the said supplement be approved.

Rule 24, which has been cancelled, read as follows:—"(a) Unless otherwise provided in the separate description of articles, the less than carload ratings shown apply only when each loose piece of freight or each package weighs 20 lb. or more, also on shipments in bales, boxes or crates weighing each less than 20 lb., provided each such package measures 36 united inches or more, length, width and depth added. (b) The less than car load ratings on loose pieces of freight or packages weighing each less than 20 lb. (except shipments in bales, boxes or crates measuring each 36 united inches or more, length, width and depth added), shall be one class higher (greater) than that applicable on shipments complying with section (a) of this rule."

Classification of Hanging Lamp Weights.

31,792. Nov. 19.—Re application of Security Traffic Bureau, St. Paul, Minnesota, for a ruling as to the proper classification of iron weights shipped with hanging lamps from Duluth to Winnipeg. Upon hearing the application at Winnipeg, the Canadian Freight Association being represented, and what was alleged, no one appearing for the applicant, the Board orders that the application be refused.

Freight Rate on Lath Material.

31,799. Nov. 21.—Re application of Fesserton Timber Co. of Toronto, for an order directing the railway companies to carry raw wood material for manufacture of lath at rates published for carriage of cordwood. Upon hearing the application at Toronto, Sept. 3, the applicant and the Grand Trunk and Canadian Pacific Railways being represented, and what was alleged; and upon the report and recommendation of the Board's Chief Traffic Clerk, the Board orders that the application be refused.

Proposed Electrification of a Pacific Great Eastern Ry. Section.

The Pacific Great Eastern Ry., owned by the Province of British Columbia, has a piece of line between West Vancouver and Whytecliff, about 13 miles, which it is proposed at some future time to extend to Squamish to connect with the line to Prince George, now nearly completed. The operation of trains on this short piece of line has frequently been under discussion, and it was proposed, as one of the possible solutions of the difficulties, that it should be electrified and operated by the British Columbia Electric Ry. Nothing came of the plan, but the proposal has again been revived, and the West Vancouver Council passed a resolution, Nov. 14, agreeing to abrogate its agreement with the P.G.E. Ry., provided that the line be electrified before June 1, 1923, be supplied with rolling stock, and be leased to the municipality for 10 years, at a rental sufficient to cover interest and fixed charges on the cost of electrification, which is estimated at $250,000, the municipality to take care of all ordinary maintenance and repairs, the Government to undertake extraordinary damage due to floods or other uncontrollable cause, and the municipality to discontinue its ferry service. If the arrangement goes into effect power will be bought from the B.C. Electric Ry. Co., which would also be able to give the municipality light and power service.

Mileage of Maritime District, Canadian National Railways. — In the article "Changes in Canadian National Railways' Maritime and Quebec Districts, Divisions and Subdivisions" in Canadian Railway and Marine World for November, pg. 594, the figures given for the old and new mileages of the Maritime District were incomplete, the Island Division, 276.7 miles, and Bridgewater Division, 372.8 miles, having been omitted. The old and new mileages are as follows:—

	Old	New
Island Division	276.7	276.7
New Glasgow Division	368.01	368.01
Halifax Division	205.48	145.94
Bridgewater Division	372.8	372.8
Moncton Division	423.45	393.66
Campbellton Division	682.17	497.57
Edmundston Division	.....	616.53
	2,328.61	2,671.21

Change in Demurrage Rate on Freight Cars.

Chief Commissioner Carvell, of the Board of Railway Commissioners, gave the following judgment Oct. 10, which was concurred in by Assistant Chief Commissioner McLean, Deputy Chief Commissioner Nantel, and Commissioner Rutherford:—An application was launched some months ago by the Canadian Manufacturers Association, in which they were joined by representatives of many Canadian industries, asking that the Car Demurrage Rules, prescribed by general order 201, Aug. 1, 1917, be amended, practically asking that the rate be $1 a car per day after the 48 hours free time. At the hearing in Ottawa on June 21, the following appeared for their respective interests:—S. B. Brown, Canadian Manufacturers Association; Thos. Marshall, Toronto Board of Trade and Halifax Board of Trade; G. B. Ruickbie, Canadian Pulp and Paper Association; W. S. Tilston, Montreal Board of Trade; G. B. Watts, Dominion Millers' Association; R. L. Sargent, Canadian Lumbermen's Association; E. P. Flintoft, Canadian Pacific Ry.; J. M. Daly, Canadian Coal Association; W. R. Caldwell, Hamilton Chamber of Commerce; W. C. Chisholm, K.C., Grand Trunk Ry.

Rule 9 of general order 201 reads as follows:—"Rule 9. Demurrage charge.—After the expiration of the free time allowed, the following charges shall be made until the car is released: For the first day, or fraction thereof, of delay, $1; second day, or fraction thereof, of delay, $2; third day or fraction thereof, of delay, $3; fourth day or fraction thereof, of delay, $4; for the fifth and each succeeding day, or fraction of a day, $5."

It was contended on behalf of most of the applicants, and, I think, admitted, that this rule was issued as a war measure, for the purpose of securing the release of equipment in the shortest time possible, rather than as a revenue measure. In other words, a penalty was imposed on the detention of cars above the 48 hours free time, in the hope that it would facilitate their unloading to some extent. It is now contended that as the war is over, and especially as equipment is very plentiful upon all Canadian roads, the rule should be abolished and there should be a return to pre-war conditions. As the case developed, there seemed to be considerable difference of opinion, but I think I can fairly represent the views of the great majority of the interests represented in stating that they were all in favor of a higher rate than $1 a day under certain conditions, the difficulty being as to when the higher rate should begin. All agreed, of course, that there should be 48 hours free time. I think all agreed that, for the first day thereafter, there should be a charge of $1, and many agreed that the ultimate charge should reach $5 a day. Everybody admitted the necessity of releasing equipment at the earliest possible moment.

If there continued to be the same excess of freight equipment in the future as exists at present, I would have no hesitation in recommending a repeal of rule 9 and going back to the $1 a day, but we have no guarantee of such a condition. In fact, I think every person can sincerely hope that there will be a change, and, when the change comes, then, in my judgment, there should be some inducement to compel shippers to use all due diligence in loading and unloading freight cars. Perhaps the late Mr. Tilston, representing the Montreal Board of Trade, expressed my views better than I can do myself, when he stated as follows:—"We think very often a man who is honestly endeavoring to unload his car, but is frequently unable to do so the first day, through weather conditions, or in getting cars from different places, should not be penalized, and that is probably the reason the first day the per diem is left at $1, so that he will not be penalized. If that $1 a day was allowed to continue without any increase, it would be cheaper for a man to store the great bulk of his goods, such as coal, oats, and material, in cars rather than unload them, and a system such as that, in a very few days, would block up all the terminals and prevent proper movement and delivery on team tracks and sidings of the ordinary commercial traffic. The man who unloads his freight within one, or two, or three days after the free time, is not the man this penalty reaches, or the man they are trying to get at. It is the man who has no facilities, or no proper facilities, and who is holding cars on the market." Mr. Tilston seemed to agree with the suggestion which had previously been made by the Assistant Chief Commissioner that, for the first two days after the 48 hours free time, the charge should be $1 a day and thereafter $5 a day. This, in my judgment, would be a reasonable rule to apply. There ought to be no good reason why a car could not be unloaded in 4 days, which would only cost $2 by way of demurrage. If kept for a longer time, even if through causes over which the shipper has no control, still, in the interest of the general release of equipment, I think a penalty of $5 would not be unreasonable, and, therefore, think order should be amended accordingly.

The Board passed general order 349, Nov. 23, as follows:—Re application of Canadian Manufacturers' Association, Canadian Retail Coal Dealers' Association, Canadian Pulp and Paper Association, Western Retail Lumbermen's Association, Canadian Lumbermen's Association, Retail Merchants' Association of Canada, Premier Potato Co., A. B. Cushing Lumber Co., Steel Company of Canada, Canadian Traffic League, Ontario Retail Lumber Dealers' Association and Toronto, Peterborough, Hamilton, Montreal, Halifax, and Vancouver Boards of Trade, requesting the Board to call upon the railway companies and the Canadian Car Demurrage Bureau to show cause why the charges contained in Canadian Car Demurrage Rule 9 should not now be reduced to the normal rate of $1 a car per day. Upon hearing the application at Ottawa, June 21, 1921, the applicants, the railway Association of Canada, Canadian Car Demurrage Bureau, and the Canadian Pacific and Grand Trunk Railways being represented, and what was alleged; and upon reading the written submissions filed, the Board orders that Canadian Car Demurrage Rule 9, as prescribed by general order 201, Aug. 1, 1917, be amended by striking out all the words after the word "released," in the second line thereof, and substituting therefor the words "For the first day, or fraction thereof, of delay, $1; for the second day, or fraction thereof, of delay, $1; for the third and each succeeding day, or fraction of a day, $5." Effective Dec. 5.

Canadian National Railways' Net Earnings for August, September and October.

Canadian Railway and Marine World for November contained an announcement by President D. B. Hanna, of operating results of the Prince Edward Island, Intercolonial, National Transcontinental, and Canadian National Railways, which showed a surplus of earnings over operating expenses, for the first time, in August, followed by a better showing in September. On Nov. 28, Mr. Hanna announced the October figures, showing a very large increase in net. Following are the figures for the three months:—

	Gross earnings	Operating expenses	Net earnings
Aug.	$10,536,461.74	$16,489,230.39	$ 47,231.44
Sept.	11,500,126.24	10,995,951.37	504,174.87
Oct.	12,906,133.97	11,870,003.63	1,036,130.34

In connection with the announcement of the October figures, Mr. Hanna issued the following statement:—"That first little net of $47,000 for August put new life into the organization, and, what's more, it helped with a big section of the public. We find that there is, all over Canada, a better feeling towards the National System. The fine service given by the C.N.R. in handling the grain this fall has also had something to do with it. The net of a little over $500,000, announced for September, is helping us now; and the net of $1,036,130.34 in October means more business for us in December and succeeding months. It is the best advertising we can get. Many business men, too busy to follow the ins and outs of the railway question, could not understand the deficit, they did not like the idea that money they paid us for freight would go into a deficit. Now, when they see we are out of red figures, they are giving us more of their business. We need long haul traffic, and if we can get enough of it, we will pull out even in December, unless the weather is very bad, notwithstanding the forthcoming reduction in rates. January and February are bad months to face, but we are not at all despondent about the future, and, if the lower rates prove any help to business, the railways will certainly be pleased to handle it. Greater volume of business is what the National Railways want for Christmas, and our socks are hanging up all along the line from the Atlantic to the Pacific."

DEPARTMENT OF THE NAVAL SERVICE.

SALE OF PACKING.

Sealed tenders addressed to the undersigned and endorsed on the envelope "Tender for Packing," will be received up to noon of Tuesday the 27th day of December, 1921, for the purchase of the whole or any portion of approximately 25,000 pounds Packing of various sorts, at Halifax Dockyard.

Tender forms and samples, together with particulars as to terms and quantities, may be obtained on application to the undersigned, or to the Naval Store Officer, H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,
Deputy Minister of the
Naval Service.

Ottawa, Ont., November 25, 1921.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John River Bridge.—In our November issue C. E. Fitzpatrick was stated to be Superintendent in charge of erection of the superstructure for the Dominion Bridge Co. It should have read C. E. Fitzsimmons.

The bridge was inspected by G. A. Mountain, Chief Engineer, Board of Railway Commissioners, Nov. 23, and approved for operation of traffic.

The New Brunswick Government is reported to have instituted a chancery suit to determine whether the control of the erection of bridges over navigable waters rests with the Dominion Government, or with the province. It is said that the C. P.R. will be represented by counsel, as the question has been raised mainly through the construction of the St. John bridge. A press report of Nov. 16 stated that H. W. Jones, Woodstock, N.B., counsel for N.B. Government, had forwarded to the Minister of Justice, Ottawa, a statement of claim, with a view to add the Attorney General as a party defendant in the action. Mr. Jones is reported to have said: "The province claims that two railway bridges are obstructions to the navigation of the river. The court will be asked to order that these bridges be removed or raised. The claim will be made that the province has exclusive jurisdiction over the regulation of navigation on the River St. John, owing to the Webster-Ashburton Treaty, made in 1842 by Great Britain and the United States, whereby regulations were provided to be made by the State of Maine and the Province of New Brunswick."

St. John Trestles.—A memorandum of a joint arrangement regarding the C.P. R. trestles at Sand Point, St. John, N.B., taken over by the City Council recently, is reported to have been prepared by the C.P.R. District Engineer, and the City Engineer to be submitted to the C.P.R. and the city council. The matter in dispute had to do with the method by which the city would provide funds for the upkeep of the trestles.

Forsyth St. Tunnel, Montreal. — The Board of Railway Commissioners is reported to have made an order directing the Montreal City Council to reconstruct the Forsyth St. tunnel at a cost of about $20,000.

Interprovincial & James Bay Ry. — We are officially advised that a contract has been let to Angus & Taylor, North Bay, Ont., for clearing, grading and culvert work on the extension of this railway from the present end of track, 10 miles north of Kipawa, Que., to the Quinze River, with an 8 mile spur from mile 48 to Ville Marie. A description of the route was given in our last issue. (Nov., pg. 593.)

London Division track relaying. — A press report states that the plans for work on the London Division for 1922 include the laying of about 80 miles of track with 100 lb. rails to replace 85 lb. ones.

Schreiber Station. — A press report states that plans for a new station to be built at Schreiber, Ont., at a cost of about $80,000, are under consideration, and that it is expected to start construction next spring. Schreiber station was burned last winter, since when business has been carried on in a temporary frame structure.

Russell Branch.—We are officially advised that the branch line from Russell, Man., northerly, as projected to the Shell River, will be approximately 12 miles long. Grading was completed in 1920 on the first section of 6 miles by the Northern Construction Co. During this year track laying, surfacing and ballasting has been completed thereon, and traffic is now being handled over it.

Lanigan Branch.—We are officially advised that the branch northerly from Lanigan, Sask., is intended to run to Melfort and thence to the northerly limits of Tp. 48. Grading and track laying on the first 50 miles were completed in 1920, and during this year surfacing and ballasting were finished. Freight and passenger train service is being given.

Rosetown Southeasterly.—The Board of Railway Commissioners has approved of the revised location plans of the branch southeasterly from Rosetown, Sask., from mile 44.37 to 63.47. (Nov., pg. 593.)

Railway Earnings.

Canadian National Railways.

Following are approximate monthly gross earnings for the Canadian Northern Ry. System and Canadian Government Rys., the latter including the Intercolonial Ry., Prince Edward Island Ry., National Transcontinental Ry., and various local which have been acquired by the Dominion Government. Lines in the Maritime Provinces and in Quebec,

	1921	1920
January	$8,781,839	$7,267,562
February	8,150,341	6,516,059
March	9,497,740	7,761,326
April	8,164,955	7,937,478
May	7,794,147	8,305,850
June	7,885,548	7,776,539
July	8,837,354	9,063,674
August	8,881,530	9,582,999
September	10,548,589	9,895,681
October	11,691,881	12,351,167
	$90,243,744	$86,458,335

Approximate earnings for three weeks ended Nov. 21, $7,691,340, against $8,591,477 for same period 1920.

Canadian Government Railways.

Following are total operating revenues, total operating expenses, and net operating deficits, for the Intercolonial, Prince Edward Island, National Transcontinental, and local lines in the Maritime Provinces and Quebec which have been acquired by the Dominion Government and added to the Canadian Government Rys., as far as they are available to date.

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$3,527,304	$4,347,728	$ 820,423	$ 508,178
Feb.	3,526,658	4,367,491	840,833	1,205,925
Mar.	3,595,144	4,538,904	943,761	1,235,265
Apr.	3,363,072	3,915,995	552,923	115,191
May	2,914,973	3,728,949	813,976	618,809
June	2,859,986	3,811,205	951,309	608,456
July	2,988,552	3,547,379	558,827	508,569
Aug.	3,366,391	3,436,475	70,084	795,428
	$26,141,990	$31,694,126	$5,552,136	$5,659,521
Decr.	65,557	172,942	107,385	.....

Although statements of revenue, expenses, etc., for the Canadian Northern Ry. System, and for the Grand Trunk Pacific Ry., for September have been received, and are given elsewhere on this page, the figures for Canadian Government Rys. for September, which are prepared at Moncton, N.B., had not been received in Toronto up to Nov. 26, and therefore could not be included in the table above.

Canadian Northern Railway System.

Following are approximate monthly gross earnings for the Canadian Northern Railway System:

	1921	1920
January	$5,094,100	$4,200,700
February	4,840,500	3,862,300
March	6,119,700	4,587,700
April	4,978,500	4,732,623
May	4,742,200	4,863,500
June	4,606,800	4,427,600
July	5,506,900	5,168,500
August	5,708,500	5,899,700
September	7,057,400	6,140,500
October	7,988,030	7,620,000
	$56,642,630	$51,500,123

Approximate earnings for three weeks ended Nov. 21, $5,069,500, against $5,224,600, for same period 1920.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available, to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$5,851,220	$ 7,538,786	$1,687,566	$1,672,283
Feb.	5,575,782	6,861,337	1,285,555	1,839,756
Mar.	5,812,790	6,746,912	934,122	1,280,887
Apr.	4,994,027	6,327,739	1,333,712	911,321
May	4,427,994	5,742,052	1,314,058	1,041,273
June	4,295,811	5,536,771	1,240,890	1,084,815
July	5,027,917	5,448,014	420,097	1,603,874
Aug.	5,638,538	5,421,271	217,267*	1,454,666
Sept.	6,247,753	5,473,618	774,135*	2,180,065
	$47,871,902	$55,096,500	$7,224,598	$13,071,940
Incr.	4,128,853	.....	.....	.....
Decr.	.....	$1,718,489	$5,847,342	.....

*Net operating revenue.

Canadian Pacific Railway.

Following are monthly gross earnings, working expenses and net profits for 1921, compared with 1920:—

	Gross	Expenses	Net	Increases
Jan.	$14,465,430	$13,824,005	$641,425	$55,484
Feb.	12,768,987	11,955,595	813,392	99,518
Mar.	14,705,727	12,254,818	2,450,909	493,144
April	13,761,840	11,115,709	2,646,131	304,285
May	13,892,045	10,598,493	3,293,552	95,609
June	14,461,643	11,356,885	3,104,758	473,940
July	15,772,929	13,718,613	2,054,316	434,839
Aug.	17,064,266	14,488,126	2,576,140	375,327
Sept.	19,494,761	15,174,712	4,320,050	411,395
Oct.	22,089,624	15,378,137	6,711,487	*989,336
	$158,477,251	$129,865,094	$28,612,157	$1,754,196
Incr.	.....	.....	1,754,196	.....
Decr.	$13,760,784	$15,514,980	.....	.....

Approximate earnings for three weeks ended Nov. 21, $13,611,000, against $16,630,000 for same period 1920.

The discrepancies between the above figures and those issued by the Dominion Bureau of Statistics are owing to the fact that the Bureau is, at its request, furnished with figures by the C.P.R., including the Esquimalt & Nanaimo Ry., and the Montreal & Atlantic Ry. earnings, as well as the C.P.R. ones. The figures supplied the Bureau are exclusive of certain income items which are included in figures supplied Canadian Railway and Marine World.

Grand Trunk Railway.

Following are total operating revenue and total operating expenses for lines in Canada for 1921, also total net operating revenue or deficit for 1921 and 1920, with increases or decreases in totals, as compared with those for 1920, as far as they are available to date:—

	Gross	Expenses	Net revenue or deficit 1921	1920
Jan.	$6.187,539	$6,886,930	$699,391*	$624,310*
Feb.	5,468,732	5,439,039	29,693	690,857*
Mar.	6,271,921	5,584,721	687,200	398,859
Apr.	5,659,813	5,241,107	418,706	651,789
May	5,957,779	5,596,194	361,585	605,310
June	6,672,766	5,919,063	753,702	456,747
July	6,563,693	5,620,730	942,963	863,642
Aug.	7,472,694	6,084,883	1,387,811	1,345,926
	$50,254,937	$46,372,667	$3,882,269	$3,007,106

*Deficit.

Approximate gross earnings for Sept., $7,729,-347, against $8,123,815 for Sept. 1920; for Oct., $9,072,323, against $10,906,579 for Oct., 1920; and for two weeks ended Nov. 14, $4,262,869, against $4,909,067.

Grand Trunk Pacific Railway.

Following are total operating revenues, total operating expenses, and net operating deficits, for 1921 and 1920, as far as they are available to date:—

	Revenue 1921	Expenses 1921	Net deficits 1921	1920
Jan.	$1,441,225	$1,813,982	$ 372,757	$ 737,357
Feb.	1,013,712	1,872,946	859,234	670,817
Mar.	1,007,499	1,664,227	656,728	655,560
Apr.	908,147	1,645,916	737,769	596,625
May	965,763	1,373,613	407,850	985,655
June	1,109,053	1,488,366	379,313	1,516,152
July	1,085,359	1,423,516	338,160	1,411,615
Aug.	1,348,912	1,488,745	139,833	1,795,380
Sept.	1,585,284	1,601,059	15,775	1,082,596
	$10,464,934	$14,372,370	$3,907,419	$9,451,757
Incr.	1,519,242	.....	.....	.....
Decr.	.....	$4,025,096	$5,544,338	.....

G.T.R. Shareholders Appeal.—A London, Eng., cablegram of Nov. 22 states that aplication will be made early in December on behalf of G.T.R. shareholders or leave to appeal from the decision of the arbitrators as to the value of the G. T.R. stock taken over by the Dominion Government.

Mainly About Railway People Throughout Canada.

F. K. Anstie, chief clerk to Master Car Builder, Ontario Lines, G.T.R., London, Ont., was presented with some silver plate by the local staff, Oct. 26, on his marriage.

J. G. Bowles, Assistant to Manager, Montreal Board of Trade's Transportation Bureau, was presented with a cabinet of silver Nov. 18, on his marriage to Miss E. E. Tees.

Sir George McLaren Brown, European General Manager, C.P.R., unveiled, Nov. 6, a large memorial cross, 14½ ft. high, erected by the Ontario Government, in the Orpington parish churchyard, Kent, Eng., in memory of Canadian soldiers who died during the war, and were buried there.

Geo. E. Bunting, Australasian Manager, Canadian Government Merchant Marine, Auckland, New Zealand, who has also been appointed General Traffic Agent, Canadian National Rys. there, was born at Toronto, Feb. 8, 1873, and entered transportation service Sept. 1, 1889, since when he has been, to May 1, 1891, clerk, Division Freight Agent's office, G.T.R., Toronto; May 1, 1891 to Oct. 1, 1898, clerk, General Office, Lehigh Valley Rd., Buffalo, N.Y.; Oct. 1, 1898 to May 15, 1905, chief claim clerk, Canada Atlantic Ry., Ottawa, Ont.; May 15, 1905 to June 15, 1913, Travelling Agent, Allan Line Steamship Co., Toronto; July 1, 1913 to 1918, Manager, Allan & Co., Agents, Allan Line Steamship Co., Chicago, Ill. On the Allan Line passing under C.P.R. control, he transferred to the Export Department, Canadian National Rys., and on the organization of Canadian Government Merchant Marine, he was appointed Ontario Freight Agent, Toronto, and in Dec. 1919, was sent to Australia and New Zealand to look over the shipping situation there, for the C.G.M.M., and was afterwards appointed Representative for Australasia, with office at Auckland, New Zealand.

D. C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, has been appointed to the North of Scotland Canadian Mortgage Co.'s Canadian advisory board, among the other members of which are Sir Edmund Osler and Sir Augustus Nanton, both of whom are C. P.R. directors.

Jas. Dunsmuir, a former C.P.R. director, and also Lieutenant Governor of British Columbia, who died some time ago, left personal estate in the United Kingdom valued at £326,000.

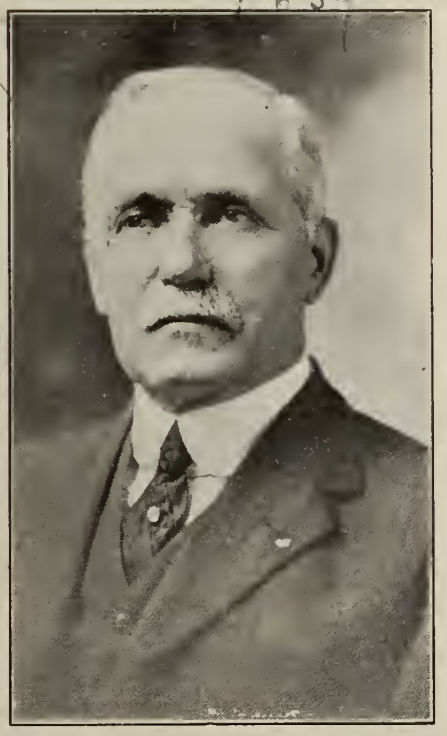
Hon. Francis Egerton Grosvenor, who succeeded to the peerage as Baron Ebury, on the death of his brother, Nov. 5, was born in 1883, and studied mining, engineering and chemistry. He worked for some time as a laborer and pitman in Isle of Man mines, and came to Canada in 1903, when he became a licensed assayer in British Columbia, and was for nearly three years a metallurgical chemist for the C.P.R., and later, chief chemist for the Hall mines. At the outbreak of war, he was Managing Director in B. C. for Norton Griffiths Ltd., general contractors. He immediately joined the 29th (Vancouver) Battalion, Canadian Expeditionary Force, and became Brigade Major. During the war, he was wounded, mentioned in dispatches four times, received the Distinguished Service Order and bar, the Military Cross and bar, and the French Croix de Guerre with palms.

Joseph Guertin, special service officer, Canadian National Rys., Winnipeg, was killed, Nov. 12, when his track motor car collided head on with a freight train at a curve, as he was proceeding to investigate a train wreck.

G. H. Ham, of the C.P.R. headquarters staff, addressed the Engineering Institute of Canada's Montreal branch, Nov. 24, on "The Canadian Engineer and his Literature."

Michael A. Hargadon, Assistant Editor, Press Bureau, C.P.R., Montreal, has issued a book of Irish and Canadian poems, for which Geo. H. Ham, of the C.P.R. headquarters staff, wrote an introduction.

Mrs. Hill, widow of J. J. Hill, formerly President of the Great Northern Ry., and one of the first C.P.R. directors, died at St. Paul, Minn., Nov. 22, after a long illness. A press report says that she



Calvin Lawrence,
Member, Board of Railway Commissioners for Canada.

received $16,500,000 from her husband's estate, and that despite numerous charitable gifts she made, her estate will approximate $15,000,000.

Sir John Kennedy, C.E., who died at Montreal, Oct. 25, left $200 each to the Montreal Association for the Blind, and the Olivet Baptist Church, Montreal, the residue going to his daughters, Lady Ames and Mrs. H. C. Kennedy.

Calvin Lawrence, who has been appointed a member of the Board of Railway Commissioners, was born in Windham Tp., Norfolk County, Ont., Jan. 30, 1857. He entered railway service in October 1879 as brakeman, Canada Southern Ry. (Michigan Central Rd.), St. Thomas, Ont. He was appointed locomotive fireman in Jan. 1882 and promoted to locomotive man in 1888. In 1894 he was a delegate from the St. Thomas Division to the Brotherhood of Locomotive Engineers' convention at St. Paul, Minn., and was elected Grand Assistant Engineer, which position he held for two years. In 1896 he attended the Brotherhood's international convention at Ottawa and in 1902 was appointed a delegate to the convention at Norfolk, Va. He was an alderman in St. Thomas, Ont., City Council in 1903, 1904 and 1905, was elected Mayor of the city in 1906, and re-elected in 1907 and was an alderman again in 1908. Once as Mayor of St. Thomas and again in 1910 he acted as locomotive man on a Michigan Central Rd. locomotive pulling a train of freight and passenger cars, loaded with mechanics working at their trades, and with city officials, over the St. Thomas Street Ry. on Labor Day celebrations. He was elected chairman of the Brotherhood's Dominion legislative board on its formation at Ottawa in 1908, and also legislative representative of the Brotherhood for the Dominion. He was also elected Chairman of the Brotherhood's Ontario legislative board in 1910, and has been re-elected legislative representative and chairman of the Dominion legislative board at each triennial election, since 1910, devoting his whole time to the Brotherhood's interests before the Dominion Government and the Board of Railway Commissioners. During the war he was a member of the Soldiers' Aid Commission at Ottawa, attended the Industrial Conference at Ottawa in 1919 and served on the Dominion Government's reconstruction committee's labor committee from its inception, and represented labor at a number of conferences with the Dominion Government. He is actively interested in a number of fraternal societies and a well known advocate of social and labor reform, and concerned with matters tending to the amelioration of working class conditions.

Mrs. Marpole, widow of Richard Marpole, formerly Executive Agent, C.P.R., at Vancouver, B.C., is announced as being engaged to Geo. Horrocks, of Bolton, Lancashire, Eng.

Alfred Erwin McMaster, heretofore Treasurer, Whalen Pulp & Paper Mills, Vancouver, B.C., who has resigned that position, and has been appointed Resident Manager, Powell River Co., Powell River, B.C., was born at Perth, Ont., Oct. 22, 1885. He entered transportation service in 1902, since when he has been, to May, 1903, clerk in Freight Department, C.P.R., Keewatin, Ont.; May, 1903 to 1905, clerk, C.P.R., Port Arthur, Ont.; 1905 to Aug. 1907, chief clerk, C.P.R., Port Arthur, Ont.; Aug. 1907 to Aug. 1908, agent and chief clerk to Superintendent, Grand Trunk Pacific Ry., Fort William, Ont.; Aug. 1908 to July 15, 1913, agent and General Agent, G.T.R., G.T.P.R., and G.T.P. Coast Steamship Co., Prince Rupert, B.C.; July 15, 1913, to Sept. 30, 1916, Commercial Agent, G.T.P.R., Regina, Sask.; Sept. 30 to Dec. 21, 1916, Division Freight Agent, G.T. P.R., Edmonton, Alta.; on Dec. 21, 1916, he was appointed Assistant Secretary for British Columbia, Canadian Manufacturers' Association, with office at Vancouven; in Sept. 1917, he was appointed Secretary-Treasurer, Port Arthur Shipbuilding Co., Port Arthur, Ont., and in Dec. 1918 he became Treasurer, Whalen Pulp & Paper Mills, Vancouver.

Geo. T. Merwin, formerly of the Canadian Car & Foundry Co.'s staff in Mont-

real, is now with Robt. L. Merwin & Co., Inc., general importing merchants, insurance and steamship agents, etc., Fredericksted, St. Croix, Virgin Islands. The head of the firm, R. L. Merwin, is Chairman of the Colonial Council, and British Vice Consul.

Richard Charles Morgan, who has been appointed Chairman of the Railway Management Committee, Reid Newfoundland Co., St. John's, Nfld., was born Nov. 20, 1864, and served in various capacities in the U.S. with the Northern Pacific Ry., Great Northern Ry., and El Paso & Southwestern Ry. He entered C.P.R. service July 1, 1912, as Superintendent at Fort William, Ont., and continued in that position until Feb. 14, 1917, when he was appointed Superintendent, Winnipeg Terminals, and from July 26, 1917, to June 24, 1918, acted as General Superintendent, Manitoba Division, Winnipeg, resuming duty as Superintendent, Winnipeg Terminals, on the latter date. The C.P.R. has given him six months leave of absence to do some work for the Newfoundland Ry., which it is expected will be only temporary.

Baron Mount Stephen, G.C.V.O., who died at his home, Brocket Hall, Hatfield, Hertfordshire, Eng., Nov. 29, was born at Dufftown, Banffshire, Scotland, June 5, 1829, and came to Canada in 1850. He was engaged in private business for some years, and eventually became a director, Vice President and President of the Bank of Montreal. He also became President, St. Paul & Manitoba Ry., and was associated with the late Lord Strathcona, the late J. J. Hill and others in the formation and organization of the C.P.R. Co., of which he was the first President, holding that position until 1888. He retired into private life several years ago, and distributed the bulk of his wealth, consisting of railway and other securities, among relatives, friends and charities. The title is now extinct.

Hon. W. B. Nantel, Deputy Chief Commissioner, Board of Railway Commissioners, must pay income tax in Ottawa, the Second Divisional Court having confirmed the lower court's decision in favor of the municipality.

H. T. Rawlings, formerly Lake Forwarding Agent, Canadian National Rys., Cleveland, Ohio, and for some time past Vice President and director, A. F. Baier Coal Co., Cleveland, has also been appointed President and Treasurer, Victor Sales Co., Third Vice President, Secretary and director, Buckeye Savings & Loan Co., and Treasurer and director, Shry Investment Co., all of Cleveland.

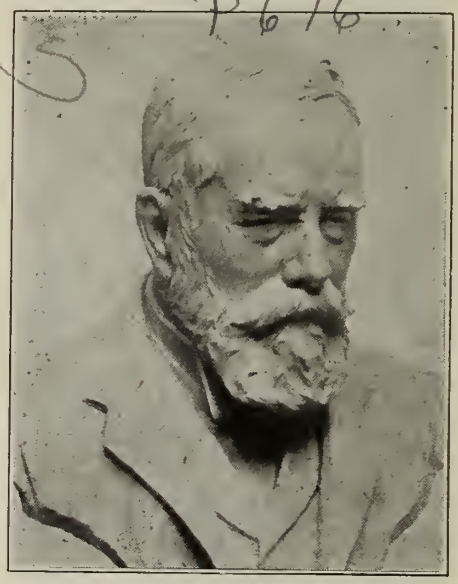
H. D. Reid, President, Reid Newfoundland Co., St. John's, Nfld., was a guest at a dinner of the Newfoundland Club, at the British Empire Club, London, Eng., Nov. 10.

R. F. Richardson, General Agent, C. P.R., Junea, Alaska, died in Vancouver, B.C., Oct. 26.

Frederick A. Rutherford, who has been appointed Passenger Trainmaster, Ontario Lines, G.T.R., Toronto, was announced in our last issue, was born at Parkhill, Ont., Sept. 16, 1877, and entered G.T.R. service Jan. 18, 1894, since when he has been, to July, 1894, assistant to agent, Aylmer, Ont.; July, 1894 to July 1900, telegraph operator, at various points; July 1900 to Jan. 1908, dispatcher, London, Ont.; Jan. 1908 to Mar. 1914, Chief Dispatcher, London and Stratford, Ont.; Mar. 1914 to June 1917, Trainmaster, Battle Creek, Mich.; June 1917 to Feb. 1, 1918, Trainmaster, Durand, Mich.; Feb. 1, 1918 to Jan. 31, 1919, Inspector of Transportation, G.T.R., Montreal; Jan. 31, 1919 to Nov. 15, 1921, Trainmaster, London Division, Ontario Lines, London, Ont.

Frederick Lloyd Seaton, whose appointment as acting Assistant Auditor of Traffic, Canadian Government Rys., Moncton, N.B., was announced in our last issue, was born there Jan. 29, 1878. He entered Intercolonial Ry. service Apr. 21, 1898, and was, to Sept. 15, 1898, clerk, General Passenger Agent's office, Moncton, when he resigned to enter private business. He re-entered Intercolonial Ry. service Jan. 1, 1905, and was, to May 1, 1916, Travelling Auditor, Moncton, N.B., and from May 1, 1916 to Oct. 1, 1921, Travelling Auditor, Canadian Government Rys., Winnipeg.

Angus Sinclair, railway contractor, Toronto, who died Aug. 24, left an estate valued at $298,369. The will provides a trust fund of $12,000, the interest on which is to be paid to his sister for her life, then to her husband if he survives her, and $2,000 of which is to be paid to



Lord Mount Stephen,
From photograph of marble bust in C.P.R. Windsor St. Station, Montreal.

their daughter after they are both dead, the balance reverting to the estate. The residue of the estate is to be equally divided among Mr. Sinclair's three sons and three daughters.

Hon. V. W. Smith, Minister of Railways for Alberta, has been elected a director of the Edmonton, Dunvegan & British Columbia Ry. Co., and its associated company, the Central Canada Ry. Co.

Edgar M. Snell, whose appointment as General Agent, Erie Rd., Toronto, was announced in a recent issue, was born at Wingham, Ont., Feb. 16, 1872, and entered railway service Nov. 14, 1894, since when he has been, to July 1896, clerk, Erie Rd., Cleveland, Ohio; July 1896 to Dec. 1898, department head, same road, Cleveland, Ohio; Dec. 1898 to July 1900, department head, same road, New York; July 1900 to Nov. 1904, Travelling Freight Agent, same road, Toledo, Ohio; Nov. 1904 to June 1908, State Agent, Pere Marquette-Erie Line, Saginaw, Mich; June 1908 to July 1910, agent, Erie Despatch, Erie Rd., Saginaw, Mich.; July 1910 to March 1912, agent, same road, Detroit, Mich.; March 1912 to May 1913, General Travelling Agent, Erie Rd., Chicago, Ill.; May 1913 to Jan. 1918, Import Agent, same road, Chicago, Ill.; Jan. 1918 to March 1920, engaged on special duties, same road, New York; March 1920 to Sept. 15, 1921, Export and Import Agent, same road, New York.

E. B. Walker, Electrical Engineer, Canadian National Rys., Toronto, left Toronto, Oct. 2, on a business trip to western and Pacific coast points, accompanied by Mrs. Walker. While on the way west, he made an inspection and study of the electrified sections of the Chicago, Milwaukee & St. Paul Ry., and of the Butte, Anaconda & Pacific Ry. The locomotives in use on the latter are identical with those used by the Canadian National Rys. in the Montreal tunnel. Mr. and Mrs. Walker visited Vancouver, Seattle, Prince Rupert, Edmonton, Saskatoon, Winnipeg and other western points, and returned to Toronto Oct. 29.

George H. Webb, Chief Engineer, Michigan Central Rd., Detroit, Mich., died at Newton, Mass., Nov. 3, aged 61. He was educated at the Pennsylvania Military Academy, graduating in 1880, when he entered railway service as rodman, Baltimore & Ohio Rd., and was, later, level man and transit man. In 1883 he was appointed City Engineer, Johnstown, Pa., and later, Engineer of Johnson Steel Rail Co. From 1885 to 1888, he was Assistant Engineer and Locating Engineer, Chicago, Burlington & Quincy Rd., and during 1888 located and built portions of the Seattle, Lake Shore & Eastern Rd. and Puget Sound, Skagit & Eastern Rd. In 1889 he went to Chili in charge of construction of Government railways, and was in 1891 appointed Division Engineer and Superintendent of Construction, Summit Division, Central Ry. of Peru. He returned to the U.S. in 1893, and was engaged in private practice for four years, after which he was appointed Chief Engineer, Cincinnati, Georgetown & Portsmouth Rd. From 1899 to 1901 he was Roadmaster, Cleveland, Cincinnati, Chicago & St. Louis Rd., and Chicago & Alton Rd., consecutively; 1901 to 1902, engineer in charge of construction, Baring Cross shops, St. Louis, Iron Mountain & Southern Rd.; 1903, in charge of location work, Michigan Central Rd.; Apr. to Nov. 1903, Engineer, Middle Division, same road; Nov. 1903 to June 16, 1905, Assistant Chief Engineer, in charge of surveys, construction and maintenance of way, same road; June 16, 1905, until his death, Chief Engineer, same road. In June 1911 he was appointed also Chief Engineer, Detroit River Tunnel Co. In June 1917 he was commissioned as Lieutenant-Colonel, 16th (Railway) Engineers, and promoted to Colonel in the following year. He served in France for about two years, for which he obtained the Distinguished Service Medal, the French Order of the Black Star, and the Legion of Honor. He resumed his duties as Chief Engineer, M.C.R., in May 1919.

F. A. Young, Special Representative, Canadian Government Merchant Marine, Toronto, was married there at the end of October, and left the same day with his bride for Vancouver, en route for Los Angeles, California, where she is remaining while he is making a traffic survey in Mexico.

The Canadian National Rys. put in operation the winter car ferry service between Tormentine, N.B., and Port Borden, P.E.I., on Oct. 31. One round trip a day is made except on Sundays.

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TORONTO, CANADA, DECEMBER, 1921.

PRINCIPAL CONTENTS.

Appointments, Transportation 644
Birthdays of Transportation Men 628
Board of Railway Commissioners,—
Orders by, Summaries of 630
Traffic orders 638
Canadian National Rys.,—Box Cars, Repairing of 647
Construction, Etc. 644
Self propelled cars 650
Net earnings 639
New locomotive terminal at Moncton, N.B. 623
Canadian Pacific Ry.,—Construction, Etc. 640
Earnings, expenses, etc., for September 629
New type of Shop Blower 649
Canadian Traffic League 645
Electric Railway Department .....656 to 663
Finance, Meetings, Etc. 660
Freight and passenger rates 663
Manitoba's Hydro Electric Development.... 658
Ottawa Electric Ry. Valuation, Franchise, Etc. 659
Projects, Construction, Etc. 660
Toronto Transportation Commission,—Track construction and rehabilitation 656
Wages, working conditions, etc. 663
Express Companies, Among the 655
Grand Trunk Pacific Ry. Box cars, Repairing of 647
Locomotive operation, Avoidable waste in.... 652
Mainly About Railway People 641
Marine Department . .....664 to 675
Canadian Government Merchant Marine, Shipbuilding, Operation, Etc. 667
Dominion Marine Association's activities 669
Icebreaking steamship for the St. Lawrence River 670
Playfair interests add to the Great Lakes fleets 675
Shipbuilding, General, in Canada 664
Wreck Commissioners' enquiries and judgments 674
Railway development 646
Railway earnings 640
Railway finance, meetings, etc. 646
Railway mechanical methods and devices..... 631
Railway operating revenues, statistics, etc... 632
Railway rolling stock orders and deliveries.... 635
Railway wages in Canada and the U.S. 648
Railways, Great Britain, Grouping of 627
Railways, U.S., Financial position 651
Rates, Demurrage, on freight cars 639
Rates, Freight, Reductions ordered 634
Rates, Freight, in U.S..... 636
Telegraph, Telephone and Cable Matters 655, 675

Branch Railways Operation.

The question of passenger train service on branch lines is important, for the reason that in the majority of cases the branch does not yield sufficient business to make steam train operation thereon pay. In many cases the branch is a money maker for the railway on account of the long haul traffic originated on it, despite the fact that operation of the branch itself results in a loss, in which case it may be felt that the loss incidental to steam train operation on the branch is amply compensated for. However that may be, it is certain that the aggregate of the losses from steam train operation of branches is large on most railways, and if these losses could be prevented, the total saving would be large.

Passenger service for the average branch line operated by steam generally requires at least a train daily in each direction, and it may be assumed that two cars will be hauled by the locomotive, the first carrying mails, baggage and express, and the second carrying passengers. The service does not pay, for the simple reason that the business offering will not compensate for the wages of a complete crew, and the locomotive terminal expenses, in addition to the maintenance of way and other expenses which are incurred under any system of operation. A feature of the operation is that the two cars generally provide capacity greatly in excess of that demanded by the traffic, and a growing feature is that motor trucks and automobiles are diverting a great deal of traffic from the railways.

For some unexplainable reason, the public generally believe that railways could make branch lines pay by electrifying them. It is evident, however, that if the traffic on a branch line is so limited that the operation of a daily two-car train cannot be made to pay, the overhead expense incidental to electrification would also result in an operating loss. It would seem that if electric operation is to be adopted anywhere in this country, it should be on lines of heavy traffic, where the volume of traffic is such that the cost of electrification could be absorbed without loss.

Attempted solutions of the branch line operating problem have included self propelled cars operated by steam, compressed air, storage batteries and gasoline, the latter with either mechanical or electrical drive. Steam and compressed air were soon found unsuitable. Storage battery cars and gasoline driven motor cars give promise of being more successful. During the past few months Canadian Railway and Marine World has given accounts of tests being made by the Canadian National Rys. with equipment for branch line service, including the storage battery car which was operated for a month between Belleville and Trenton, on the Ontario District, and is now operating between Bathurst and Campbellton, on the Maritime District, and the gasoline motor car now operating between Brockville and Westport, on the Ontario District. In this issue, mention is made of a gasoline driven car which operated during the past summer on the Stanley Branch, Maritime District. The storage battery car is showing a saving, over steam train operation, of $2,500 a month: the gasoline motor car between Brockville and Westport is showing an operating profit, and while the motor car on the Stanley Branch made, during the summer, a saving over steam operation of $1,300 a month. Such results are encouraging, and give rise to hopes that equipment and operating methods are being developed which will make branch line operation profitable. In this connection, it must be pointed out that winter will present difficult operating problems; but these will doubtless be overcome, and large progress will be made in a field of railway operation which presents large opportunity for the development, perfection and standardization of equipment and operating methods, which will make possible the profitable operation of branch lines all the year round.

The Greater Winnipeg Water District commissioners, faced with heavy deficits in operating its railway by steam, have invited tenders for a gasoline propelled passenger car, particulars in connection with which are given in an article, "The Greater Winnipeg Water District Railway's Future," on another page of this issue.

Locomotive Design and Operation.

The paper by James Partington, Estimating Engineer, American Locomotive Co., on locomotive design as affecting operation, published on another page of this issue, presents the ever present problem of locomotive improvement in an instructive way, and is worthy of study by any railway operating man. While efficiency and economy in locomotive operation depend on a great many things, among which may be mentioned the character of locomotive terminal facilities, the degree of skill displayed by firemen and locomotive men, the character of train operation and train dispatching, the system of tonnage rating, the degree of cooperation between the mechanical and operating departments, the manner in which timetable schedules are adapted to the division, etc., it is nevertheless evident that with design unfavorable in relation to prevailing conditions, the maximum efficiency and economy in operation is impossible. As Mr. Partington so clearly sums the matter up, the aim in design should be such that, in operation, a drawbar horse power will be obtained for the minimum amount of weight, of fuel, and of maintenance cost. A study of the paper shows that the natural tendency of securing the desired standard in one detail is to make for a disadvantage in another; for example, a boiler giving the maximum in steam making ability and permitting the greatest economy in combustion produces a tendency to too great size and weight, or the attempt to keep certain parts within what may be considered a desirable weight limit may possibly involve a sacrifice in resistance to wear, and therefore in maintenance cost. To the necessity of making correct adjustments as between these major factors of design, add numerous special conditions of grade, curve, clearances, weather conditions, and so on, and the nature of the designer's problem is indicated. The effect of various external conditions present when a locomotive is actually in operation are evident, and therefore appreciated by operating men, but the effect of the thought and study given to the locomotive before it was

brought into being is not so evident in its application. The connection between design and operating efficiency is clearly established by Mr. Partington, however, and for that reason his paper is well deserving of study and thought by everyone whose work is in any way connected with locomotive operation.

Partyism Run Mad.

A Portland, Me., paper said recently: "The G.T.R. docks were never in better shape for handling the winter steamer business than at present. For several months the company's carpenters have been busily engaged in making repairs at all the wharves, which are now greatly strengthened, hundreds of new piles having been driven in place of others that had decayed, together with a lot of new planking, while the plank roadway running in front of all the sheds has been practically rebuilt."

The Toronto Globe republished the above, under a heading "More Americanization," and attacked the Dominion Government for what had been done. Does the Globe think that the portion of the G.T.R. Montreal-Portland line from the International Boundary to Portland should be abandoned, or ordinary repairs neglected?

Presentation to Acton Burrows. — At the opening of the Canadian National Newspapers and Periodicals Association's annual meeting in Toronto, Nov. 10, the President, Acton Burrows, Proprietor, Canadian Railway and Marine World, announced that he was not a candidate for re-election, and that, on account of other duties, he could not continue in the position under any circumstances. He was, however, re-elected a director, and a member of the executive committee. On the following day, Lt. Col. J. B. MacLean, President, MacLean Publishing Co., on behalf of members of the Association, presented him with a complete set of the Encyclopedia Britannica's latest library edition, in recognition of his services as Chairman of the Canadian Press Association's Trade and Class Papers Section for four years, and as President of the Canadian National Newspapers and Periodicals Association for two years.

G.T.R. Efficiency Propaganda.—A joint meeting of the G.T.R. Montreal and Ottawa Division staffs to promote efficiency was held at Valleyfield, Que., Nov. 8, J. J. Connelly, Superintendent, Montreal Division, presiding. Dr. Hodgetts, Director General, St. John Ambulance Association, Ottawa, spoke on first aid and nursing; and a demonstration of first aid was given under G. A. Kell, Safety Engineer, Montreal. A. H. McMullen, of the Bureau of Explosives, Ottawa, explained a series of lantern slides, demonstrating the results of the careless handling of dangerous commodities, and R. Surgeon, of the lost freight department, gave an illustrated talk on the handling of freight.

The Reid Newfoundland Co. made considerable reductions recently in its freight rates between North Sydney, N.S., and Newfoundland points reach by its system, the approximate reductions on different commodities being as follows:—Apples, 25%; beans, 45%; barytes, 10%; flour, grain and grain products, 45%; hay, straw, etc., 17%; matches, 18%; pickled meats, 40%; onions, 6%; potatoes, 5%; salt, 17%.

Canadian National Railways Construction, Betterments, Etc.

St. John, N.B., Shipping Facilities.—C. A. Hayes, Vice President in charge of traffic, C.N.R.; D. O. Wood, General Foreign Freight Agent, C.N.R. and G.T.R., and R. B. Teakle, Manager, Canadian Government Merchant Marine, visited St. John recently and looked over the facilities for handling live stock for the export trade, which will probably be improved as a result.

Little Buctouche River Bridge.—We are officially advised that contracts for a new bridge across the Little Buctouche River, between Irishtown and Tankville, N.B., at mile 26.1 Buctouche Subdivision, formerly the Moncton & Buctouche Ry., have been let as follows: Substructure, Gorman & Peckham, Halifax, N.S.; superstructure, Dominion Bridge Co., Montreal.

The new bridge will be slightly up stream from the present one. The pedestals supporting the towers will be of mass concrete construction. Three old 70 ft. timber Howe truss spans will be replaced by a steel viaduct, consisting of four 60 ft. deck plate girder spans, taken from the main line and rebuilt, and three new 30 ft. towers, together with one rocker bent. It is expected to complete the work by the end of February.

St. Genevieve Station.—The Board of Railway Commissioners has, on the application of St. Genevieve, Que., municipal council, ordered the erection of a standard 5th class station at the crossing of the St. Genevieve Road and the railway.

Contracts for Buildings.—We are officially advised that contracts have been let as follows:—Ice house extension at Chaudiere Jct., Que., A. J. Morin, Garthby, Que.; station buildings at Barrute, Que., and Hervey Jct., N.B., J. A. Bonlay, Sayabec, Que.; ten double dwellings at Parent, Que., Emory Sicard, Amos, Que.

Black River Bridge. — The Board of Railway Commissioners has authorized the building of a bridge over the Black River, near Pefferlaw, Ont., mile 55.9 from Toronto, Muskoka Subdivision.

Washago Connection.—The Board of Railway Commissioners has authorized the building of a connection between the Canadian Northern Ontario and Grand Trunk Railways at Washago, Ont., on the Muskoka Subdivision, 89 miles from Toronto.

Hornepayne Station.—A large new station at Hornepayne, the division point on the Canadian Northern Ry., 721 miles west of Montreal, was opened Oct. 22. It is a brick building, 134 x 34 ft, with a platform about 1,000 ft. long and from 12 to 25 ft. wide. On the ground floor are general and women's waiting rooms, baggage and express rooms, ticket and telegraph offices. The divisional offices are on the first floor.

Dauphin Subway. — We are officially advised that a contract has been let to G. M. McLeod, 497 Raglan Road, Winnipeg, for building a pedestrian subway under the tracks at Dauphin, Man.

Holmes Track Connection.—The Board of Railway Commissioners has authorized the building of a connection between the Canadian Northern Ry., from a point on the Duck Lake Subdivision, with the Grand Trunk Pacific Branch Lines Sudworth Subdivision, at Holmes, 10 miles south of Prince Albert, Sask.

Alberta Track Connections.—The Board of Railway Commissioners has authorized the building of track connections as follows:—Between the Edmonton & Slave Lake Ry., and the Grand Trunk Pacific Ry. at Union Junction, Alta.; between the Battle River Subdivision, and the G.T.P. Ry. Viking Subdivision at Riley, Alta.; between its Strathcona-Camrose Branch and the G.T.P. Ry. Bashaw Subdivision near Camrose, Alta.; between the Canadian Northern Alberta Ry. and the G.T.P.R. in Sections 25, 26, Tp. 53, Range 7, west 5th meridian; also between the Edmonton, Yukon & Pacific Ry. and the Grand Trunk Pacific Ry. at Stoney Plains, Alta.

Sumas River Bridge.—The Board of Railway Commissioners has recommended the Dominion Government to approve plans of a temporary lift span for the Sumas River bridge, Port Mann Subdivision, B.C.

Prince Rupert Warehouse and Station. We are officially advised that a contract has been let to J. H. Simmons, Winnipeg, for building a frame warehouse on the dock at Prince Rupert, B.C.

A press report states that P. W. Graham, A. Mather and S. Schofield, contractors, arrived in Prince Rupert, Nov. 9, to start work on the erection of the new station, a description of which was given in Canadian Railway and Marine World for October, pg. 539. (Nov., pg. 595.)

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled wtih the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners. — CALVIN LAWRENCE, of Ottawa, heretofore legislative representative, Brotherhood of Locomotive Engineers, has been appointed a member of the Board of Railway Commissioners for Canada.

JAS. W. REID has been appointed Inspector of Railway Safety Appliances, at Calgary, Alta.

Canadian National Rys.—G. E. BUNTING, Australasian Manager, Canadian Government Merchant Marine, has also been appointed General Traffic Manager, C.N.R., with general supervision, in New Zealand and Australia, of freight and passenger traffic. Office, Auckland, N.Z.

R. J. McEWAN, who was appointed District Agent, Canadian National-Grand Trunk Rys., and Canadian National Express Co., at Manchester, Eng., recently has opened his office there, at 14 Atlantic Chambers, 7 Brazennose St.

Canadian Pacific Ry.—B. E. CHACE has been appointed City Ticket Agent, Nelson, B.C., vice F. V. Henderson, resigned.

G. M. CORDINGLY, heretofore dispatcher, has been appointed Chief Dispatcher, Saskatoon, Sask., vice A. B. Harshaw.

R. A. GAMBLE, Terminal Trainmaster, Winnipeg Terminal Division, has been appointed acting Superintendent, Winnipeg Terminal Division, temporarily, during the absence on leave of R. C. Morgan, who is now with the Reid New-

foundland Co., at St .John's, Nfld. Office, Winnipeg.

J. L. McCLOSKEY is acting as agent at Juneau, Alaska, the General Agent, R. F. Richardson, having died Oct. 26.

N. McMILLAN has been appointed Assistant Superintendent, Trenton Division, Ontario District, vice W. J. Stinson, transferred. Office, Havelock, Ont.

T. McNEIL, heretofore agent, Liverpool, Eng., has been appointed General Agent. Office, Royal Liver Building.

W. H. NOYES has been appointed Roadmaster, Belleville Subdivision, Ontario District, Belleville, Ont., vice J. Telford, transferred to New Brunswick District.

W. J. STINSON, heretofore Assistant Superintendent, Trenton Division, Ontario District, Havelock, Ont., has been appointed Assistant Superintendent, London Division, Ontario District, vice R. G. Edwards. Office, London, Ont.

F. W. STONE has been appointed acting Terminal Trainmaster, Winnipeg Terminal Division, temporarily, while R. A. Gamble is acting Superintendent of the Division. Office, Winnipeg.

R. E. SWAIN has been appointed Liverpool Passenger Agent. Office, Royal Liver Building, Liverpool, Eng.

Grand Trunk Ry.—W. M. DOHERTY, heretofore dispatcher, has been appointed Chief Dispatcher, London, Ont., vice A. F. Sharpe, appointed Trainmaster.

F. A. RUTHERFORD, heretofore Trainmaster, London Division, Ontario Lines, London, Ont., has been appointed Passenger Trainmaster, Ontario Lines. Office, London, Ont.

A. F. SHARPE, heretofore Chief Dispatcher, London, Ont., has been appointed Trainmaster, District 17, Sarnia Tunnel to Hamilton, including Petrolia Subdivision, District 18, Komoka to Glencoe, District 19, Glencoe to Kingscourt Jct. and District 24, vice F. A. Rutherford, appointed Passenger Trainmaster, Ontario Lines. Office, London, Ont.

Michigan Central Rd.—F. W. COWLEY, heretofore passenger conductor, has been appointed Assistant Trainmaster, London, Ont.

T. EVANS, Freight Agent, London. Ont., was, it was stated recently, about to be superannuated. We are officially advised that it has been decided not to do this for the present.

Minneapolis, St. Paul & Sault Ste. Marie Ry.—J. C. PETERSON, heretofore General Agent, Winnipeg, has been appointed General Agent, Freight Department, Minneapolis, Minn.

C. F. RONNAN, heretofore Commercial Agent, Minneapolis, Minn., has been appointed General Agent, Winnipeg, vice J. C. Peterson, transferred.

Reid Newfoundland Co.—R. C. MORGAN, Superintendent, Winnipeg Terminals, C.P.R., who, as stated in Canadian Railway and Marine World for November, has been granted six months leave of absence, has been appointed by the Reid Newfoundland Co.'s directors, from Nov. 1 as Chairman of its Railway Management Committee, the other members on the committee being R. G. Reid, Vice President of the company, and J. M. Forbes, C.E., director, who is in charge of its Natural Resources Department. This is in accord with the Newfoundland Government's stipulation, in extending aid to enable the company to continue operating the railway for a year, that a General Manager should be secured, either from Canada or the United States, and that the appointment should be subject to the Government's approval. We are informed that Mr. Morgan is acting practically in an advisory capacity, and that his service will probably be only a temporary one. The committee is charged with the present operation of the railway, and the formulation of some general scheme for its future operation, which it is expected to have prepared within the next two or three months and to be formulated before the end of March, 1922.

Canadian Traffic League's Annual Meeting, Etc.

The Canadian Traffic League, which is composed of over 100 traffic directors, managers, commissioners, and other officials in charge of traffic for industrial and commercial organizations, has for its objects, as stated in its constitution, to promote a better understanding by the public, provincial and Dominion governments, of the needs of the traffic world. To secure modification of present laws,

A. H. Thorpe,
Traffic Manager, William Davies Co., Ltd., and President, Canadian Traffic League.

regulations and rulings where they are harmful to the free interchange of commerce. To advance fair dealing. To promote, conserve and protect commercial and transportation interests. To co-operate with the Board of Railway Commissioners for Canada, other organizations, and the transportation companies, thus bringing about better conditions.

The annual meeting was held in Toronto, Nov. 15, the President, F. W. Dean, Traffic Manager, Steel Company of Canada, being in the chair. Reports from the various committees and a number of other important matters were dealt with. The following officers, etc., were elected:—President, A. H. Thorpe, Traffic Manager, Wm. Davies Co., Toronto; Vice President, W. R. Caldwell, Traffic Manager, Dominion Canners Ltd., Hamilton; Secretary-Treasurer, R. J. Fitzgerald, Traffic Manager, F. W. Woolworth Co., Toronto. Executive Committee:—F. W. Dean, Traffic Manager, Steel Co. of Canada, Hamilton; Jas. Mayor, Sheet Metal Products Co. of Canada, Toronto; S. B. Brown, Assistant Manager, Transportation Department, Canadian Manufacturers Association, Toronto; W. S. Campbell, Manager, Transportation Department, Canadian General Electric Co., Toronto; J. J. Sinnott, Traffic Mnager, F. F. Dalley Co., Hamilton; W. N. Nuttycombe, Traffic Manager, McClary's Limited, Toronto.

In the evening the League held its annual dinner in the Toronto Board of Trade restaurant, the retiring President, F. W. Dean, in the chair. The principal speaker was Hon. Mr. Justice W. R. Riddell, of the High Court of Ontario, who delivered a masterly address on Canada, which was most enthusiastically received. Other speakers were A. W. Bell, Traffic Manager, General Motors Co.; A. H. Thorpe, the President elect; C. A. Hayes, Vice President in charge of traffic, Canadian National Rys.; Wm. C. Muir, Vice President and General Manager, Canadian National Express Co.; S. B. Brown, Assistant Manager, Transportation Department, Canadian Manufacturers Association; C. S. Morse, District Freight Agent, C.P.R.; and Acton Burrows, Proprietor, Canadian Railway and Marine World. The latter congratulated the League on its recognition by the Board of Railway Commissioners, in being added to the bodies which are to receive notice of applications to the Board for changes in rates, and referred feelingly to the loss which the traffic world in general had sustained during the year by the death of Jas. Hardwell, Chief Traffic Officer, Board of Railway Commissioners.

Railway Accidents Throughout Canada. The total number of accidents reported to the Board of Railway Commissioners in September was 185, resulting in 30 persons being killed and 197 injured. Of those killed, 13 were employes, and 17 were others, while of those injured 23 were passengers, 131 were employes and 43 were others. Under others are included 27 highway crossing accidents, in which 9 persons were killed and 30 were injured. In 18 of these accidents the crossings were unprotected, in 4 there were gates, in 4 there were bells and in one there was a speed limitation. In 17 cases automobiles were concerned, in 4 cases pedestrians, in 5 cases wagons and in 1 case a vehicle.

The Board of Railway Commissioners has granted the Vancouver, B.C., Harbor Commissioners' application for running rights over a section of the Vancouver, Victoria & Eastern Ry. & Navigation Co.'s lines in Vancouver, from the point where the Commissioner's proposed railway connects with the V.V. & E.R. to the connecting point between the latter and the Canadian National Rys. at False Creek.

The Nova Scotia apple crop for 1921, reported as having been estimated by G. E. Graham, General Manager, Dominion Atlantic Ry., at 1,750,000 barrels, valued at $5,000,000. The bulk of the crop is shipped out by the company's railway and steamships.

The Canadian National Rys. will run a special train leaving Winnipeg Dec. 7 for Halifax, N.S., for the Christmas trans-Atlantic sailings. Special sleeping cars will be provided for passengers from Calgary, Edmonton, Regina and Saskatoon.

Railway Development, Projected Lines, Surveys, Construction Betterments, Etc.

Alaska.—The U.S. Senate on Nov. 14 passed a bill authorizing an additional $4,000,000 for completing the Government railway between Seward and Fairbank, Alaska.

$52,000,000 had previously been appropriated for the construction of the line, which will be 539 miles long when completed. Work is in progress on the final link of 61 miles. The $4,000,000 last voted will be mainly expended upon the erection of a 1,340 ft. bridge over the Tanana River, a 600 ft. bridge across the Menana River, and other bridge work.

Alberta & Great Waterways Ry. — A press report of Nov. 10 stated that track had been laid into the new townsite of Waterways near the Clearwater River, and about 8 miles short of McMurray, Alta., that grading on the spur line to the water front was about done, that a portable station and other buildings were being put up, and that a sleigh road was being built to connect the old road with the railway. Construction on the line between Waterways and McMurray has been suspended for the season.

The Premier of Alberta is reported to have informed a delegation of McMurray people that the question of the extension of the railway into McMurray will have to be determined by developments in the north. The terminal at Waterways is claimed to be the best possible one in the interests of the railway, the steamship companies, and the district as a whole, until such time as the traffic requirements justify an extension. (Nov., pg. 583.)

Canadian Light Railways Construction Co. is reported to be the title of a reconstructed company, which purposes taking over the assets and liabilities of a company with a similar title, formed to build narrow gauge railways in Northern Ontario mining district. (Oct., pg. 519.)

Canadian Transit Co.—In connection with the project to build a bridge across the Detroit River, with the Canadian end at Windsor, Ont., the President of the United States has written C. E. Fowler, the engineer, as follows:—"The construction of great bridges across boundary waters between the U.S. and Canada is particularly interesting and deserving of public interest, because they invariably are calculated to bring into yet more intimate relations two countries between which more than a century of unbroken peace has been recorded." (Aug., pg. 419.)

Edmonton, Dunvegan & British Columbia Ry.—Good progress is reported to have been made in the construction of the 25 mile extension from the Peace River into the Waterhole country. Three bridges remain to be completed. Ties and rails have been delivered, and it is expected to have the line ready for operation at an early date. (Nov., pg. 583.)

Esquimalt & Nanaimo Ry.—It is expected that the foundation work for the bridge to carry the railway over the harbor works at Johnson St., Victoria, will be completed at an early date. The steel for the superstructure, manufactured by Canadian Bridge Co., Walkerville, Ont., is being delivered. (Oct., pg. 528.)

Grand Trunk Ry.—The Board of Railway Commissioners has authorized the rebuilding of bridge 93 over the Coldwater River, old Midland Ry., mile 146.85 from Belleville, Ont.

The Board of Railway Commissioners has approved of plans for the reconstruction of the bridge over the G.T.R. at Main St., East Toronto, work on which has been in progress for some time.

A press report states that during this year 89 miles of track on the London Division have been relaid with 100 lb. rails. This work was done on the westbound track, the eastbound track having been relaid in 1920.

Greater Winnipeg Water District Ry. The Board of Administration's sub-committee reported Nov. 11 that ballasting on portions of the railway between St. Boniface and Deacon, 6.5 miles, was being completed. The estimated cost of the work was $22,500, and there had been expended to that date $14,826.24. It was estimated that about $4,000 more would complete the work.

Pacific Great Eastern Ry.—Replying to questions in the British Columbia Legislative Assembly Nov. 2, the Premier stated that the trestle work on the line west of Lonsdale Ave., North Vancouver, was in first class condition for operation, with the exception of the east portion of trestle no. 1, which had been reinforced to make it safe for traffic until it could be train filled, for which instructions had been given and the work would be gone on with as soon as steam shovel and cars could be delivered from Squamish. (Nov., pg. 583.)

Timiskaming & Northern Ontario Ry. The first sod in connection with the extension for about 70 miles north from Cochrane, the present terminus, was turned by Premier Drury, Oct. 28. Tenders for the grading of the line will be invited at an early date. (Nov., pg. 583.)

Toronto, Hamilton & Buffalo Ry.—In connection with the reconstruction of the Robinson St. bridge, Hamilton, Ont., the company has asked the city council to pay a portion of the cost, and to put in the earth approaches. (Oct., pg. 529.)

Railway Finance, Meetings, Etc.

Algoma Central & Hudson Bay Ry.—Gross receipts for year ended June 30, $2,802,237, against $2,030,562 for previous year. Receipts for August, $223,-823, against $272,051 for Aug. 1920; receipts for two months to Aug. 31, $407,-508, against $519,133 for same period 1920.

Canadian Pacific Ry.—At a directors' meeting at Montreal Nov. 14, a dividend of 2½% on the common stock for the quarter ended Sept. 30, was declared, being at the rate of 7% per annum from revenue and 3% per annum from special income account, payable Dec. 31 to shareholders of record Dec. 1.

St. John & Quebec Ry. — The New Brunswick Government was reported on Nov. 6 to have sold $165,000 of provincial 6% 20 years term bonds to refund St. J. & Q.R. Co.'s registered stock in London, Eng.

W. R. Kenny, O.A.S., has been appointed Air Sub-station Superintendent at Roberval, Que., by the Canadian Air Board.

Freight and Passenger Traffic Notes.

The Canadian National Rys., according to a press report, handled 80,000,000 bush. of wheat from western points between Sept. 1 and Nov. 19.

The G.T.R. was sued in the Quebec Superior Court recently by E. Poupart to recover damages for loss sustain on a shipment of potatoes from St. Isidore to Montreal in Jan. 1920. Plaintiff claimed that he ordered heated cars for the shipment, but on arrival at Montreal one carload was found to be entirely spoiled by frost, and half of the contents of a second car had to be thrown away. Judgment was given for plaintiff for $443.15.

The Canadian National and the Canadian Pacific Rys. have announced the following conditions for home visitors from the western provinces:—Tickets will be issued from Dec. 1 1921 to Jan. 15, 1922, to all points in Eastern Canada, east and south of and including Sudbury and Cochrane, Ont., for first class one way fare and one third for the round trip, the tickets being available for the return trip for three months from the date of issue.

C. A. Cooke, Secretary, Regina, Sask., Board of Trade, in addressing the Regina Business Men's Association, Nov. 4, laid down four factors as principles to observe in packing freight shipments with a view of protecting the shipper, the consignee and the carrying companies. He claimed that by using the cheapest type of package that would ensure safe arrival, the proper form of package in accordance with the classification, and the use of a package which would reduce dead weight to a minimum, freight charges could be materially reduced.

The London Railway Commission has applied to the Board of Railway Commissioners to fix rates to be charged for the conveyance of Michigane Central Rd. freight over the London & Port Stanley Ry. The agreement between the two lines provides for the revision of the rates every five years, and one of these periods expired Dec. 23, 1920. Negotiations have been going on since as to the rates to be charged, and as the parties cannot agree, the Board of Railway Commissioners is asked to fix the rates. Members of the London City Council endeavored to intervene, as being the owners of the L. & P.S. Ry., but it was pointed out that they had nothing to do with the operation of the line, that having been placed in the hands of the London Railway Commission.

An Edmonton, Alta., subscriber writes Canadian Railway and Marine World in reference to an item in the Freight and Passenger Traffic Notes in the November issue, in regard to a record trip reported to have been made by a Canadian National Rys.' special train, to convey a doctor from Vancouver to Edmonton. He says:—"The train, which consisted of a locomotive and two cars, left New Westminster at 9 p.m. Pacific time, and arrived at Edmonton the following day at 8.40 p.m. Mountain time, the distance being 756.3 miles, and the regular running time 35 hours and 55 minutes. The Alberta & Great Waterways Ry.'s running time from Edmonton, with its Friday train, to Lac la Biche, 131 miles, is 6½ hours, half an hour of which is occupied in making the first 4 miles, which is not bad for a new road."

Repairing of Canadian National and Grand Trunk Pacific Box Cars.

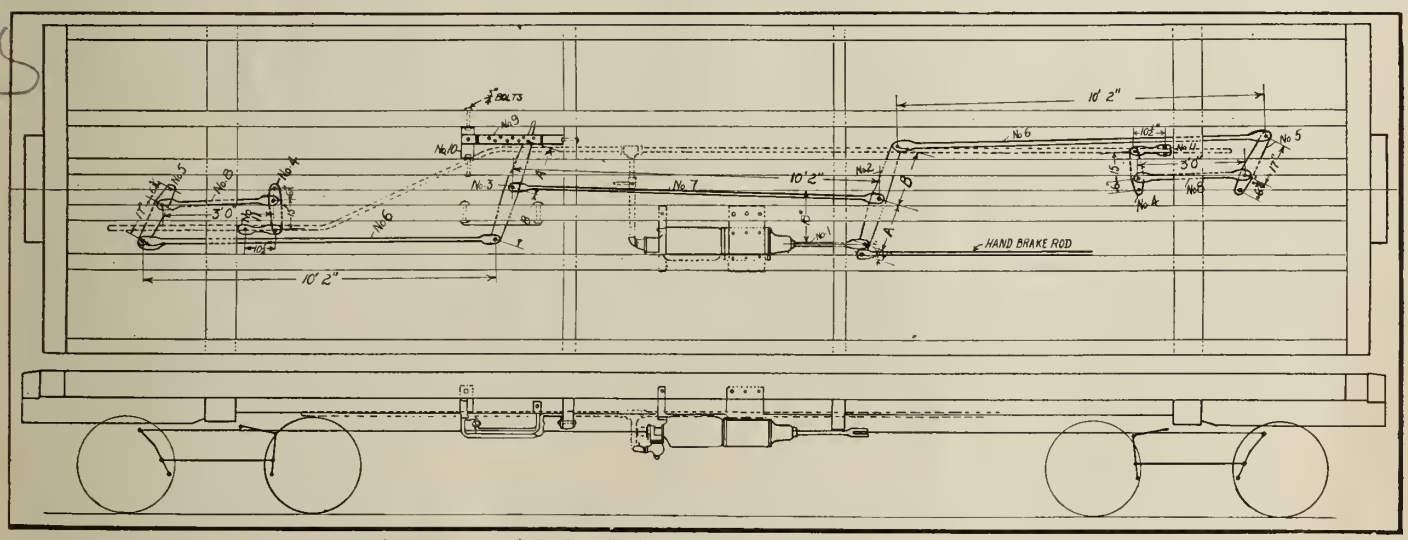
As stated in Canadian Railway and Marine World for November, the Canadian National Rys. management has given orders for the repair of 2,000 C.N.R. box cars, as follows: Canadian Car & Foundry Co., 500 at Amherst, N.S., and 500 at Montreal; Eastern Car Co., 500 at New Glasgow, N.S.; National Steel Car Co., 500 at Hamilton, Ont., and also for the repair of 1,000 Grand Trunk Pacific Ry. box cars by Canadian Car & Foundry Co. at Fort William, Ont.

The repairs will be in the nature of a general overhauling. On all cars not so equipped, the door fixtures will be made to conform to the C.N.R. standard; all cars with defective roofs will be equipped with inside metal roof and outside board roof, in compliance with the railways' standard. All cars not so equipped will be fitted with metal draft arms, either of the cast steel type, built to A.R.A. specifications, or of the built up type of plates and shapes, similarly meeting A.R.A. specifications. On all cars where it is necessary, the foundation brake gear will be made to conform to the C.N.R. standard. Beyond this standardization as to doors, roofs, metal draft arms and foundation brake gear, the repairs will not differ from the ordinary general repair as given in the railways shops.

The application of long metal draft arms to freight cars in main line service has now become a necessity on Canadian and U.S. railways. With the locomotives of high tractive effort now used, and with correspondingly long and heavy trains, the use of short wooded draft arms is no longer satisfactory. The M.C.B. Code of Rules provides in rule 3, subsection 2, as follows:—"After Oct. 1, 1918, when cars equipped with short draft arms receive general repairs, long metal draft arms extending beyond the body bolster, steel draft members extending full length of car, transom draft gear, steel center sills, or steel underframes, must be applied." Subsection (i) of the same rule reads: "After Oct. 1, 1922, no car with trucks of less than 60,000 lb. capacity will be accepted in interchange, unless equipped with wooden or metal draft arms extending beyond the body bolster, metal draft arms integral with body bolster, metal draft arms extending to metal body bolster, and securely riveted to same or transom draft gear."

The C.N.R. standard brake rigging arrangement for freight cars is shown in the accompanying plan. The parts as numbered are as follows: 1, push rod; 2, live cylinder lever; 3, dead cylinder lever; 4, dead truck lever (2 per car); 5, live truck lever (2 per car); 6, top connecting rod (2 per car); 7, center connecting rod; 8, bottom connecting rod (2 per car); 9, adjusting fulcrum; 10, adjusting fulcrum support; 11, dead lever fulcrum connecting rod (2 per car). The distance A and B on the live and dead cylinder levers as shown on the drawing are as follows: with 8 in. diam. cylinders on cars of from 20,000 to 22,000 lb. tare weight, A is 11½ in. and B 22½ in.; tare weight 22,000 to 24,000 lb, A is 12 in. and B 22 in.; tare weight 24,000 to 26,000 lb., A is 12¾ in. and B 21¼ in.; tare 26,000 to 28,000 lb., A is 13⅜ in. and B 20⅝ in.; tare 28,000 to 30,000 lb., A is 14 in. and B 20 in.; tare 30,000 to 32,000., A is 14½ in. and B 19½ in.; tare 32,000 to 34,000 lb., A is 15 in. and B 19 in.; tare 34,000 to 36,000 lb., A is 15½ in. and B 18½ in.; tare 36,000 to 38,000 lb., A is 16 in. and B 18 in.; tare 38,000 to 40,000 lb., A is 16½ in. and B 17½ in. With 10 in. diam. cylinder on cars of from 40,000 to 42,000 lb. tare weight, A is 13 in. and B 21 in.; tare 42,000 to 44,000 lb., A is 13½ in. and B 20½ in.; tare 44,000 to 46,000 lb., A is 14 in., B 20 in.; tare 46,000 to 48,000 lb., A is 14½ in. and B 19½ in.; tare 48,000 to 50,000 lb., A is 15 in. and B 19 in.

Notable features of this brake rigging are, first, that all adjustments are made at the adjusting fulcrum (no. 9), which precludes the necessity of removing and replacing pins in the rigging around the trucks, saving a lot of labor in awkward positions and removing the hidden cause of many derailments; second, the bottom connecting rods (nos. 8) are carried through the bolster, instead of under it, adding to safety in case of broken connections or lost or broken pins. As is shown in the illustration, the brake beams are inside hung.



Arrangement of Brake Rigging, Box Cars, Canadian National Railways.

The Greater Winnipeg Water District Railway's Future.

The Greater Winnipeg Water District Administration Board had under consideration recently a sub-committee's report dealing with the future of the railway, and passed several resolutions in connection therewith. The payment of $4,576.67 on capital account, and $6,445.92 on operating account, and $77,590.30 on interest account, was authorized.

The sub-committee reported that the loss on operating for 1920 was $54,490, and for the eight months ended Aug. 30, $64,000, due to the high cost of operating a steam service with a small revenue from passenger and freight traffic. The sub-committee pointed out that the line cannot be successfully operated on a large scale, and recommended a gasoline car as the only means of keeping the line open for traffic. Tenders for the supply of one had been received, ranging from $20,000 to $30,000. It was recommended that the line be operated as a patrol road for the aqueduct, and that freight and passenger service be given as required, provided that the cost of the same be earned. It was suggested that car load freight be moved by work trains, and that the use of rolling stock of other lines be eliminated as far as possible. It was stated by W. M. Scott, Chairman of the Commission, that the gasoline car will run on a regular schedule, but that the work train will be run only as required, but doing a train crew's full day's work. It is estimated that by carrying out these suggestions, which were approved of, a saving of about $60,000 will be made in operating the line during 1922.

Railway Thief Punished. — Bertram Hale, a negro, was sentenced recently to a month imprisonment for stealing blankets and other bedding from the C.P.R., and to one month imprisonment for loitering on the C.P.R. Glen yards, Montreal. He stole property worth $800, and towels and blankets worth $500 were found at his house.

A Disturbing Passenger Punished. — Geo. Garant was fined $3.50, and in default eight days imprisonment, by the Quebec Court of Sessions, Nov. 10, for causing a disturbance on a Canadian National Rys. train, and took the imprisonment.

The Railway Wages Situation in Canada and the United States.

Grand Trunk Ry.—As stated in Canadian Railway and Marine World for November, pg. 579, the Grand Trunk Ry. entered into an agreement with its employes, members of Canadian Brotherhood of Railway Employes, International Brotherhood of Railroad Stationmen, International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, and Brotherhood of Stationary Firemen and Oilers, by which wage reductions taking effect July 16 were accepted. Immediately after, however, the C.B.R.E. leaders, through J. E. McGuire, general chairman of the G.T.R. employes' branch of the organization, stated that the two representatives who signed the agreement on behalf of the C.B.R.E. had exceeded their authority in doing so, that he was the only man who had authority to sign the agreement on behalf of the C.B.R.E., and that even before he could sign it, he would have to submit it to the general committee. The board of arbitration in the case, composed of J. M. Godfrey, K.C., Toronto, Chairman; H. H. Vaughan, Consulting Engineer, Montreal, for the G.T.R., and Peter Bercovitch, K.C., Montreal, for the employes, met in Ottawa on Nov. 1 to discuss the re-opening of negotiations on account of the C.B.R.E. attitude. G.T.R. representatives stated that they considered the agreement binding, as it was signed by officers of all the organizations involved. Mr. McGuire declared that he could do nothing further until the agreement had been placed before the general committee of his organization, and the meeting had no result of importance. On Nov. 2 the C.B.R.E.'s general committee met in Toronto and decided to reject the agreement as unsatisfactory, stating that it had not been entered into, as the C.B.R.E. representatives who signed it had not authority to do so. On Nov. 3 the board of arbitration met the members of the general committee in Toronto, C. F. Needham, Assistant to General Superintendent, Motive Power and Car Department, G.T.R., also being present. After hearing the argument, the board of arbitration declared the case closed, stating that it would report its findings to the Minister of Labor. A majority report, signed by J. M. Godfrey, chairman, and H. H. Vaughan, for the G.T.R., made public Nov. 23, upheld the general decrease made by the G.T.R., but expressed the opinion that the method adopted in distributing the reduction resulted in the lower paid employes suffering greater decreases than those receiving higher pay. The report recommends that an effort should be made by further negotiations to adjust these inequalities. At the time of writing (Nov. 24) the minority report of Peter Bercovitch, K.C., representing the C.B.R.E., had not been presented.

The other three organizations concerned, viz., International Brotherhood of Railroad Stationmen, International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employes, and Brotherhood of Stationary Firemen and Oilers, ratified the agreement, and their members have declared that they will stand by the agreement and not join the C.B.R.E. in its effort to have the wage cut modified. On Nov. 9 and 10, the International Brotherhood of Railroad Stationmen's general committee met in Toronto, when the agreement was formally ratified, and provision was made for taking up with the G.T.R. the adjustment of some inequalities due to the wage reductions. It was stated that arrangements had been completed to meet the G.T.R. officials in the latter part of November for this purpose.

Canadian National Rys.—In connection with the dispute between the C.N.R. and the C.B.R.E., the article in our November number referred to above, outlined the replacement of the board of conciliation, granted under the Act respecting Conciliation and Labor, by a board of arbitration, with Rev. Byron Stauffer, of Toronto, as chairman, Geo. D. Kelley, barrister, Ottawa, representing the C.N.R., and ex-mayor Harold Fisher of Ottawa, representing the C.B.R.E. Hearings were held at Ottawa on Oct. 27 and 28, at which the railway was represented by F. P. Brady, Assistant to Executive, and the C.B.R.E. by A. R. Mosher and R. Dykes. On Oct. 28, Geo. Hodge, Assistant to Vice President, Eastern Lines, C.P.R., gave evidence concerning the wages of the lower paid C.P.R. employes. The hearings were concluded Oct. 28, and the majority report of the board, signed by Rev. Byron Stauffer and Harold Fisher, was presented to the Minister of Labor Nov. 8. It reviews the history of the case, and, while pointing out that a general reduction of wages was justified, it emphasizes that the lower paid men felt the reduction to a greater extent than those higher paid, and that in some cases the reductions made in the pay of the lower paid men were excessive. The recommendations in the majority report are as follows:—1. As we understand that the management has made no reduction in the rates of wages of apprentices, we make no recommendations concerning them. 2. The reductions as to stenographers are sustained. 3. The reductions pertaining to wages of sleeping, dining and parlor car employes are sustained. In this connection we desire to add, in the case of sleeping car porters, and dining car waiters, that if the management and the employes will seriously undertake the pioneer reform of abolishing gratuities, this board will be glad to offer a supplementary report dealing with the wages of employes referred to. 4. Reductions made in salaries of employes getting more than $125 a month are, generally speaking, sustained. 5. Except in the cases of stenographers and sleeping, dining and parlor car employes, we recommend that the reductions of all monthly paid employes getting $125 or less be in accordance with the schedule applied in the Toronto accounting department. 6. In so far as transient labor is before this board, we think the rates fixed are in keeping with present wages in the open market. 7. In the case of all hourly paid men, other than transient laborers, such as loaders in stores, freight truckers or porters, locomotive cleaners, ashpitmen, firebuilders or coalmen, we recommend that the maximum decrease be not greater than 10% of the wages paid before the reduction. Decreases less than 10%, if any, should stand. 8. In the matter of additional classes brought before the board late in its session, we do not consider that it is necessary to make any specific recommendation, the board's recommendation logically applying to all those before it and the classes of a similar character as well. The schedule applied in the Toronto Accounting office, as mentioned in section 5 above, is as follows: salary $80 per month or less, decrease $5; salary $81 to $95, decrease $7.50; salary $95 to $125, decrease $10; salary $125 to $150, decrease $12.50; salary over $150, decrease $15.

The minority report, signed by G. D. Kelley, the arbitrator representing the C.N.R., presented to the Minister of Labor, Nov. 11, upholds generally the C.N.R.'s action in cutting wages, and reviews the trend of railway operating costs and living costs. Mr. Kelley quotes a U.S. Railroad Labor Board report to show that even after the July reduction, the following wage increases as compared with Dec. 1917 are still in force, corresponding closely to the Canadian rates; supervisory forces, 63.4%; clerical and station forces, 64.6%; maintenance of way and unskilled labor, 55.7%; shop employes, 54%; telegraphers, 82.8%; locomotive service employes, 59.9%; train service employes, 64.5%; stationary engineers and firemen, 92.3%; signal department, 66.6%; marine department, 33.3%. The C.N.R. management had not up to the time of writing (Nov. 23) advised the Minister of Labor as to its contemplated action in connection with the board's reports.

General.—There have been no further developments in the wage relations between the Canadian railways and the locomotive men, firemen, conductors, telegraphers and trainmen who signed the tentative agreement providing for the reduction of wages effective July 16 last.

United States.—As stated in our November issue, the strike threatened in the U.S. by the locomotive men, firemen, conductors, trainmen and switchmen was called off. At the meeting called by the Railroad Labor Board in Chicago on Oct. 30, one of the public representatives on the Board, B. W. Hooper, questioned many of the labor and railway executives who had been summoned, and brought out the fact that the only legal ground for a strike was the wage reduction ordered by the Board and placed in effect July 1. W. G. Lee, President of the trainmen, stated that this was the sole cause of the strike, but the other labor leaders admitted that the proposals of the railway executive to cut wages further were contributing causes. It was pointed out by the Board that a strike based on applications made to the Board by railway executives for further reductions in wages, before the Board had indicated what action would be taken on such applications, would be in defiance of the Transportation Act. T. De Witt Cuyler, Chairman of the Association of Railway Executives, pointed out that the railways had complied with the law in placing the wage reductions in effect, and would be complying with the law in making applications to the Board for further reductions, and that therefore the proposed strike would be against the Labor Board and the law, and not against the railways, and that it would get but little if any public support. The Board gave out a memorandum stating that it is its purpose that the submissions of carriers and employes on rules and working conditions shall be completely disposed of as to any particular class of employes before a hearing is had on any question of wages affecting such class of employes

on any railway subject to decision 147. It had been stated by the labor leaders that the strike would not be called off till a settlement had been arrived at, but in the end the above statement of the Board was accepted as forming the basis for a satisfactory settlement, and the strike was called off. Since the strike was called off, the executives of 52 railways in the eastern states and of 75 railways in the central and western territory have notified their employes that conferences with a view to a further wage reduction are desired. It is evident that the result of such conference will be but to place the whole matter of wages back in the Labor Board's hands. It would seem, therefore that the avoidance of the strike which was threatened does not constitute a final settlement of the railway wage question in the U.S., but that it will again assume large importance when the Board comes to deal with the disputes which will undoubtedly arise from the railway executives' further wage reduction proposals.

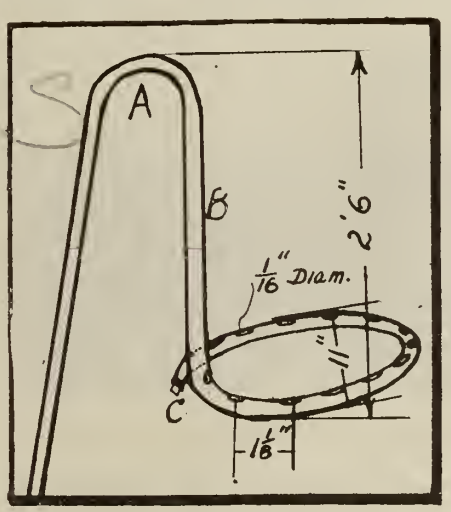
The strike on the International & Great Northern, which started before the time set for the main strike, was soon abandoned. By an order of the U.S. District Court at Houston, Tex., the management of the road was authorized to take back the strikers on probation for 30 days, former seniority and full reinstatement being dependent on satisfactory behavior during that period. The court left it to the management's discretion as to whether the committeemen who caused the strike would be re-employed.

The Transportation Act directs the Railroad Labor Board to take into consideration, in coming to its decisions, the following: 1, the scales of wages paid for similar kinds of work in other industries; 2, the relation between wages and the cost of living; 3, the hazards of the employment; 4, the training and skill required; 5, the degree of responsibility; 6, the character and regulation of the employment; 7, inequalities of increase in wages or of treatment, the result of previous wage orders or adjustments. The Board is also to consider "other relevant circumstances." At the beginning of this year, when the railways were applying to the Board for wage reductions for unskilled labor, it refused to take into consideration the railways' financial position, saying that that was in the hands of the Interstate Commerce Commission. However, in a recent decision, involving a dispute on the New Orleans Great Northern, the Board's majority decision states that the financial position of the carrier is entitled to "secondary consideration," which would make it appear that railway earnings and financial position will henceforth be considered as being among the "other relevant circumstances" in coming to decisions.

From this distance, it appears that the lack of relationship between the Railroad Labor Board and the Interstate Commerce Commission, in the adjustment of railway wages and rates, constitutes a serious defect in the regulative system introduced by the Transportation Act. In the recent western grain rates judgment, Interstate Commerce Commissioner McChord took the stand that the Labor Board should set wages in accordance with the rate scales prescribed by the Interstate Commerce Commission. B. W. Hooper, a public member of the Board, in a recent address, took the position that the fixing of wages could not be made to depend on rates, but he did not specify as to whether he thought that the Interstate Commerce Commission should make rates on the basis of the wages prescribed by the Railroad Labor Board. The situation apparently resembles one which would be created if one member of a family earned the family income while another member controlled the spending of it, with no agreement or recognition between the two as to the amounts of the earnings or the expenditures. It is almost obvious that there is need for the introduction, and recognition by all concerned, of a proper relationship in this connection if the legislation introduced by the Transportation Act is to be permanent and beneficial.

New Type of Shop Blower, Canadian Pacific Railway.

The C.P.R. is now using, in its locomotive houses, a shop blower the design and dimensions of which are shown in the accompanying sketch. A length of ¾ in. pipe, fitted at one end with a hose connection, is bent as shown at A, while the other end is bent into a circle, the plane of which is at right angles to the portion B of the pipe. The circular end



New Type of Shop Blower.

of the pipe is threaded to receive a plug, as at C. The outside diameter of the ring thus formed is 11 in., and at intervals of 1⅛ in., holes of 1/16 in. diameter are drilled through the top of the pipe, around the circumference of the circle.

In operation, the straight end of the pipe, equipped with the hose connection, is connected to the steam line in the house. The portion B of the pipe is placed inside the stack of the locomotive on which steam is to be raised, which brings the horizontal ring down below the base of the stack in the locomotive front end. The device is held in position by the bend A of the pipe hanging over the edge of the stack. Steam being turned on at the valve in the steam line in the house, small jets escape through the 1/16 in. holes in the top of the ring, completely filling the stack. With this device, the deafening noise incidental to the operation of an ordinary shop blower is diminished considerably, while a good decrease in the amount of steam used in getting a locomotive hot and in the amount of time necessary for the job is shown. A further advantage is that if the stationary boilers in a locomotive are for any reason not under steam, suitable apparatus is furnished for using compressed air instead of steam. If there is enough steam on the locomotive on which the blower is working to operate the air compressor, it may be used; if not, the air supply can be obtained by utilizing the air compressor of a locomotive on an adjoining track.

Such a blower is also adaptable for use with stationary boilers, and yard and road locomotives are also being equipped with it. In this case, a ring, with small holes drilled as described above, is installed, clipped in place in the front end around the top of the exhaust casting, and connected to the blower pipe, the jet being controlled by a valve in the cab in the usual manner.

Freight Rates Lower in Canada Than in United States.

The Railway Association of Canada issued a statement on Nov. 1, showing that notwithstanding the recent 16% reduction by U.S. lines on grain and grain products in western territory, which has since become effective on Nov. 20, the U.S. rates remain substantially higher than Canadian rates. Following are the figures:—

Haul	Miles	Rate
Winnipeg to Fort William	420	18
Sterling, N.D., to Duluth	421	23½
Portage la Prairie to Fort William	475	21
Riga, N.D., to Duluth	476	23
Gladstone to Fort William	510	22
Minot, N.D., to Duluth	507	23½
Brandon to Fort William	553	23
Gladstone, N.D., to Duluth	554	27
Boissevain to Fort William	602	23
Medora, N.D., to Duluth	602	30
Minnedosa to Fort William	554	23
Gladstone, N.D., to Duluth	554	27
Souris to Fort William	570	24
Bowbells, N.D., to Duluth	569	26½
Dauphin to Fort William	613	25½
Bounty, N.D., to Duluth	613	27
Virden to Fort William	600	25½
Medora, N.D., to Duluth	602	30
Swan River to Fort William	714	28
Kamm, Mont., to Duluth	712	33
Broadview, Sask., to Fort William	684	28
Raymond, Mont., to Duluth	685	34
Arcola, Sask., to Fort William	672	28
Comertown, Mont., to Duluth	672	32½
Yorkton, Sask., to Fort William	699	29½
Fallon, Mont., to Duluth	698	32
Melville, Sask., to Fort William	728	29½
Shirley, Mont., to Duluth	728	34½
Indian Head, Sask., to Fort William	735	29½
Tusler, Mont., to Duluth	738	34½
Estevan, Sask., to Fort William	710	29½
Kamm, Mont., to Duluth	712	33
Weyburn, Sask., to Fort William	735	31
Tusler, Mont., to Duluth	738	34½
Regina, Sask., to Fort William	777	31
Rosebud, Mont., to Duluth	779	35½
Moose Jaw, Sask., to Fort William	819	31
Hysham, Mont., to Duluth	819	38½
Swift Current, Sask., to Ft. William	929	34
Misko, Mont., to Duluth	928	31
Maple Creek, Sask., to Ft. William	1014	35
Hoppers, Mont., to Duluth	1017	42
Saskatoon, Sask., to Fort William	900	36½
Yegan, Mont., to Duluth	901	40½
Biggar, Sask., to Fort William	960	37½
Patcum, Mont., to Duluth	959	41½
Kindersley, Sask., to Fort William	1066	39
Rekap, Mont., to Duluth	1068	42
Kerrobert, Sask., to Fort William	1041	39
Belgrade, Mont., to Duluth	1043	42
Hanna, Alta., to Fort William	1202	40½
Drummond, Mont., to Duluth	1203	47
Medicine Hat, Alta., to Fort William	1077	36½
Stanley, Mont., to Duluth	1077	42
Prince Albert, Sask., to Ft. William	977	37½
Big Timber, Mont., to Duluth	975	42
Lethbridge, Alta., to Fort William	1178	37½
Orwell, Mont., to Duluth	1180	45½
Calgary, Alta., to Fort William	1243	39
Turah, Mont., to Duluth	1242	48
High River, Alta., to Fort William	1278	40½
Nine Mile, Mont., to Duluth	1278	49
Olds, Alta., to Fort William	1297	40½
Rivulet, Mont., to Duluth	1300	49½
Red Deer, Alta., to Fort William	1282	40½
Lethrop, Mont., to Duluth	1283	49½
Lacombe, Alta., to Fort William	1264	40½
Gaspard, Mont., to Duluth	1264	49
Edmonton, Alta., to Fort William	1243	39
Turah, Mont., to Duluth	1242	48

Self Propelled Cars on Canadian National Railways.

The gasoline driven railway passenger motor car placed in operation by the Canadian National Rys. between Westport and Brockville, 44.4 miles, on the Brockville Subdivision, Ottawa Division, Ontario District, described in Canadian Railway and Marine World for November is being continued in operation between those points as trains 78, 80, 82 and 84 from Westport to Brockville, and as trains 77, 79, 81 and 83 from Brockville to Westport, the running time in each direction being 1¾ hours. The schedule has been maintained consistently by the car, and the service has proved to be popular, as is evidenced by the fact that the car is loaded to capacity on every trip in each direction. The car is also proving most successful financially, the loss entailed by steam train operation being wiped out, and a good profit being shown after allowing for interest and depreciation. During November, adjustments were made to the engine (a Reo 4 cyl., identical with that used in the Reo "speed wagon," and rated at 35 h.p.), which has increased the mileage per gallon of gasoline from 12 to 16. The gear ratio has been changed to give slightly less engine speed, the ratio now being such that an engine speed of 1920 r.p.m. gives a speed of 40 m.p.h.

Gasoline Driven Motor Passenger Car and Baggage Trailer, on Canadian National Railways, Stanley Subdivision, New Brunswick.

The car is well equipped with brakes. Those on the rear wheels are operated by two foot levers, and each wheel of the four-wheel leading truck is braked by an arrangement wherein what would ordinarily be the steering wheel is used as a brake mast wheel, the wheel being turned to apply the brakes, through an arrangement of rods and levers. The heating system is unique, the exhaust from the engine being piped through coils arranged under the seats.

We are advised that the C.N.R. intends acquiring another gasoline motor car to be placed in service between Westport and Brockville, in addition to the present one. The mileage being made by the car now in service is over 355 daily, and the fact of no trouble or delay being experienced to date indicates remarkable performance. It is evident that this mileage, made day after day, is excessive for a gasoline propelled car, but with two cars covering the service the mileage demanded will be within a reasonable limit. It is probable that the new car will be somewhat larger than the one now in service, and that it will be equipped with a 6 cylinder engine. A seating capacity of 30 is being considered. The C.N.R. will buy the car now in service from the builders, the Ledoux, Jennings Co., Montreal, which furnished it to the railway for a month on trial.

The electric storage battery car, in operation between Campbellton and Bathurst, 62.96 miles, on the Bathurst Subdivision, Campbellton Division, Maritime District, has continued to provide a satisfactory service and is still showing a favorable cost of operation. We are informed that the saving made by this car over the cost of steam train operation is $2,500 a month. The car was in the Moncton shops from Nov. 14 to 19, undergoing alterations to fit it for winter operation. The interior was fitted with additional lining, and storm sash and double flooring were applied. The battery containers were lined; as although the batteries are kept at a high temperature, by electrical action, when the car is in operation, they rapidly become cool when the car is standing, resulting in lowered efficiency. In addition to lining the battery containers, two heating ducts were led into the containers, from the car heating system. Snow brushes, to remove the snow from the rails, were attached, and in addition a flanger, or rather a small plough, was fitted to the front of the car.

In addition to the cars mentioned above, the C.N.R. operating during the past summer another gasoline motor car, between Cross Creek and Stanley, 5.74 miles, on the Nashwaak and Cross Creek Subdivisions, Edmundston Division, Maritime District. This car and the trailer operated in connection with it are shown in the accompanying illustration. The chassis of the motor car was that of a Winton omnibus, and the body was built at the C.N.R.'s Moncton shops. The body is 15 ft. 3½ in. long, and 7 ft. wide, and is provided with seats for 18 passengers, in addition to the operator. The trailer is simply a push car fitted with sides as shown, and is used for baggage, etc.

The running time for the 5.74 miles was 30 minutes, the car making two round trips a day, leaving Stanley at 9.15 a.m. and 6.35 p.m. as trains 272 and 274, and leaving Cross Creek at 10.05 a.m. and 7.50 p.m., as trains 271 and 273. Freight service was provided, as necessary, as a switching movement from Stanley Jct. to Stanley by Nahwaak Subdivision trains. The car was put in service in the latter part of April, and run on schedule until Aug. 16, when repairs were necessary and it was out of service until about the end of that month, when it was put back on the run, continuing until early in November, when it was withdrawn for the winter, and steam train service was resumed. We are officially advised that the car effected a saving, from the cost of steam train operation, of $1,319 a month, for May, June and July.

Steel Rail Orders.

In September, Canadian Railway and Marine World was officially advised that the C.P.R. had ordered 25,000 tons of 100 lb. steel rails from Algoma Steel Corporation. Through one of those unfortunate errors that it is impossible to ascertain the cause of, and which no amount of care will always prevent, as long as the human element remains fallible, it was stated in our October issue that the order was for 250,000 tons, an obvious mistake. This error was not noticed until early in November, when a subscriber called attention to it, but it had been inadvertently corrected by another item which appeared in our November issue, and which stated that the C.P.R. had ordered 32,000 tons of 100 lb. rails from Algoma Steel Corporation, the manufacture of which would be gone on with immediately after completion of the 25,000 tons ordered previously. The C.P.R. orders for this season to date are for 57,000 tons.

It was stated in Canadian Railway and Marine World for November that the Dominion Government had passed an order in council, Oct. 6, authorizing the purchase of 75,000 tons of steel rails and their accessories, for the Canadian National Rys. and the Grand Trunk Ry.; that the Canadian National Rys. had ordered 20,000 tons of 85 lb. rails from Algoma Steel Corporation, and was negotiating for 20,000 tons of 85 lb. rails from Dominion Iron & Steel Corporation. The latter order was given early in November, so that the Canadian National Rys. have now ordered 40,000 tons, which are to be rolled this winter, and to be delivered next spring.

Out of the 75,000 tons, the buying of which has been authorized by order in council, 29,000 tons of 100 lb. rails are for the G.T.R.

We were officially advised Nov. 17, that the G.T.R. had ordered 15,243 gross tons of 100 lb. steel rails, A.R.A. type A section, from Dominion Iron & Steel Co.

Interchange Rules. — The American Railway Association, Mechanical Division's general committee, has decided to reprint the Interchange Rules revised this year, including a recent interpretation, and to issue them about Dec. 10, to be effective Jan. 1, 1922, until when the 1920 Rules, with supplement 1, will continue in effect.

J. D. McDonald, General Passenger Agent, Western Lines, G.T.R., Chicago, in remitting his renewal subscription to Canadian Railway and Marine World, writes: "I look forward with pleasure to each issue of your valuable paper, which keeps one in touch particularly with Canadian conditions, and I would not be without it."

The second wheat producing country in the world is now Canada, according to the International Institute of Agriculture's figures.

The United States Railways' Financial Position.

The six months guarantee period, following the return of U.S. railways to their owners, after the period of Federal control, terminated Aug. 31, 1920. The Transportation Act of 1920 provided that the railways should be allowed to charge rates which would enable them to earn a net return of 5½% on the value of their properties, or, at the discretion of the Interstate Commerce Commission, 6%. Statistics for the year beginning with the end of the guarantee period, and ended Aug. 31, 1921, now available, show that, despite the Transportation Act's provisions, the railways have not earned a net operating income nearly as large as that prescribed by the law as reasonable and just. It will be remembered that before the termination of the six months guarantee period, the Chicago wage award had gone into effect, and that at the end of Aug. 1920 a rate increase was allowed by the Interstate Commerce Commission, which was calculated to compensate for the wage increases, and enable the railways to earn the amount prescribed. However, in Sept., Oct. and Nov. 1920, the class 1 railways earned a net return averaging at the rate of about 4% a year, and in December this fell off, and they earned at the rate of but 1% a year. No net income was earned in Jan. and Feb. 1921; in January there was a deficite of $1,000,000 and in February of $7,000,000. In March, April, May and June, the class 1 roads earned at the rate of about 2% a year, and the fact of them having any net earnings at all during those months may be put down to the restriction in maintenance, which was most pronounced. With the wage cut taking effect July 1, the July earnings showed an improvement, the net operating income earned being at the rate of 4.5% a year, and the showing in August was even better, the net operating income being at the rate of 5% a year.

The net result of the year's operation was that the net operating income earned represented a percentage on the valuation of the properties of only 2.9, and was $570,000,000 short of the net operating income the roads would have had had they earned the 6% return. In September, the showing made by the class 1 roads was not so good as in August, the net operating income being a little over $87,000,000, or at the rate of 4.6% a year. Operating revenues decreased about 20% from those of Sept. 1920, but operating expenses decreased 26%, accounting for a better showing than in Sept. 1920, when the net operating income earned was at the rate of 4.1% a year.

The Transportation Act of 1920 increased the powers and duties of the Interstate Commerce Commission largely, and consequent on the rate increase of last August, the Commission undertook to increase intrastate rates, particularly passenger rates, which were out of line with the interstate rates, as increased by the Commission's order, and therefore dicriminatory. The state regulating commissions have consistently taken the stand that the Transportation Act did not give the Interstate Commerce Commission power to interfere with intrastate rates, and the delay from this cause in applying the increased rates to a part of the railways' business caused them the loss of a large amount of revenue in the year ended Aug. 31. The Wisconsin State Commission, like the other state commissions, took the position that the Interstate Commerce Commission had exceeded its authority in prescribing increases in intrastate rates, and a case to determine the I.C.C.'s powers in the matter is now before the U.S. Supreme Court. The division of authority as between the Federal and state regulating commissions has always been a cause of controversy in U.S. railway circles, and it is eviident that the Transportation Act of 1920 has not served to establish a definite dividing line as between the powers of the Interstate Commerce Commission and the various state commissions. In order to definitely remove the Intertate Commerse Commission's power to interfere in intrastate rates, Senator Capper, of Kansas, has introduced a bill in the Senate, which is meeting with strong opposition from railway managements, the Railway Security Owners' Association, and from other bodies.

Canadian Railway and Marine World has given, in preceding issues, details of the proposed legislation to provide for the funding of the railways' debts to the Government to the extent of $500,000,000, for selling of railways' securities by the Railroad Administration through the War Finance Corporation, and for the Railroad Administration using the funds so secured, in addition to those which it may have, in paying the railways what the Government owes them. This bill passed the House of Representatives, but has not yet passed the Senate. It was, however, reported favorably by the Senate Committee on Interstate Commerce, and was discussed on the floor of the Senate in the middle of November. An amendment was adopted, enabling the Railroad Administration to sell the securities given by the railways through agenciee other than the War Finance Corporation, if necessary. At present, the accounts between the Railroad Administration, representing the Government, and the railways as a whole, are such that if all of the railways' debts to the Government, which are at present unfunded, were offset against the Government's debts to the railways, the Government would still owe the railways $279,000,000. In the discussion in the Senate, Senator Cummons, of the Senate Committee on Interstate Commerce, explained the advisability of the bill being passed, and pointed out that only the railways which were badly in need of funds would be allowed to fund their debts to the Government, instead of having them offset against what the Government owed them. Bills have been introduced in the Senate by members opposed to the proposed legislation, dealing with portions of the Transportation Act, and therefore intimately connected with the subject matter of the funding legislation, which have had the effect of delaying its passage by the Senate. From present indications it would appear that an early passage of the bill is not probable.

W. E. Norman, General Superintendent, Central District, Canadian National Express Co., Toronto, writes: "I receive Canadian Railway and Marine World regularly, and always read it from cover to cover, with much pleasure and profit."

Important Decision in Farm Crossing Case.

A. Sagala, a farmer in St. Michel Parish, Vaudreuil County, Que., sued the Ontario & Quebec Ry. Co. recently for $399.99 damages he alleged he had suffered through the company's failure to fulfill an agreement entered into by it to "maintain the approaches" to a level crossing. Plaintiff acquired from the company two pieces of land on opposite sides of the right of way. Under an agreement between the parties, the company, he said, undertook to maintain the approaches to this crossing. In his action he pretended that this agreement extended to an obligation to remove snow as it accumulated at the crossing in winter. Because the company did not clear away the snow, he said access to his land was blocked and in consequence he suffered damages.

The Quebec Court of Review in maintaining a judgment of the Superior Court dimissing plaintiff's action, held that he constructed the approaches, and that he was left free to make them with such contour and grade as he in his uncontrolled discretion deemed fit and proper, and to put them in such a condition as best suited him; that no proof had been made or offered to show the condition in which the approaches were when he completed them, and they were taken over by the company; that the clause in the deed setting forth the obligation of the company to maintain the approaches in the same condition as they were when handed over to them by the plaintiff could not be construed literally. "That would oblige the company to keep the approaches dry or wet, or free from snow or covered with snow, according as the weather conditions chanced to be when the company took the approaches over from the appellant," the court held. This would be absurd. The clause must be construed with a view to ordinary weather conditions in the vicinity, and the reasonable and proper construction thereof, having regard to all the circumstances of the case, is that the company must see to it that these approaches shall continue to exist as such in relation to the crossing to which they lead, and that the company shall neither do nor permit anything that will change their character nor prevent the plaintiff from making use of them as such. But it does not mean that the company is bound to protect the approaches and crossing from the ordinary vicissitudes of weather. The appeal accordingly was dismissed with costs.

Remarkable C.P.R. Locomotive Performance.—Some idea of the tonnage which can be handled by locomotives of average tractive power on certain C.P.R. western lines is furnished by the performance of its locomotive 995, a 155% engine, which, we are officially advised, handled on Nov. 2 106 cars of grain, 4 cars of coal, a water car and a van from Stoughton to Arcola, on the Kisbey Subdivision, Regina Division, Saskatchewan District, 24.9 miles. Tare was 2,073 tons, and contents 4,795, gross tonnage being 6,868. This performance constitutes a good example of efficient and economical transportation. Incidentally, when compared with a tonnage rating of 1,390 tons for a 210% locomotive on a division with heavy grades, for example, it furnishes a good idea of how large is the dissimilarity in conditions as between divisions.

Avoidable Waste in Locomotive Operation as Affected by Design.

By James Partington, Estimating Engineer, American Locomotive Co.

It seems advisable to consider this subject from the constructive standpoint of indicating what constitutes good design as demonstrated by locomotives in actual service, rather than to attempt to point out the defects in locomotives which do not show maximum efficiency. If any power plant or engine is not properly proportioned for the work it has to do, the most expert skill in operation can reduce only in part the waste resulting from having such equipment in service.

First, considering the design of steam locomotives from the standpoint of new equipment, when a railway company is in the market for new locomotives, its requirements may be met sometimes by duplicating locomotives in service on its road, but adding newly developed attachments which make for increased efficiency and economy. More frequently, however, it will be found that increased traffic, change from wooden to steel cars, improvement in track, roadbed and bridges, etc., will justify and make advisable the adoption of locomotives of a larger and more powerful type. Then careful consideration must be given to service requirements, maximum loads to be hauled, capacity of cars, approximate proportion of loaded to empty cars per train, grades, curves, running time over divisions, maximum allowable load per axle, location of coal chutes and water tanks, clearances, conditions under which trains must be started, and any other special requirements of the service.

Having determined the drawbar pull necessary, it remains to design a locomotive that will have the following efficiency requirements: 1. A drawbar horsepower for the minimum amount of fuel. 2. A drawbar horsepower for the minimum amount of weight of locomotive and tender. 3. A drawbar horsepower for the minimum cost of repairs.

Pacific Type Locomotive 50,000, American Locomotive Co.

Fuel Economy.—As standard practice in modern locomotives, a sectional brick arch in the firebox, and a fire tube superheater, should be applied as a means of saving fuel in any class of service. A sectional brick arch is low in first cost, easily applied and easily renewed. It usually accomplishes a fuel saving of from 10 to 12% in coal burning locomotives, and about 5% in oil burning locomotives. The very general use of superheaters has gradually brought about improved conditions of cylinder lubrication which now make it possible and desirable for the greatest economy to use a high degree of superheat, 250 to 300 deg. now being considered the best practice. A saving of 25 to 30% can be obtained.

The use of feedwater heaters will further conserve fuel, and these are now in general use in continental Europe and are gradually being applied to locomotives in America. The saving that can be realized is as much as 12%. The initial cost is considerable, but the effect of the feedwater heater in operation, aside from fuel economy, will be to help reduce other boiler maintenance charges.

The general proportions of the boiler should receive careful consideration. For the best results with bituminous coal, the length of the boiler tubes should be approximately within the following limits:

Size of tube	Distance over tube sheet
2 in.	18 ft. to 19½ ft.
2¼ in.	22½ ft to 24½ ft.
2½ in.	28 ft. to 30 ft.

For many designs of locomotives, a combustion chamber can be provided, and this will help further in the economical production of steam. A generous steam space should be provided, and the throttle designed and located to secure dry steam. The evaporative capacity of the boiler should be as nearly 100% of the maximum steam requirements of the cylinders as the type of locomotive will permit. Based on 100% boiler, the grate area should be sufficient to prevent the maximum coal consumption per sq. ft. of grate per hr. from exceeding, for bituminous coal, 120 lb., and for anthracite coal, 55 to 70 lb., depending on size.

When the total coal consumption exceeds 6,000 lb. an hr., it is generally necessary to apply an automatic stoker. These have now been so adapted to locomotive requirements that a properly designed stoker will show economy over hand firing, aside from the necessity of its use on account of the coal consumption being greater than the physical capacity of one fireman if the boiler were hand fired.

The arrangement of deflector plates and netting in the smoke box should be carefully adapted to the fuel and combustion conditions, to provide minimum fuel waste and minimum back pressure in the cylinder-exhaust passages, with proper provision against fire hazards which might obtain by the throwing of sparks.

The boiler being designed to produce steam at a minimum cost, it is now necessary to design the locomotive to use this steam with maximum economy. The cylinder proportions and diameter of the drivers should be such as will develop maximum horsepower at the ruling speeds for train movements. The greatest horsepower of locomotive cylinders will usually be developed within a piston speed ranging from 700 to 1,000 ft. per min. Therefore, if other traffic conditions will permit, the operation of trains within these limits should show the greatest operating economy.

Minimum Weight of Motive Power Equipment.—The weight on the locomotive drivers gives an engine friction, independent of other factors, of 22 lb. a ton. The desirability of avoiding excess

Decapod Locomotive, Pennsylvania Railroad.

weight on the drivers from this standpoint alone is therefore readily apparent. When the type of engine will permit, this weight should not exceed what is necessary to give a satisfactory factor of adhesion; this is usually 4¼ times the maximum tractive power. All weight in excess of this, and all other excess weight and excess tender weight, should be eliminated, as far as this can be done without detriment to the design of engine and tender. This applies with particular force to the machinery parts of the engine, especially those parts which affect the counterbalance. All saving in weight in these parts usually produces a similar saving in counterbalance weights and a reduction in the dynamic augment, which is very desirable from the standpoint of track and roadbed maintenance. The use of special materials to keep down weight is often amply justified if repair parts can be obtained promptly when required. This, in the past, has often been the cause of delay, but it can be guarded against by carrying a few spare parts in stock ready for renewals. High tensile alloy steel can frequently be used to advantage for driving axles, crank pins, main and side rods, piston rods, etc.

Occasional steep grades, or hard starting conditions, at stations may cut down the hauling capacity of locomotives over a division to a serious extent. In such cases, the utilization of the weight on trailer trucks for additional tractive power in starting and at slow speeds may increase the capacity of the locomotive from 10 to 25%, depending on the number of driving wheels and working pressure. It has been demonstrated that a separate steam engine, or booster, geared to the trailing axle, will give this additional traction, and that it can be cut in or cut out very satisfactorily as occasion may require. This is an item in economical operation worthy of consideration where hauling capacity is restricted by such limitations, and the use of an independent booster may often permit the satisfactory operation of considerably lighter locomotives for service of this character.

Within the limits of this paper, only the major features of design can be outlined briefly, and only such devices as have been carefully tried out and are in successful operation are cited. The writer believes the savings mentioned are well within what may be obtained in practice. Many other improvements promising further economy in the generation and use of power in the steam locomotive are contemplated and in the experimental stage, but these do not properly come under the scope of our subject as here treated.

Cost of Repairs.—It has been pointed out that locomotives and tenders should be designed to produce the required drawbar horsepower with as little excess weight as possible. In this connection, however, due consideration must be given to the question of repairs. The design of boilers from the standpoint of weight is practically fixed by existing boiler regulations, which provide that locomotive boilers must be operated with a factor of safety of not less than four. Practically all boilers at the present time are designed with a factor of safety of 4½, which leaves a comfortable margin between this and the minimum allowable operating factor.

The maximum stresses in other parts of the locomotive must also be carefully considered, and the parts must be designed to keep these stresses within limits which will eliminate costly failures in service. Aside from the consideration of stresses, much repair cost can be avoided by adopting designs which reduce the number of parts, as far as reasonably may be, especially where these parts must have bolted connections. Here, however, care must be taken to avoid construction which cannot readily be removed for repairs or renewals or repaired in place with reasonable facility. Many roads today are giving a great deal of thought to locomotive design along these lines, having especially in mind the desirability of making the engine parts accessible for oiling and inspection; easily removable with proper shop facilities; of the minimum number of pieces; and interchangeable with equipment now in service.

The repair shop facilities must, of course, be kept abreast of the requirements; i.e., as new and larger locomotives are put in service, turntables, cranes, machine tools, etc., must be of sufficient capacity to handle the larger equipment economically.

The repairs of locomotives can often be facilitated and the necessary shop equipment kept down to the minimum by securing from the locomotive builder many parts which he is able to turn out more accurately and more economically than the average railroad shop would be equipped to do. Such parts include:—Flanged sheets for boiler repairs; flexible and ordinary staybolts; finished bolts and nuts; drop forgings; packing rings for pistons and piston valves; special equipment which requires special tools for its production.

Without attempting to pursue further the design of new locomotives, it may be remarked that a study of the special conditions of individual railways is necessary to secure equipment best suited to the needs of each.

Old Motive Power Equipment. — Much waste in locomotive operation can be avoided by making a careful survey of present motive power equipment which is not giving as economical or efficient service as could be obtained if the engines were modernized. This applies particularly to locomotives where the service conditions demand more power than the present equipment can economically produce. All the suggestions made in regard to the design of new equipment are applicable to a greater or less degree to the old equipment, providing the old equipment is not meeting the demands of the service from a power standpoint, or is not furnishing this power economically. In making a survey of this character care should be taken to determine accurately whether the old equipment will warrant the additional cost of changes and betterments necessary to convert it into up to date power. This can be decided by taking the number of years the locomotives will be retained in service and the increased net return or saving for this period as against the cost involved for changes, interest on the additional investment, increased maintenance, etc.

A comparison should also be made with the results that could be realized by the purchase of new equipment best adapted for the service, as against the cost of contemplated changes in the old equipment. If these comparisons show a saving in favor of modernizing the old equipment, every month that the locomotives are kept in service without doing this will result in a loss that is not recoverable.

2-10-10-2 Mallet Locomotive, Virginian Railway.

The above is the first portion of a paper to be read by Mr. Partington before the American Society of Mechanical Engineers Railroad Division on Dec. 9. The rest of the paper deals with a few concrete examples of what has been accomplished in service by locomotives designed to yield maximum efficiency, the first being locomotive 50,000, a Pacific built by the American Locomotive Co. in 1910, solely to determine the maximum tractive power, with adequate boiler capacity, that could be obtained while keeping the adhesive weight below 60,000 lb. per driving axle. The company, unrestricted by the requirements of any individual railway, was able to embody in the design its ideas of the best engineering practice. Every pound of weight not necessary for strength or durability was eliminated, so that a large boiler could be provided. An average of all the important Pacific type locomotives now operating shows 1,000 lb. less tractive power, 17,400 lb. greater weight, and only 1½% increased boiler capacity. Locomotive 50,000 delivers one cylinder horsepower for every 110.8 lb. of weight, and one boiler h.p. for every 120.3 lb. of weight. In actual test it

showed a minimum coal consumption of 2.12 lb. per i.h.p. hour, the average being 2.21 lb., and it showed a minimum steam consumption of 16.5 lb. per i.h.p. hour, with an average of 16.85. This locomotive was sold to the Erie Rd., and, to March 1, 1920, had made 351,800 miles. About the only changes made since it was put in service have been reenforcing the guide yoke, on account of working, making the guide yoke blocks solid on the guide yokes, and changing the trailing spring sliding block to the Erie standard for Pacific type.

The second example of outstanding efficiency in locomotive design quoted by Mr. Partington is the decapod class used by the Pennsylvania Rd. in freight service. These embody a radical departure in cylinder proportions. The accepted practice in designing cylinders is to arrange for a cutoff of about 90% of stroke, so that starting torque may be as uniform as possible. As the adhesive weight limits the cylinder diameter, if excessive slipping is to be avoided, it is obvious that on long grades, where the maximum tractive effort is required, the long cutoffs use steam in a most uneconomical manner. The design of these decapods involved a limitation of cutoff to about 50% and an increase in cylinder diameter to give sufficient torque at this cutoff to fully utilize the adhesive weight. The expected increase in economy in coal and water, due to the shorter cutoff, has been fully realized. Tests showed a water rate of 15.4 lb. per i.h.p. hour, with a total i.h.p. of 3080 at 40% cutoff, the coal consumption being 2.9 lb. per i.h.p. hour. The lowest coal consumption obtained was 2 lb. per i.h.p. hour, obtained at an output of 1777 i.h.p. and a cutoff of 30%. The highest drawbar pull recorded by a locomotive of this class in a test was 76,211 lb., but in road service a drawbar pull of 80,640 was obtained at 7.2 m.p.h. The indicated tractive effort plotted from a card taken at 7.4 m.p.h. at 55% cutoff was slightly over 90,000 lb. During the tests mentioned, an indicated h.p. of 3486 was developed, showing one h.p. for every 106.2 lb. of weight. The amount of weight per boiler h.p. does not compare as favorably, however, being 145.4 lb. The Belpaire firebox contributes materially to this excess.

The third example is the Virginian Ry.'s 2-10-10-2 Mallet locomotives, which have handled trains of 16,000 tons, on 0.2% grades, with the lowest consumption of coal ever recorded. On May 25, a train of 15,725 tons behind the tender was hauled with a coal consumption of 26.9 lb. of coal per 1,000 ton miles. One of these locomotives recently handled a train of 110 cars, weighing 17,250 tons, over a division with ruling grades of 0.2%, which about constitutes a record for train handling.

The principal dimensions of the three locomotives referred to, and a comparison of the horsepower characteristics, as calculated by the American Locomotive Co.'s method, are as follows:—

Road	Erie	Virginian	Pennsylvania
Type	4-6-2	2-10-10-2	2-10-0
Boiler type	Conical connection	Ext. wagon top	Conical connection
Boiler diameter	76¼—87 in.	105½—118½ in.	87—90½ in.
Weight on drivers	172500	617,000	342050
Weight on truck	49000	32000	29750
Weight on trailer	47000	35000	
Weight, total	269000	684000	371800
Driving wheel diameter	79 in.	56 in.	62 in.
Cylinders	27 x 28 in.	30 & 48 x 32 in.	30½ x 32 in.
Boiler pressure	185	215	250
Tractive power	40600	147200	90000
Factor of adhesion	4.25	4.08	3.80
Cylinder horsepower	2427	5040	4182
Grate, length and width	114 x 75¼ in.	144 x 108¼ in.	126 x 80 in.
Grate area, sq. ft.	59.7	108.7	70.01
Tubes, number	207	381	244
Tubes, length	22 ft.	25 ft.	19 ft. 1 in.
Tubes, spacing	¾ in.	⅞ in.	⅝ in.
Tubes, thickness	11 B.W.G.	11 B.W.G.	.125
Tubes, diameter	2¼ in.	2¼ in.	2¼ in.
Flues, number	36	70	48
Flues, diameter	5½ in.	5½ in.	5½ in.
Flues, thickness	3/16 in.	9 B.W.G.	.18
Combustion chamber, length	None	36 in.	42 in.
Heating surface, firebox	248	532	290
Heating surface, tubes, water side	2672	5592	2731
Heating surface, flues, water side	1136	2511	1313
Heating surface, total	4056	8635	4334
Boiler horsepower	2250	4800	2553
Steam rate, lb. per h.p. hr.	20.8	19.7	20.8
Coal rate, per h.p. hr.	3.25	3.1	3.25
Superheater, no. of units	36	70	42
Superheater, diameter	1½ in.	1½ in.	1½ in.
Superheater, heating surface	879	2120	1418
Tender, weight in running order	161500	214300	182000
Tender, capacity coal, tons	14	12	17½
Tender, water, gallons	8000	13000	9000
Weight of locomotive in lb. per cylinder h.p.	110.6	135.7	88.9
Weight of locomotive in lb. per boiler h.p.	119.6	142.5	145.4

Chairman for Canadian National Railways.—John Elliott, President, Ontario Associated Boards of Trade and Chambers of Commerce, in reviewing the Association's work, at the annual meeting at Brantford, Nov. 17, said that one of the most important matters the executive had had to consider was the appointment of a permanent chairman for the Canadian National Rys. Sir Joseph Flavelle's name had been mentioned, and a strong representation had been made to him to induce him to reconsider his decision declining the offer made to him by the Government some time ago.

Railway Lands Patented. — Letters patent were issued during October for Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia as follows:—

	Acres.
Canadian Pacific Ry.	18.02
Canadian Northern Western Ry.	60.22
Central Canada Ry.	24.66
Total	102.90

J. H. Martin, a pilot of Canadian Aerial Services Ltd., is reported to have made a flight recently from St. Lazare, near Montreal, to Quebec, covering the 190 miles in 2 h. 20 min.

Standard Inside Dimensions for Box Cars.

The American Railway Association Mechanical Division committee on car construction in its report for 1920, included in its recommendations for standard fundamentals for future design, the following inside dimensions for box cars: Length, 40½ ft.; width, 8½ ft; height, 8½ ft. These propositions were included in the letter ballot for 1920, the vote as announced Dec. 10, 1920, being;—

Length, 40½ ft. Voting Yes, 264 memberships, represent 2,335,786 cars owned or controlled, 2,309 votes. Voting No, 8 memberships, represent 67,334 cars owned or controlled, 66 votes. Not voting, 77 memberships, represent 280,154 cars owned or controlled, 287 votes.

Width, 8½ ft. Voting Yes, 270 memberships, represent 2,381,360 cars owned or controlled, 2,353 votes. Voting No. 0 memberships, represent 0 cars owned or controlled, 0 votes. Not voting, 79 memberships, represent 301,887 cars owned or controlled, 309 votes.

Height, 8½ ft. Voting Yes, 255 memberships, represent 2,222,175 cars owned or controlled, 2,194 votes. Voting No, 13 memberships, represent 134,647 cars owned or controlled, 135 votes. Not voting, 81 memberships, represent 326,452 cars owned or controlled, 333 votes.

These propositions have now been approved by the Mechanical Division's General Committee, and the American Railway Association's directors, to be standard of the Division for future design, the inside height of 8½ ft. to be indicated as a minimum dimension. Therefore, the proposition to adopt as standard inside dimensions for box cars for future design as follows, is approved: Length, 40½ ft.; width, 8½ ft.; height (minimum), 8½ ft.

Guy Tombs Ltd. has been incorporated under the Dominion Companies Act with authorized capital of $50,000 and office in Montreal, to buy, sell, manufacture, import, export, transport, forward, cart, carry and deal in all kinds of goods, wares and merchandise, including more particularly pulpwood, paper, pulp and lumber, and to deal in real estate, lumber limits, etc., also to carry on, among other business, that of freight traffic manager, shipping agent, ticket and tourist agent, warehouseman, stevedore and lighterman, and to own and operate steam and electric railways, ships, tugs, barges, wharves, slips, docks and piers, and all other structures necessary for handling of freight. The President and Manager is Guy Tombs, who has been in the transportation service for nearly 30 years. He was with the Canadian Northern Ry. Co. and its predecessors for 18½ years, and for the past 2½ years has been Traffic Manager, Canadian Export Paper Co., Montreal, the personnel and duties of which department he is taking with him to the new company's offices at 285 Beaver Hall Hill, Montreal. Among the directors are N. P. Dalziel, a member of the Edinburgh financial family of that name, formerly Assistant Comptroller, Mackenzie, Mann & Co., Toronto, and now Secretary, Canadian Export Paper Co., Montreal. P. Daniels, late of the C.N.R., is Secretary, and Capt. W. H. Carling, M.C., late of the Bank of Montreal, London, Ont., is Treasurer. The company will undertake any transportation work and especially the handling of overseas business through Canadian ports.

J. H. Walsh Entertained at Quebec.

In connection with the operation of Quebec Central Ry. trains into the City of Quebec, which has been rendered possible by the completion of the line from Scotts Jct. to a junction with a Canadian National Rys. line, and the arrangement for running rights over the C.N.R. and the C.P.R. into the Palais station, the Quebec Board of Trade gave a dinner to J. H. Walsh, General Manager, Q.C.R., on Nov. 3. J. H. Fortier, President, Board of Trade, was chairman, and about 150 were present. The toast to the guest of the evening was spoken to by the chairman, by the Lieutenant Governor, Sir Charles Fitzpatrick, and by J. G. Scott, who has been actively associated with the development of transportation facilities in the Quebec district for many years. Mr. Walsh, in replying, stated that Quebec business men now have the opportunity to trade economically with the territory served by the Q. C.R. and promised that the company will as far as possible meet Quebec in the development of her import and export trade.

Other speakers were the Mayor of Quebec, Hon. J. E. Caron, Minister of Agriculture for Quebec; Sir George Garneau, Brigadier General Trembly, and Grant Hall, Vice President, C.P.R., and President Q.C.R. Co.

A New British Type of Light Railway.

A new type of light railway for agricultural ditricts is being discussed in Great Britain. The idea is to remove the weight of the engine from the rails, to fix solid rubber tires on the driving wheels, which will run on the ground beside the tracks, two wheels on the front of the engine, carrying practically no weight, being run on the rails to guide the engine. It is claimed that the flat wheels running on the ground will give a better grip,, and that consequently an engine of a lighter type could be used. It is also claimed that lighter track could be used, with the weight of the engine not having to be carried.

Among the Express Companies.

The Express Traffic Association of Canada's Supplement 2 to Tariff C.R.C. no. E.T. 694, covering revised rules in connection with the carriage of electrolyte, was approved by the Board of Railway Commissioners' order 31,749, Nov. 9.

The Marine and Fisheries Department has announced that a special express service will be inaugurated in the spring between Gaspe and Montreal, to develop the fresh fish trade. Special express cars will be run, twice or three times a week, picking up shipments at all points along the Gaspe-Metapedia lines.

The National Dairy Council of Canada applied to the Board of Railway Commissioners recently for cancellation of the 20% increase in express rates on cream, allowed by general order 327, Feb. 2, and for the re-establishment of the special commodity rates on cream in existence prior to that order. The application was refused Nov. 15.

Canadian National Express Co.

Chepstowe, Ont., office was closed Nov. 8.

T. C. Leger, messenger, Moncton, N. B., was presented with a purse of money by the local staff, recently, on his marriage.

R. J. McEwan, who was appointed District Agent, Canadian National-Grand Trunk Rys. and Canadian National Express Co., at Manchester, Eng., recently, has opened his office there, at 14 Atlantic Chambers, 7 Brazennose St.

William George Burrell, Stationery Agent, G.T.R., who has also been appointed Supply Agent, Canadian National Ex. Co., Montreal, was born there, March 18, 1868, and entered transportation service in July 1883, since when he has been, to Jan. 1886, apprentice, Audit Office, G.T.R.; Jan. 1886 to Feb. 1894, in Stationery Department, G.T.R.; Feb. 1894 to Sept. 1, 1891, Stationery Agent, G.T. R., and from Feb. 1913, also Supply Agent, Canadian Ex. Co., all at Montreal.

Dominion Express Co.

G. W. Liddle, formerly Superintendent, Toronto, who died there Sept. 2, left a life interest to his widow in an estate valued at $29,967, with remainder to one daughter and two sons equally.

Express Companies' Operations for 1920.

Statistics of express companies' operations in Canada for the calendar year 1920, with comparisons for 1919, have been issued by the Dominion Bureau of Statistics' Transportation Branch. Following are extracts:—

Gross earnings for 1920, $30,512,504; for 1919, $24,933,219; increase, 22%.

Express privileges, i.e., the portion of earnings paid railways for carrying express matter, for 1920, $16,009,460; for 1919, $12,936,615; increase, over 23%.

Gross earnings, less express privileges, for 1920, $14,503,044; for 1919, $11,996,-604.

Operating expenses, for 1920, $16,120,-880; for 1919, $13,327,652; increase about 22%, so that the net operating revenue showed a greater deficit than for 1919, viz., for 1920, $1,231,048; for 1919, $1,-617,836. The greater portion of the increased operating expenses was in salaries and wages, which were, for 1920, $11,772,206; for 1919, $9,344,295, an increase of about 26%.

Money orders, etc., issued, for 1920, $92,589,175; for 1919, $76,698,693, increase of about 20%.

Offices, 5,895 for 1920; and 3,694 for 1919.

Telegraph, Telephone and Cable Matters.

Concurrent with the completion of the Canadian National Rys. new station building at Hornepayne, Ont., a division point north of Lake Superior, 572.4 miles northwest of Toronto, Canadian National Telegraphs has established a repeater station there. The equipment is the latest in use on high speed automatic circuits, consisting of separately mounted fireproof repeater units with the C.N.T. sliding base Wheatstone relay and other special features. Each repeater unit is equipped with a signalling device, operating on a 220 volt local, arranged so that the terminals can call in repeater attendants when required. These repeaters are in use on the Toronto-Winnipeg and the Montreal-Winnipeg multiplex circuits, also on the Toronto-Port Arthur Morse duplex. The combination switchboard and operating table, specially designed for the C.N.T., consists of the new type pin jacks and voltmeter, mounted on solid slate panels. A 3-bank chloride accumulator, consisting of 110 cells in each bank, serves as power supply, charged by a 350 volt generator at the railway shops, where an electrical plant is maintained. Geo. L. Thompson, formerly Assistant Plant Chief, and Chas. C. Hamilton, formerly Automatic Supervisor, at Toronto, are looking after the repeater and wire service at Hornepayne.

The Canadian National Telegraphs' Commercial Department has held two divisional conferences recently, at Montreal and Toronto. The Montreal conference was called by District Commercial Superintendent Humes and was conducted by W. G. Barber, General Commercial Superintendent, with the following in attendance: R. W. Ball, Commercial Supervisor; J. E. McCann, Manager, Montreal; F. D. Boomer, Manager, Ottawa; D. McWilliams, Manager, Quebec; C. H. Goddu, Assistant Manager, Montreal; F. M. Sheppard, Commercial Agent, Montreal; E. Goddu, Commercial Agent, Montreal; G. A. J. Wilkes, Relieving Manager, Eastern Division, and with the following branch office managers: E. A. Morin, P. Hale, J. N. Morris, E. Goyer, J. W. Baker, A. Mayer, L. Leger, S. S. Scott, D. Methot, Miss M. McCann, R. Couture and H. A. Singer. The information given at the conference showed that indications point to a gradual improvement in business conditions in Canada as reflected by the telegraph, which is considered a safe barometer. The obligation of the Canadian National Telegraphs during the adjustment period was reviewed by the General Commercial Superintendent with the attending managers, and great stress was laid upon the personal responsibility each employe bears at this important time when the telegraph is playing so large a part as a first aid to business reconstruction. The Toronto conference was attended by G. D. Perry, Vice President and General Manager; W. G. Barber, General Commercial Superintendent; J. G. Davies, District Commercial Superintendent; R. W. Ball, Commercial Supervisor; G. Hogarth, Commercial Agent, Toronto, and the following Managers: C. W. Dawzy, Toronto; J. Jamieson, Hamilton; R. J. Foster, London; A. C. Hanley, Kingston; A. H. Boomer, Peterborough, and H. Coutts, Brantford. In view of the enthusiasm displayed, it was decided to hold similar meetings of the commercial forces at certain strategic points, once a month in future.

The Canadian National Telegraphs audit office staff entertained the head office staff and other friends at a masquerade party on Nov. 4, when over 100 were present, nearly all in fancy dress. Vice President and General Manager Perry, in domino costume, was present with Mrs. Perry. Mr. Perry complimented the audit staff on the success of the event, the first of the kind to be held in the company's offices, and expressed the hope that it was merely a forerunner of many other similar gatherings. A. C. McConnell, who was master of ceremonies, was dressed as Simon Legree from Uncle Tom's Cabin, and W. G. Barber appeared in oriental costume as Chu Chin Chow. R. A. Taylor, dressed as a C.N.R. colored porter, won the men's first prize, and Miss G. M. Wilton, as an Indian Maid, won the women's first prize, for the best costumes. C. G. Garden and sister won the lucky number dance. The audit office staff's female members supplied a buffet repast.

Electric Railway Department

Track Construction and Rehabilitation by Toronto Transportation Commission.

The work undertaken by the Toronto Transportation Commission in connection with the construction and rehabilitation of street railway tracks was described in Canadian Railway and Marine World for November, pg. 599, so far as the location, nature and magnitude of each portion of the work was concerned. Following is a description of the standards of construction employed and the methods used in doing the work.

Three standard types of track construction have been adopted by the Commission, specified as 122-C-G, 122-C-A, and 122-S-G. Type 122-C-G is so called bebause it includes 122 lb. grooved girder rail, used in connection with a concrete track foundation and granite block wearing surface. Type 122-C-A is the same, with the exception of the wearing surface, which is asphalt. Type 122-S-G is

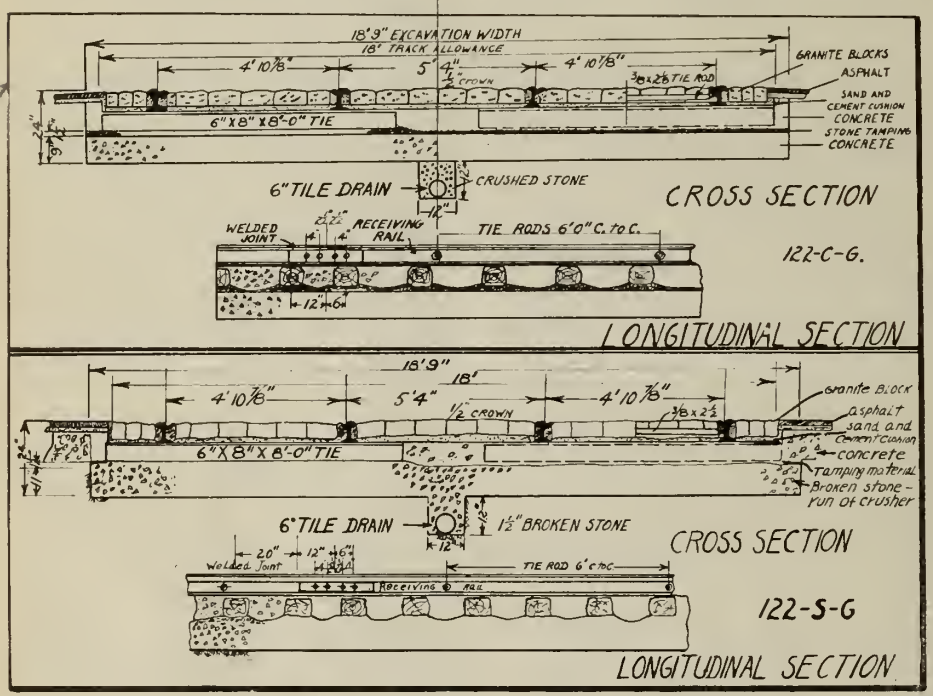


Fig. 1. Types of Track Construction, Toronto Transportation Commission.

so called because the 122 lb. rail is used in connection with a stone foundation and granite block wearing surface. Fig. 1 shows sections of types 122-C-G and 122-S-G.

122-C-G and 122-C-A construction call for grooved girder rail 7 in. high, of U.S. Steel Products Co. section 122-491, or Bethlehem Steel Co. section 122-407-A; either softwood ties, 6 in. thick by 8 in. wide by 8 ft. long, with tie plates, or white oak ties of the same dimensions without tie plates; 5½ x 9/16 in. spikes; tie rods 5 ft. 3 in. long by ⅜ in. by 2⅛ in. flat, with 1 in. round terminal; joint plates welded top and base, and joint bolts 1 in. diam. The total depth of excavation is 2 ft. below the finished grade of top of rail, the width of the excavation being sufficient to lay a slab of concrete 8½ ft. wide for each track. Drainage is ordinarily by 6 in. tile drain, laid between tracks, in a trench 12 x 12 in., filled to subgrade with clean 1½ in. stone. The foundation is of concrete slab, or slabs 9 in. thick, the concrete proportions being 1 part of cement to 2½ of clean sharp sand, and 5 of crushed trap rock. The cushion consists of ¾ in. crushed limestone, mixed with limestone dust. The concrete for the paving base is 1 part of cement to 3 of clean sharp sand and 6 of crushed limestone or gravel. In double track construction the tracks are laid at 10 ft. 2⅞ in. centers; ties are spaced at 2 ft. centers, except at joints, where the tie under the receiving rail is placed so that the edge is 2 in. from the joint. Rails are laid with opposite joints, with no variation of more than 2 in., and, wherever possible, all four rails of a double track are laid with opposite joints. In making the joints, the joint plates are set up tight with all 4 bolts, and then welded by the Lincoln carbon arc process top and bottom. Two of the bolts are then taken out. O-B bonds are used in making the joints.

In 122-C-G construction, the paving base is brought to the top of the base of rail, as shown in fig. 2, and is firmly tamped around and under the rail. A paving cushion of sand and cement is then applied over the paving base. Before the granite blocks for the wearing surface are laid, a stiff cement grout is plastered against the web of the rail against which the blocks will lie, and, after the blocks are laid, they are grouted with cement grout. In the 122-C-A construction, the paving base is brought to within 3¼ in. of the top of rail, thoroughly tamped around and under the rail, and the surface roughened to take the asphalt wearing surface. In both types of construction, the wearing surface is at least ⅛ in. below the top of rail.

122-S-G construction is similar to the types described above as far as rails, ties, tie plates, spikes, tie rods, joints and joint bolts are concerned, with the exception that the ties are spaced 20 in. instead of 24 in. The drainage system is the same, and the excavation depth is 24 in. The foundation, however, consists of a layer of run of crusher to 2 in. stone, spread 9½ in. thick on the subgrade, and rolled to 15 in. below grade of top of rail, thus allowing about 1 in. for tamping to surface. The tamping material is ¾ in. crushed limestone, mixed with limestone dust, and the concrete of the paving base is of the same proportions as that used for the paving base in the 122-C-G and 122-C-A construction. The paving base is brought to the same height as in the 122-C-G construction, and the granite paving blocks are laid and grouted in the same manner.

122-C-G construction was used in the rehabilitation of the tracks on Yonge St., the principal north and south street of the city, from Front St. to Bloor St., and from Scollard St. to Pryce St. The first section done was from Front St. to Carlton St., 4,396 ft. Traffic was diverted from this section of the street, and work was commenced with the breaking of the old pavement along the tracks.

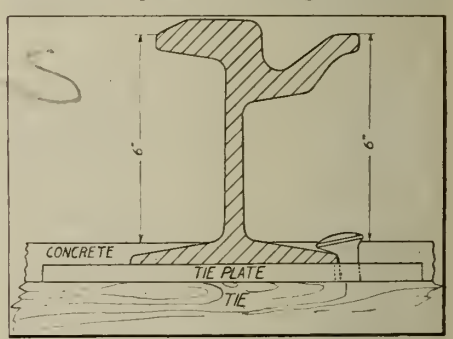


Fig. 2. Level of Paving Base, Toronto Transportation Commission.

Drills, such as used in mining operations, driven by air, compressed by internal combustion engine, and mounted on a compressor car, were used in this work. On the old concrete being broken up, the steel was jacked up without the joints having been broken, and cut with the acetylene flame into convenient sections for handling. The old concrete was loaded by steam shovel and taken away to be used for filling. Upon the ties and steel being removed, excavation for the new track foundation was completed with the steam shovels, and trimmed to grade and line by hand, the trench for the 6 in. tile drain was excavated and the drain laid. The concrete slab was then poured, and after from 36 to 48 hours required for hardening the concrete, the tamping material was placed, ties laid, rails laid, spiked and jointed, the track lined and surfaced and the joints welded. The concrete paving base was then poured; and after 24 hours, the sand cushion was laid, and the granite paving blocks for the wearing surface were laid and grouted. The street was opened to traffic eight days after the completion of paving.

A typical section of 122-C-A construction was involved in the rehabilitation of the Bathurst St. tracks from Dundas St. to College St., 1,450 ft. The old road

material between, and adjacent to, tracks, was loosened and removed in the manner described above, and operations were carried on in the same manner as on Yonge St., up to the point of pouring the concrete paving base. In this case the top surface of the concrete was brought to within 3¼ in. of top of rail, in accordance with the specifications noted above. It was necessary to let the paving base harden during a longer period than on the Yonge St. job, 10 days being given it, after which the asphalt wearing surface was laid and rolled.

A typical section of 122-S-G construction was that on Dundas St., between Howard Park and Ritchie Avenues. The concrete and old steel being removed as described above, and the drainage trench excavated and pipe laid, the foundation of stone was then put in. Run of crusher limestone, conveyed in motor trucks, was dumped in to a depth of 9½ in. There being no concrete in the foundation to harden, no waiting was necessary, and the job was completed under service by the use of methods substantially similar to those employed on Yonge St.

122-C-G construction was used in the following important sections of the work: on Yonge St., Front St. to Carlton St., Carlton St. to Bloor St., and Scollard St. to Pryce St.; on Bathurst St., between Front St. and Queen St., and between Bloor St. and Dupont St. 122-C-A construction was used in the work on Albert and James Sts.; on College St. between Spadina Ave. and McCaul St.; on Bathurst St. between Dupont St. and St. Clair Ave.; on Bathurst St. between Dundas and College Sts.; on Teraulay St. between College St. and Bloor St. Type 122-S-G construction was used in the work on Church St. between Queen and Dundas Sts.; on Dundas St. between Howard Park Ave. and Ritchie Ave.; on Yonge St. between Bloor St. and Scollard St.; on Avenue Road between Davenport Road and Dupont St., and between McMaster Ave. and Alcorn Ave. On Coxwell Ave. between Gerrard St. and Danforth Ave. type 100-C-G construction was used, this being the same as 122-C-G, with the exception that 100 lb. steel was used instead of 122 lb. The connecting link between the Toronto Ry. Co. and Toronto Civic Ry. lines on Danforth Ave. near Broadview Ave. is 90-C-A construction and the connection on Gerrard St., near Greenwood Ave., is of 100-C-G construction.

The sand, stone and other loose material were taken to the different sections of the work by motor truck. A feature of the concrete work was the securing of proportions in the materials at the central yards; large square containers were each filled with the mixture of cement, sand and stone, and hauled by truck, two in a load, to the concrete mixers at the work. Ties were distributed mainly by motor truck. The old track and road materials were removed by truck, and rails were handled by truck and work cars running on the street railway lines.

In addition to the steam shovels, concrete mixers, etc., common to work of this nature, the Commission used the drills above mentioned, and also a concrete breaker built on the steam hammer principle, the hammer having a chisel point. This device proved very efficient in breaking up the old road material between and adjacent to tracks. Small steam road rollers, suitable for rolling the stone foundation in the 122-S-G construction, and the asphalt wearing surface of the 122-C-A construction, inside and between tracks, have been used. Two Brownhoist electric cranes have been used continuously in the work, for all heavy lifting, and have proved particularly useful in the installation of new special work and intersections.

The new intersections, about 70 in all, installed or being installed, are assembled by the manufacturer prior to shipment, when they are inspected by a Commission representative. They are then taken apart and shipped. For installation, the sections are loaded on a crane car, and accompanying flat car, and taken to their locations. The work of changing is done at night, so as to cause a minimum of delay to traffic. All preparations having been previously made, the old intersection is lifted out by the crane, by sections, and the new intersection is lifted into place by sections in quick time.

The intersection installation work has been highly systematized. Instead of having one gang of men do the excavating, laying of steel and ties, lining and bolting up, tamping, and paving, this work is divided up among smaller gangs, each one of which performs one part of the work on each job. For example, the first gang does the excavating, breaking up the old paving material around and under the rails, and removing it. It is followed, on the night of the installation of the intersection, by the steel gang, and the foundation and tie gang, the first removing the old steel and track structure, the second following up with the laying of the new foundation and special

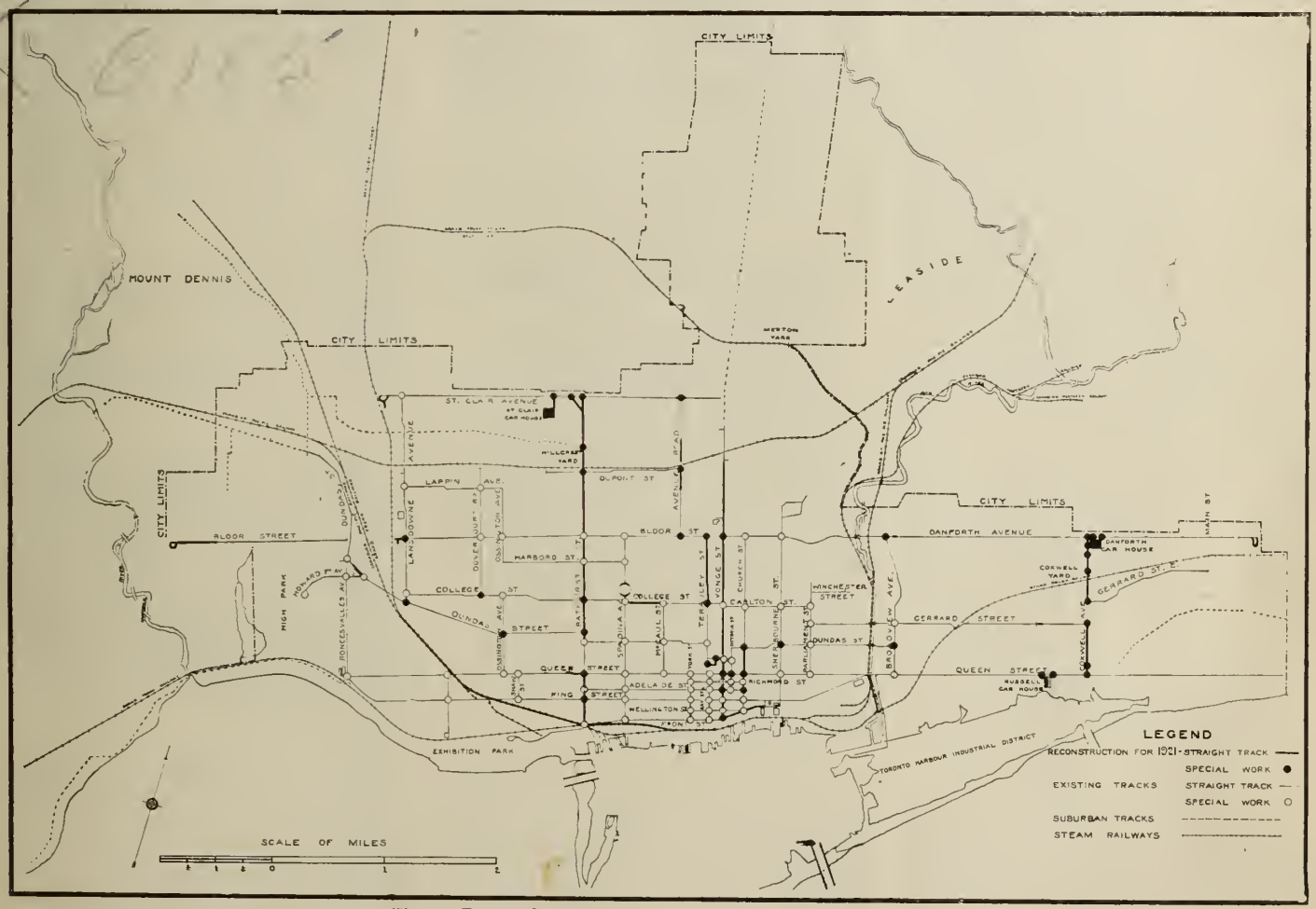


Fig. 3. Toronto Transportation Commission's Electric Railways.

ties, the steel gang starting in again with the laying of new steel. Following these, a lining and bolting up gang goes on the job, to be followed in turn by the tampers. On completion of the tamping, the foundation gang returns and lays the paving base, while the paving gang finishes the job with the laying of the wearing surface. It can be readily seen that by having gangs experienced in one branch of the work go from one job to another throughout the city in this way, the maximum efficiency is obtained, and it is evident that if this organization and method were not employed, it would be necessary to have a large gang on each job, perhaps not as skilled in one department of the work as in another, and equipped with all the tools necessary for each separate operation as outlined above.

The yard located on the site of the old Hillcrest race track alongside the C.P.R. North Toronto line has been used throughout as a material receiving, storage and distributing center. Two tracks were laid the length of the yard ,together with a crossover and a connection with the C.P.R., the railway cars being switched into the yard for unloading. Sand, stone and other loose materials were handled by clamshell crane. Ties were received at this point and distributed to the various sections of the work in the western part of the city, and for the same sections the cement, sand and stone for concrete were mixed and hauled dry to the work as above described. It is the intention to make this a permanent material yard, and additional tracks will be added. The material yard established on Coxwell Ave. served the work in the eastern part of the city, and another material yard has been established at Merton St.

Fig. 3 shows the magnitude of the street railway system now being administered by the Commission, and the work of addition to trackage and rehabilitation of existing tracks carried out since the Commission assumed control. The article in Canadian Railway and Marine World for November described fully the location and nature of each section of the work, and by reference to fig. 3 given herewith the location in the city of each section will be clearly seen.

The following provisions cover the division of the cost of the work as between the Transportation Commission and the city:—

1. Cost of roadway widenings, reconstruction of sidewalks and other works necessitated by such widenings: (a) Where a street on which a new line is to be laid is unpaved, the work to be charged as far as possible as a local improvement in the ordinary way. The Commission to pay the capital cost of the tracks, foundations and paving within the track allowance, less a sum, to be defrayed by the city, equal to the cost of a pavement, and foundation therefor, on the track allowance, of the same type and construction as is to be laid on the roadway outside the track allowance. (b) Where a street on which a new line is to be laid is already paved, the capital cost of the above work necessary to be carried out, to be defrayed by the city. The Commission in this case to defray the whole of the capital cost of the work of laying the tracks, foundations, and paving within the track allowance.

2. Division of the capital cost of paving the track allowance as between the city and the Commission. In the case of new lines on existing streets, other than those defined in clause 1, or in the case of rehabilitation of existing lines, including the widening of the devil strip or the widening of curves, the Commission is to pay the capital cost of the tracks, foundations and paving within the track allowance, less a sum, to be defrayed by the city, equal to the cost of a pavement (and foundations for the same) on the track allowance, of the same type and construction as that laid on the portion of the roadway outside the track allowance.

3. The cost of maintenance of the existing pavements on the track allowance, pending rehabilitation, to be divided on the basis of the Commission defraying the whole cost of repairs arising out of repair or inspection of the rails or bonds by the Commission. The Commission to defray 25% of the maintenance cost, the balance to be defrayed by the city.

At the time of writing (Nov. 10) the extra men employed by the Transportation Commission number about 2,000. The sections of work spoken of in our November article as being well advanced are now largely completed. While it is expected that the amount of work being carried on will be reduced considerably by the end of November, it is evident from fig. 3 and from the facts stated in this article that great progress has already been made in the rehabilitation of the street railway system.

Canadian Electric Railway Association.

Honorary President, Thomas Ahearn, President, Ottawa Electric Railway.
Honorary Vice President, George Kidd, General Manager, British Columbia Electric Railway.
President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.
Vice President, Major F. D. Burpee, Manager, Ottawa Electric Railway.
Treasurer, A. Gaboury, Superintendent, Montreal Tramways Company.
Executive Committee, E. P. Coleman, General Manager, Dominion Power & Transmission Co.; H. H. Couzens, General Manager, Toronto Transportation Commission; C. C. Curtis, Manager, Cape Breton Electrtic Co.; W. S. Hart, Managing Director, Three Rivers Traction Co.; A. W. McLimont, Vice President, Winnipeg Electric Ry.; R. Mayne-Reade, Superintendent, Quebec Ry., Light & Power Co.; Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry.; and C. L. Wilson, Assistant Manager, Toronto & York Radial Ry.
Auditor, H. E. Weyman, Manager, Levis County Railway.
Secretary, L. E. Moreland, Chief Clerk, Hull Electric Co., Hull, Que.
Official Organ, Canadian Railway and Marine World, Toronto.

Manitoba Power Co.'s Hydro Electric Development on the Winnipeg River.

The Winnipeg Electric Ry. shareholders met in Winnipeg, Oct. 10, to authorize the directors to guarantee the Manitoba Power Co.'s bonds for $7,500,000 in connection with the latter company's plans for the development of 160,000 h. p. at the Great Falls of the Winnipeg River. The bonds guaranteed are to bear interest at 7%, and are redeemable in 1941. The issue has been purchased by Nesbitt, Thomson & Co., Montreal, the final arrangements being reported completed Oct. 15.

The shareholders were also asked to approve of a contract between the W.E. Ry. Co. and the M.P. Co., under which the power company will deliver to the railway company all the power it may require from time to time to meet its requirements for electric light, power and transportation purposes.

The first section of the works to be put in hand will provide for the development of 60,000 h.p. A contract for this plant is reported to have been let to Fraser, Brace Co., Montreal. G. G. Brace, a member of the firm, is reported to have been in Winnipeg for some time, looking over the ground, and to have returned east Oct, 6 to complete the necessary preparations for starting work. Another report states that the Dominion Bridge Co., Montreal, is associated with the Fraser, Brace Co. in the contract. It is expected that about 200 men will be employed immediately, and that this number will be increased to probably 2,500 when the work is well in hand.

The work contemplates a dam 3,000 ft. long and a power house ultimately to produce 160,000 h.p. The initial installation will comprise the dam and power house substructure complete, with a power house superstructure for three units of 28,000 h.p. each and an installation of two turbine and generator units of 28,000 h.p. each. About 70,000 cu. yd. of rock excavation and 176,000 cu. yd. of concrete are involved in the construction of dam and power house. A rock cut of 240,000 cu. yd. two and a half miles below the power house for lowering the water level in tailrace, an earth dike of 105,000 cu. yd. for confining the river at its new level above the power house and a steel tower transmission line to the company's old power house eighteen miles up the river for ma part of the scheme.

The power which will be developed by this plant will be utilized in Winnipeg and vicinity by the Winnipeg Electric Ry. and local industries, the old plant of the Winnipeg River Power Co. being inadequate for the present demand. It is expected that by the time the initial development of 56,000 h.p. has been completed the market for power in the Winnipeg district will justify the installation of other units. The first installation contemplates an expenditure of about $7,000,000 and will require 2 years to complete.

The prospectus offering for sale $7,500,000 of the company's first mortgage 7% sinking fund, gold series A bonds, was issued in Montreal, Nov. 15, by Nesbitt, Thompson & Co. The bonds, which are guaranteed as to principal and interest by Winnipeg Electric Ry. Co., were offered at par and interest, each $1,000 bond carrying with it the right to buy two shares of common stock at $10 a share between May 1, 1922, and Jan. 1, 1923, or at $20 a share between Jan. 1, 1923, and Jan. 1, 1924. About $3,000,000 of the issue, which was offered in the U.S., is reported to have been oversubscribed in New York.

The Ottawa Electric Ry. appealed against the assessment of certain machinery by the city at $488,000 for municipal taxation. Under the company's agreement with the city, machinery used in connection with the operation of the railway is exempt from taxation for 30 years. The present assessment covers dynamos, turbines and steam plant machinery, and the city argues that they are not exempted under the agreement. The appeal was heard by Judge Gunn, Nov. 11, and judgment was reserved.

Ottawa Electric Railway Valuation and Franchise.

The Ottawa City Council some months ago arranged for the Hydro Electric Power Commission of Ontario to make a valuation of the Ottawa Electric Ry. Co.'s property and effects, necessary to the operation of the electric railway in the city, in connection with the expiry of the company's franchise in Aug., 1923, and the Commission designated T. U. Fairlie, of its engineering staff, to make the valuation. The work was done by engineers and accountants working under his direction, but without the assistance of the Ottawa Electric Ry. Co., which declined to have anything to do with the matter. The report on the investigations, received by the Mayor Nov. 12, comprises some 240 pages. It deals with the matter along two lines, viz., reproduction cost of the lines and their equipment and present value, and deals with the lines within the city, outside the city but within Ontario, and the line in Quebec. The following figures are given:

	Reproduction cost	Present value
Ontario—		
Ways and structures	$2,676,295	$2,153,186
Equipment	1,468,632	910,041
Power	1,077,720	724,718
General and miscellaneous	401,444	322,977
	$5,624,091	$4,110,922
Quebec—		
Ways and structures	$56,805	$49,287

The report states that the city's physical assets within the railway track allowance are $1,311,438 on the basis of reproduction cost, and that the value of property owned by the company, and not necessary to the railway's operation, is $557,638, on a reproduction basis.

Major F. D. Burpee, the company's Manager, has given out the following:—"Mr. Fairlie's report given in this morning's papers can only be considered as his opinion of the value of the Ottawa Electric Ry. property, based on what he and his staff could observe on the street without access to the company's premises or inventories. His report values all the assets, without the water power, at $4,580,-445. The condition percentage of rolling stock in his report is much too low. This, together with the many items that must have been missed in a valuation made from the sidewalk, would bring his total approximately to that arrived at by Dr. Herdt and his staff in 1919. Dr. Herdt's figures were $5,211,000, without the water power. His valuation took nine months to complete, and employed a large staff of technical experts. He is prepared to substantiate it under oath at any time. I notice Mr. Fairlie does not consider the Britannia Park property as a necessary asset. I do not think that this view will be concurred in by the many citizens who have enjoyed this beautiful playground during the past 20 years."

The report will be considered by the city board of control, and will probably come up for discussion at the next meeting of the city council. Alderman Pinard has given notice that he will move for the preparation of a bylaw to be submitted to the ratepayers at the municipal elections on Jan. 2, 1922, favoring the extension of the company's franchise for a further period of 30 years.

The company's publication, O.E.R. News, said in a recent issue:—"While a great deal of attention is being given in the press to the valuation, it is well to remember that not only the quality of the service, but also the cost of it, depends almost entirely on the application of efficiency and economy to the management of the business. The valuation of the company's assets necessary for the operation of the railway is only of secondary importance in the cost of the service. A variation of even a million dollars in the valuation would not mean a difference of as much as one-fifth of a cent in the rate of fare. Except in the case of a purchase by the city, its function is to determine what should be a fair return to the company for the use of its property. Unless this factor is kept in mind funds cannot be readily obtained when required for extensions and improvements. This company, in justice to its shareholders, did not feel that it could concur in Mr. Fairlie's valuation because it was not in accordance with its franchise agreement. This view was expressed to the city council before Mr. Fairlie was engaged. The company's plant and equipment have an actual value which can be determined to the satisfaction of all concerned by the method specified by the city in our franchise and approved by sound business principles, arbitration. Whether Mr. Fairlie's appraisal may or may not be of value to guide our citizens at the next municipal elections, this company cannot accept it as a basis on which its property can be acquired by the city or for the execution of a new contract."

The city board of control on Nov. 15 unanimously decided to instruct the City Solicitor to prepare bylaws to submit the following questions to the ratepayers in January:—"1. Are you in favor of the city giving the Ottawa Electric Ry. the required notice to take over the street railway at a price to be fixed by arbitration, as provided by the agreement between the city and the company? 2. Are you in favor of the present franchise of the Ottawa Electric Ry. being extended for a further period of 30 years? 3. Are you in favor of the city entering into an arrangement with the Ottawa Electric Ry. for service at cost?"

The board also decided to ask the City Solicitor to advise the council as to whether it is legally possible to have the vote taken on the single transferrable vote system.

Referring ot the board's decision, Major F. D. Burpee, the company's Manager, said on Nov. 16:—"The company is pleased to see that the Board of Control is taking definite steps to settle the electric railway question at the municipal elections in January. It is the company's earnest desire that the vote shall leave no doubt in anyone's mind as to just what the people want done, and the company hopes that as soon as the vote is counted council will make use of the short time still available before the expiration of the present contract, to put the matter into such shape that a definite programme of action can be aid down, and the future provided for. The newspaper report states that the transferable vote plan will be adopted, so that one of the three propositions will have a clear majority over the other two, an esential provision. The street railway people want to make it clear that in the event of the majority of the citizens expressing their desire for a new agreement with the company, they could not agree to an extension of the present contract for a further term of years exactly as it stands today. That contract was entered into many years ago, when no one had any practical knowledge of the operation of an electric railway in Canada. They suggest that the second section of the ballot be worded so as to call for a new agreement with the company along the lines of the present franchise, but that the city be free to adopt such modifications as present day conditions require. The vote as proposed by the board of control calls for a renewal of the present franchise in every detail. To accept the contract without any change would mean confirming by legislation all the anomalies of the present agreement, and lumbering it up with many provisions that either have become dead letters or tend to restrict good service."

Arbitration of Value of Toronto Railway Co.'s Property.

Particulars of the proceedings up to Oct. 25, before the arbitrators, Hume Cronyn, of London, Ont., chairman; Sir Thos. White, nominated by the company; and Sir Adam Beck, nominated by the City of Toronto, were given in Canadian Railway and Marine World for November, pg. 606. At the Oct. 26 sitting the chairman gave the following decision on the city's application to inspect the company's books:—"In this case, the proper course appears to be that the city should first outline with particularity and in detail the information it may desire to secure from the books. If this appears to be relevant to the matters at issue, the company should permit inspection of its books and records in so far as the same bear upon the information desired. The company should, however, be at liberty to seal up and otherwise cover items dealing with other matters; such action to be verified by an affidavit; in the usual form, of the officer charged with or responsible for the sealing up or covering. So far as the uncovered items are concerned, the fullest inspection should be allowed, nor can there be any serious objection to this being done by a firm of accountants."

The witnesses examined between Oct. 26 and Nov. 24 included F. L. Hubbard, Assistant to Manager, Toronto Ry. Co.; W. G. Lambert, of Anglin-Norcross Co., contractors; D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.; and N. E. Cooley, Dean of Michigan University Engineering College, all of whom were called by the company's counsel.

A large amount of time was occupied by counsels' arguments as to whether evidence of original costs should be admitted and it was finally decided by the city's counsel to present a stated case to the Appellate Court.

Robt. McKay, K.C., one of the company's leading counsel, died Nov. 6, after a few days illness.

The Hydro Electric Power Commission of Ontario, which operates the Hydro Electric Railways, Essex Division, the Peterboro Radial Ry. and the Guelph Radial Ry., is collecting information on the various types of trackless trolley busses that are in operation in the United States and in Europe and expects to decide on the most suitable one for Canadian conditions and to ask for tenders in the near future.

The Toronto Transportation Commission is offering for sale 351 coal stoves, which were used by the Toronto Ry. for heating cars.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry. has completed the following extensions:—On South Market, Ontario and Port Sts., 2200 ft. of track. This extension was to improve service, and allow cars to move under closer headway as previously the single track on Erie Ave. did not permit that. The type of construction was ballast base 80 lb. 60 ft. A.S.C.E. rails, continuous joints, oil treated high tensile strength bolts, cedar ties, double bonding with type UP.-03 pin driven terminal bonds, and 4|0 trolley wire supported by cedar poles.

On St. Pauls Ave., Burwell and Morrel Sts., 7785 ft. of track to connect the Terrace Hill and the Holmedale lines, making a loop of about 5½ miles. St. Pauls Ave was double tracked between Palmerston Ave. and Margaretta St. 2300 ft. The type of construction was the same as that mentioned above. Solid manganese special work was used throughout.

On Morrel St. it is necesary to cross the Lake Erie & Northern Ry. where a half interlocking plant has been ordered by the Board of Railway Commissioners, at the Brantford Municipal Ry.'s expense. On West Mill St., 5300 ft. of single track without turnouts, was built. This was necessary owing to the paving of this street and as the old rail was not suitable, the following type of construction was used. Concrete sub-base and top, international steel ties, Lorain 82-505-7 in. T rail in 62 ft. lengths, double bonded with type C.P.C.-4 pin driven terminal bonds. The steel ties were chosen on account of the permanency of the construction and the material saving in the cost of concrete and excavation, and effected a saving of over $7,000, over the use of wood ties. No difficulty was experienced with these ties on any of the curves, some of which are of 125 ft. radius and less, even although standard punching was used.

The Board of Railway Commissioners has authorized the opening for traffic of the following extensions:—from corner of St. Paul St. along that street to Burwell St., along Burwell St. to Morrel, and along Morrel St. to a connection with the line on West Mill St.; from corner of Market St. to Ontario St., along Ontario St. to Port St., and along Port St. to a connection with the line on Erie Ave. (Oct., pg. 548.)

British Columbia Electric Ry.—A good deal of work is reported to have been done on the company's lines in preparation for the change necessary for putting in operation the new rule of the road. The work involves the changing over of switches and rearrangements of the overhead wiring. (Nov., pg. 681.)

The Cape Breton Electric Co.'s railway crosses the Intercolonial Ry. tracks on Townsend and George Sts., and Victoria Road, Sydney, N.S., and on Commercial St., North Sydney. As the company desires to use the one-man cars, it applied recently to the Railways Department at Ottawa, which referred the application to the Board of Railway Commissioners. On Oct. 14, the Board passed order 31,700, rescinding an order made by the Privy Council's Railway Committee Jan. 10, 1903, and authorizing the company to build its electric railway across the I.R. C. tracks at the four points named, and directing that substantial diamond crossings, with derailing devices, to be operated by a spring or lever, be provided by the company at each crossing, the device to be worked by the conductor, or operator, of each car going forward and throwing the lever. The company is also to provide and maintain the diamond crossings, derailing devices, etc., their description and position to be approved by the Board's Chief Engineer. We are officially advised that it is not expected that the new order will involve much additional expense, as derails were installed under the original order.

Hamilton St. Ry.—In connection with the city council's application to the Ontario Railway and Municipal Board for an order to compel the company to relay the tracks on certain streets, H. W. Middlemist, the Board's Consulting Engineer, made an inspection of the lines in question on Nov. 16, being accompanied by the City Engineer and G. E. Waller, General Superintendent of Railways, Dominion Power & Transmission Co. (Nov., pg. 681.)

A press report states that a copy of Mr. Middlemist's report was received by the Hamilton City Solicitor, Nov. 19, and that it contained a detailed description of the condition of the track on the streets affected, with the general report that no section of the track can be deemed dangerous, and that it would be inadvisable to undertake the laying of new rails at present. (Nov. pg. 601.)

Moncton Tramways Electricity and Gas Co., has let contract for the erection of a power house 60 x 45 ft. on Mechanic St., Moncton, N.B., at an estimated cost of $3,000, exclusive of plant. (May, 1920, pg. 257.)

Ontario Hydro Electric Rys., Essex Division.—We are officially advised that contracts have been let to Merlo, Merlo & Ray, Windsor, Ont., for double tracking 4,000 ft. on Wyandotte St., and to the Caldwell Sand & Gravel Co. for double tracking about 4,000 ft. on Ouellette Ave., both in Windsor, Ont. The rails will be 80 lb. A.S.C.E., 60 ft. lengths, laid on steel ties. The special work at the intersections will be L.S. Co. 7 in. 114 lb., section 480. (Nov., pg. 601.)

Winnipeg Electric Ry.—The city council has completed the erection of the new Maryland bridge, including the fill and its temporary surfacing, and it was expected that the railway would lay a temporary double track across it by Nov. 30. It is expected that it will take about a year for the fill to settle, when the permanent surfacing will be done and the permanent street railway tracks laid. The linking up of the tracks on each side of the bridge will enable an improvement to be made in the car service.

A press report states that the company's construction programme for 1922 includes the following:—Extension of Academy-Godfrey Ave. line to Assiniboine Park; extension of Notre Dame West line; connecting of St. Boniface line with Winnipeg via Provencher bridge; a line through the northwest section of the city and also one to serve the Scotia St. district. The Talbot Avenue extension in Elmwood and the double track subway at St. James will also, it is said, be done.

A new switch has been installed at Frederick and Hawthorne Sts., rendering it possible to operate an increased service on the St. Marys Road line. The new service was put in operation Nov. 16. (Nov., pg. 681.)

Windsor, Essex & Lake Shore Rapid Ry.—A press report states that a site has been bought on Oak St., Leamington, Ont., for the erection of a freight terminal building, and that a track will be laid on Oak St. to reach the same. (Oct., pg. 548.)

Electric Railway Finance, Meetings, Etc.

Calgary Municipal Ry.—A press report gives the following particulars of operations for the 10 months ended Oct. 30, compared with the corresponding 10 months of 1920:—

	1921	1920
Revenue	$77,866.78	$755,201.47
Expenditures	777,765.83	782,940.58
Surplus	$ 100.95	
Deficit		$ 28,739.11
Passengers carried	12,695,684	14,225,791
Car miles	2,520,159	2,603,230
Fixed charges to revenue.	99.88%	103.8%

Cape Breton Electric Co.—

	Sept. 1921	Sept. 1920	12 mos. to Sept. 30, 1921	12 mos. to Sept. 30, 1920
Gross	$62,332	$59,478	$700,278	$613,498
Operating expenses and taxes	50,650	49,691	577,401	527,696
Net	11,682	9,787	122,877	85,802
Interest	5,772	5,711	68,938	66,407
Balance	5,960	4,076	53,940	19.395

Edmonton Radial Ry.—A press report states that the operation for September showed a profit of $5,881, compared with $17,168 for Sept. 1920; and for nine months ended Sept. 30, a deficit of $47,-729, compared with a deficit of $141,279 for the same period of 1920.

Montreal Tramways Co.—It was announced in Montreal, Nov. 23, that the company had sold to Harris, Forbes & Co. $1,750,000 5% first refunding bonds to cover capital expenditures already made.

Port Arthur Civic Ry.—A press report gives the following figures:—

	1921	1920
Revenue for October	$15,106.77	$16,226.13
Passengers carried	761,000	

Regina Municipal Ry. — The Regina, Sask., City Auditor's report on the Regina Municipal Ry. for the 10 months ended Oct. 31, is stated to show a deficit of $23,332.12, while a deficit of only $12,467 was placed in the estimates for the year. Commissioner Thornton expects that this deficit may be reduced to $17,500 by Dec. 31. The use of one-man cars is stated to have resulted in a saving in operation of $20,000. The whole of the cost of altering the cars for one-man service has been charged to operating account.

Regina Municipal Ry.—A press report gives the following figures for October:

	1921	1920
Passenger receipts	$27,032.30	$26,962.50
Passengers carried	443,811	434.280

Regina, Sask., City Council adopted a policy recently of granting a general use of transfers at any point on the municipal railway. Superintendent Houston interpreted the resolution to mean that transfers would be honored only beyond the last possible transfer points, and some complaints were made. As a result the council decided Oct. 28 that it was intended that the privilege was to be available between transfer points also, and that the policy of general transfers be tested for a further period.

Trackless Trolley Omnibusses for Toronto Transportation Commission.

The Toronto Transportation Commission has ordered, for January delivery, four trackless trolley busses, for operation on Mount Pleasant Road, in the northeast portion of the city. A trackless trolley bus which was tried recently in Detroit, Mich., is shown in accompanying illustration, two trolley poles having been used for the collection of current from the two overhead wires. The busses for Toronto will be substantially similar to the one shown in the illustration, but an important difference will be that but one trolley pole will be used, equipped with swivel harp and 4 in. wheels, although the two overhead wires will of course be necessary. In the bus tried in Detroit, the motive power was furnished by two 25 h.p. 37 amp. 600 volt motors, mounted in tandem through a universal joint, and connected by a second universal joint to the automobile type of differential drive in the rear axle. It is claimed that the test showed that simplicity of control and operation was highly perfected, both the application of power and the braking being accomplished through foot control. It is also said that the bus showed a remarkable degree of flexibility in operation, in so far as deviation from a course directly below the trolley wires was concerned. The bus body is of the single deck type, and is equipped with special springs, exhaust heaters, ventilators, electric lights, push buttons and illuminated route signs. The bodies of the busses for Toronto will be very similar to that of the bus used in the Detroit tests. The seating capacity will be 29. The busses have been ordered from Packard Ontario Motor Co. The bodies will be built by Canadian Brill Co., and the electrical equipment will be supplied by Westinghouse Electrical & Manufacturing Co.

In ordering these busses, the Commission is exhibiting a spirit of progresiveness, and of willingness to thoroughly test any equipment which promises to introduce increased efficiency and economy into urban transportation. A service for the outskirts of the city can be given with these busses without the necessity of laying expensive tracks, about the only overhead cost, so far as construction is concerned, being that of the two overhead wires. The Commission has experienced a great degree of success with the gasoline motor busses, which were described fully in Canadian Railway and Marine World for October, pg. 551, and there seems to be no reason why a similar degree of success should not be experienced with the trackless trolley busses. The cheaper power costs for the electric busses, and the absence of the stand-by and other power losses common to gasoline operation, should amply compensate for the smaller degree of flexibility enjoyed by the electric busses as compared with the gasoline busses. While the operation of this equipment must be at first largely in the nature of experiment, there is no doubt that the proper field for its operation, wherein it can show better efficiency and economy than other forms of transportation, will be discovered and its limits defined. From present indications it would appear that the field for trackless electric equipment lies in the outskirts of large cities, where it can be employed as constituting extensions of existing street car lines, thus postponing the construction of new trackage until the traffic has grown sufficiently to compensate for the cost.

Trackless Trolley Omnibus tried in Detroit, Mich.

T. A. Hunt, K.C., formerly City Solicitor, addressed the Winnipeg Kiwanis Club recently on "Civic Problems of Today." He advocated the operation of Winnipeg Electric Ry. by the city and is reported to have said the vital question is not fares, or even a street railway, but the preservation of the civic hydro electric utility in which $11,000,000 has been invested. If the city would be willing to pay for the brains to administer, and the people would keep their hands off the administration, the street railway could be successfully operated by the city.

Equipment for Ontario Hydro Electric Railways Cars.

The 25 safety cars ordered by the Hydro Electric Power Commission of Ontario, 18 of which are for the Hydro Electric Railways, Essex Division (formerly Sandwich, Windsor & Amherstburg Ry.), and seven for Guelph Radial Ry., were described fully in Canadian Railway and Marine World for November, with the exception of the electrical and air brake equipment, which had not then been definitely decided upon. As stated in that article, motors somewhat larger than the 25 h.p. motors used commonly in the past with cars only slightly lighter than those ordered by the Commission are considered more suitable to meet the climatic and other conditions under which the cars will operate, and that this view has been given effect to in placing the order for the electrical equipment is shown by the fact that the motors ordered are to be of 40 h.p. The electrical equipment has been ordered from the English Electric Co., the order including 2 D.K. 84, 40 h.p. ventilated type motors, 2 D.B. 1-form K4 controllers, and English Electric Co. circuit breakers for each car. The air brake equipment, to be supplied by Canadian Westinghouse Co., includes one compressor, with a capacity of 15 cu. ft. of free air a minute compressed to 90 lb. per sq. in. when operating at 600 volts, two brake valves, and other parts, for each car. The safety devices to be applied to the cars will also be supplied by Canadian Westinghouse Co. under the same contract as that covering the air brake equipment.

Toronto Transportation Commission's Orders for Rails, Etc.

Following are particulars of orders given by the Toronto Transportation Commission up to date, for rails and special work.

Rails.

22 tons L.S. 88/425 girder.
20 tons 60 lb. A.R.A. Type A.
70 tons 60 lb. A.S.C.E., Type A.
40 tons 60 lb. A.R.A., Type A.
4,000 tons 122 lb. A.E.R.E.A. G.G.
200 tons 140 lb. A.E.R.E.A. G.G.
300 tons 100 lb. A.R.A., Type A. Tee.
250 tons 70 lb. A.S.C.E. Tee.

The above were bought from Algoma Steel Corporation, Canadian Steel Foundries, Consolidated Steel Corporation and J. J. Gartshore, the aggregate cost being about $130,000.

Special Work.

Classification	No.	Weight lb.
Curves s.t.	7	125,705
Wyes s.t.	5	212,221
3 Part wyes d.t.	10	863,550
Branch off d.t.	3	188,130
Branch off d.t. and wye	5	269,960
¾ Grand unions	4	674,310
½ Grand unions	1	111,640
¼ Grand unions	1	81,289
¼ Grand unions and wye	3	350,730
¼ Grand unions and 2 curves	3	290,500
½ Grand unions and 1 curve	1	136,920
Loops	3	159,326
Diamonds	3	39,000
S.t. branch off	2	34,090
S.t.l.t. for car house	26	816,500
Special l.t. for car house	4	154,300
Loops with branch offs	3	114,950
Cross overs, car house	5	74,640
Wyes, car house	1	30,000
		4,727,761

The above were bought from Canadian Steel Foundries, Consolidated Steel Corporation, U.S. Steel Products Co., and Wm. Wharton, Jr., & Co., at an aggregate cost of about $540,000.

Winnipeg Electric Railway Better Service Campaign.

The Winnipeg Electric Ry. Co. operates the street cars and gas plant in the city, and also sells electric light and power in competition with the municipal plant. A. W. McLimont, the Vice President, decided recently to impress upon the heads of the company's departments the company's wish that the best possible service should be rendered to the public by all departments of the organization, to have the heads of departments in turn impress this fact on the employes under their jurisdiction, and to satisfy the company's patrons.

The campaign was opened on Oct. 18, with an article, "Why we are out to give service," in the company's little publication, Winnipeg Electric Public Service News, of which 40,000 are printed fortnightly and distributed through the "Take one" boxes in the street cars. Copies are also mailed to approximately 1,000 citizens. Immediately after this was done, Mr. McLimont issued a circular letter to all the company's department heads, with a view to interesting them in the campaign. On Nov. 1 the W.E.P.S.N. published extracts from some of the circulars issued by heads of departments in pursuance of Mr. McLimont's suggestion and the same date each employe of the company received in his pay envelope a circular entitled "Stop, Look and Listen." During November the company's customers received with their electric light and gas bills, cards headed "We are on our Toes to Serve you."

The management feels that this better service campaign has already had good results and that employes are co-operating with it in trying to please the company's patrons.

Electric Railway Notes.

The British Columbia Electric Ry. has been asked by the Vancouver City Council to provide improved service on the Broadway west lines.

Winnipeg Electric Ry. Co., according to a press report, proposes to put one-man cars on its Sutherland Ave., Pembina Highway and Kelvin lines.

Regina, Sask., City Council is reported to have accepted a local tender for the supply of 50 overcoats for Regina Municipal Ry. employes at $26.70 each.

The Canadian Electric Railway Association has asked its member companies to supply it with copies of pamphlets, etc., describing their service, amusement parks, etc.

The Independent Federation of Street Carmen, organized recently in Winnipeg, is reported to have decided that strikes shall only be resorted to as a last measure, and only then on a 75% majority vote.

The Winnipeg Electric Ry. Co.'s application to the Board of Railway Commissioners for permission to operate one-man cars across the Grand Trunk Pacific Ry. on Pembina Ave., and across the C. P.R. on Sutherland Ave., Winnipeg, was heard in Winnipeg, Nov. 7.

A tablet subscribed for by members of the Toronto Street Railwaymen's Union, in memory of 97 of its members who fell in action, or died on active service during the war, was unveiled at the Labor Temple, Nov. 8, by R. J. Fleming, General Manager, Toronto Ry. Co. It is to be placed in the City Hall.

Hamilton Street Ry. is, according to a press report, prepared to use the Hydro Electric Power Commission of Ontario's power for its street cars, in place of its own power, which is generated, partly at Decew Falls, and partly at an auxiliary steam plant in Hamilton, if a service at cost plan should be agreed upon, and the city council should desire it to do so.

The Winnipeg Electric Ry. has received 4 one-man safety cars from Canadian Brill Co., and another one, completing an order for 5, was expected to be delivered by the end of November. These cars are of the same design as those being built for the Hydro Electric Power Commission of Ontario, which were fully described and illustrated in Canadian Railway and Marine World for November.

A. Bilodeau and E. Lapierre, Montreal, pleaded guilty in the Hull, Que., Police Court, Nov. 9, to stealing copper wire valued at $375 on Oct. 8, and 1,500 lbs. of copper binding wire and trolley wire on Oct. 31, from the Hull Electric Co. The second lot was taken from the overhead work, and resulted in tying up the service during the night. The men were sentenced to three years and two years respectively on each charge, the sentences to run concurrently.

The British Columbia Electric Ry. is carrying on an advertising campaign in connection with its application to the Victoria City Council for permission to to operate one-man cars in that city. One advertisement gave a list of cities in which such cars are operated, those named in Canada being Calgary and Edmonton, Alta.; Regina, Saskatoon and Moose Jaw, Sask.; Toronto, Fort William, Port Arthur, St. Thomas and Peterborough, Ont.; Levis, Quebec, Sherbrooke and Three Rivers, Que.; St. John, N.B.

The New Brunswick Power Co. has applied to the New Brunswick Supreme Court for an injunction to prevent the Union Bus Co. operating a motor bus service in St. John. The N. B. P. Co.'s conductors and motormen have been on strike for some time and have gone into the jitney and motor bus business, in competition with the electric cars. The N. B. P. Co. claims an exclusive franchise on the streets. The Union Bus Co. was on Nov. 1 fined $10 each for separate breaches of the jitney regulations passed recently by the St. John City Council. The company claims that the bylaw is ultra vires, and it is reported that the matter will go to the Supreme Court.

Motor Busses for Vancouver.—The British Columbia Electric Ry. has proposed to the Vancouver City Council to run motor busses as feeders to outlying lines. The city proposed recently to try and obtain provincial charter to operate motor busses. The company's counter proposal is to operate busses, provided the city paves the street where necessary, and withdraws its application for a charter. Particular reference was made to the Broadway West district, which is now without transportation service. New pavement for one mile would be required. The city recently refused a proposal to pave the street on account of lack of funds. The company, on the other hand, has refused to extend its street car tracks that distance.

Mainly About Electric Railway People.

H. Cameron, who was Manager of the old North West Electric Co. at Winnipeg, and who was subsequently Manager, Winnipeg Electric Ry. for a time, has left Winnipeg to live at Victoria, B.C.

R. J. Fleming, General Manager, Toronto Ry. Co., was presented with a cabinet of silver by the members of the Toronto Ry. Employes Union, at their annual dinner, Oct. 29. The presentation was made by the Secretary, W. D. Robbins, who spoke of the pleasant relations which had prevailed between the General Manager and the employes. The Toronto Transportation Commission was represented by P. W. Ellis, Chairman, F. Miller, Commissioner, and H. H. Couzens, General Manager; the Toronto Ry. Co., by F. L. Hubbard, Assistant to General Manager; and the Toronto & York Radial Ry. by C. L. Wilson, Assistant Manager.

G. Gordon Gale, Vice President and General Manager, Hull Electric Co., and President, Canadian Electric Railway Association, is chairman of the transportation committee for the Canadian National Winter Carnival, to be held in Ottawa during the last week of January and beginning of February.

A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry., visited Montreal, Toronto and some other eastern points in November.

I. P. McNab, of the Nova Scotia Tramways & Power Co., addressed the Engineering Society Nov. 18 on the history of street railways, with special reference to the Halifax lines.

J. E. Young, heretofore Supervisor of Traffic, Winnipeg Electric Ry., has been appointed Divisional Superintendent, vice J. S. Beckwith, whose appointment as Traffic Superintendent was announced in our last issue.

Toronto Transportation Commission:—The following five divisional superintendents of the Toronto Ry. have been appointed to similar positions under the Commission, viz.: A. Edmunds, with jurisdiction over cars operating from Lansdowne car house; R. Grimshaw, with jurisdiction over cars operating from King, Russell and Beach car houses; J. J. McWilliam, with jurisdiction over cars operating from Dundas car house; C. Steele, with jurisdiction over cars operating from Yorkville car house; and L. Wheeler, with jurisdiction over cars operating from Roncesvalles car house. C. H. Batchelor, heretofore with the Toronto Civic Ry., has been appointed acting Division Superintendent, with jurisdiction over cars operating from St. Clair car house.

New York Car Fares.—Those who talk glibly about a 5c. car fare in New York City do not explain that it is not good for transfer on the various systems. The Interborough, which operates the subways and elevated, reports, for the year ended June 30, a deficit of $4,464,828, exclusive of deficit accruals payable out of future earnings to the extent of $11,016,654.—Toronto Star.

The Winnipeg Electric Ry. is reported to have applied to the city council for permission to operate one-man cars on certain routes. It is said that the men operating them will be paid 5c. an hour extra.

Electric Railway Employes' Wages, Working Conditions, Etc.

British Columbia Electric Ry.—A conciliation board, consisting of W. C. Dittmars, chairman; A. G. McCandless, representing the company, and R. P. Pettipiece, representing the men, began hearing evidence at Vancouver, Nov. 8, re the proposed 15% reduction of wages which the company gave notice of recently. The company also desires to have the working conditions altered in a number of details. Evidence given by W. G. Murrin, Assistant General Manager, showed that the maximum rate of wages for motormen and conductors in July 1918 was 51c. an hour; that this was increased in 1919 to 56c. an hour; in April 1920 to 60c., and in Oct. 1920 to 65c. Following is the scale of wages as offered by the company and accepted by the employes in Oct. 1920:—City motormen and conductors, 65c; interurban motormen and conductors, 67c.; car repairers, 70c.; mechanics' helpers, 65c.; car cleaners, 58c.; carpenters, 77c.; blacksmiths and machinists, 80c.; trackmen, 60c.

Hull Electric Co.—G. Gordon Gale, Vice President and General Manager, issued the following notice to employes Nov. 1:—"The question of wages, which was under consideration last spring, was left in abeyance in the hope that a continuation of the present schedule might be possible. The company's earnings have, however, been seriously affected by the continued industrial depression, and it is no longer possible to carry on. From the beginning of 1918 to the middle of 1920, the cost of living increased 36%, and during the same period your wages increased nearly 100%. During the past year the cost of living has dropped 20%, bringing the figures down to the 1919 level, when senior motormen and conductors were paid 36c. an hour. Other companies have already made substantial reductions in wage schedules, but action has been withheld in your case, until conditions have made this step absolutely necessary. In asking you, therefore, to accept a reduction of 10%, with overtime at 10c. an hour over the regular rate, effective Dec. 1, 1921, I feel that you will find this necessary reduction both moderate and reasonable, for the new schedule will be 7c. higher than that of 1919, although the cost of living is approximately the same as in 1919."

Under the new schedule, conductors and motormen would receive after Dec. 1, for the first six months, 37c. an hour instead of 41c.; for the second six months, 39c. instead of 44c.; for the second year, 41c. instead of 46c., and for the third year and thereafter, 43c. instead of 48c.

It was stated Nov. 15 that the employes had, in a letter to the press, announced that they will refuse to accept any reduction or change in working conditions, and asserting that they will press their demand for an increase of 7c. an hour originally made last July at the expiry of their year's agreement.

Montreal Tramways Co.—We are advised that at the meeting of employes held recently to consider the board of conciliation's majority report, referred to in Canadian Railway and Marine World for November, pg. 602, that a resolution was passed to the effect that while the award was not acceptable, the matter be left in abeyance for further consideration. We are further advised that nothing has been done in the matter since.

One-man Cars on Fort William Municipal Railway.

Canadian Railway and Marine World for November mentioned that the Ontario Railway and Municipal Board had approved of the operation of one-man cars on the Fort William, Ont., Municipal Ry., subject to the filing with the Board of a statement showing the routes upon which it was proposed to operate them. This was done, and the Board issued an order Oct. 31, authorizing the operation of the one-man cars on the following routes, main line, from boundary between Fort William and Port Arthur, to Westfort, belt line and Mission extension, but providing that the Board may at any time rescind or amend the order, upon its own motion, or at the request of the city or on the complaint of any person. The Board of Railway Commissioners has passed a number of orders, authorizing the Fort William Municipal Ry. to operate one-man cars across the Grand Trunk Pacific Ry.'s spur to Mount McKay Products Ltd.; across the G.T.P.R., at Syndicate and Empire Avenues; across the Canadian National Rys., at Arthur and Franklin Sts., at Victoria Ave. and Vickers St.; and across the G. T.P.R. at Sprague St. and Empire Ave.

We are advised that nothing will be done until an arrangement is made with Port Arthur to operate the one-man cars there. also, which it is hoped will be arranged at the next meeting of the Fort William and Port Arthur public utilities authorities.

Electric Railway Freight and Passenger Rates.

Cape Breton Electric Co.—There has been some agitation in Sydney and Glace Bay, N.S., recently, for special fares for workmen travelling on the interurban line between those places. The movement was initiated by Thos. Gladwin, a pensioned returned soldier, a watchman on Dominion Government property at Sydney, but living at Glace Bay. He wrote the company that his travelling to and from work cost him $21 a month, and claimed that he should be granted a rebate, or that a special workmen's rate should be given between certain hours, and he also complained of overcrowding on the cars. C. C. Curtis, Manager, in reply promised to do anything he could to prevent overcrowding, and pointed out that it was not possible to grant any personal concessions as to fares, which are under the Nova Scotia Public Utilities Commission's control. Other correspondence followed, Gladwin insisting that as a returned soldier, a pensioner, and a workman, he was personally entitled to a concession or rebate. He subsequently obtained some signatures to a petition to the N.S. Public Utilities Commission, asking for workmen's tickets. J. U. Ross, Chairman of the Commission, was in Sydney at the end of October on other business, and was prepared to look into the matter, but while C. C. Curtis, Manager, and W. Crowe, K.C., Solicitor of the company, attended, no one appeared in support of the petition. As Gladwin had in the meantime been removed to an asylum for the mentally afflicted, and as the petition was not largely signed, no action was taken by the Commission.

Hamilton St. Ry.—We are advised that considerable progress has been made in educating the Hamilton public up to the advantages of the service at cost plan. The company is negotiating with a city council committee, and it is expected that some definite action will be taken at an early date.

Montreal Tramways Co.—The Montreal Tramways Commission has been asked to extend the hours during which school children's tickets may be used on the Montreal Tramways Co.'s lines.

Oshawa Ry.—We are officially advised that owing to the revenue from passenger business not being sufficient to meet operating expenses, an increase of fares was put in operation Nov. 1. Following is a comparison of the new and old fares:

	New	Old
Cash	7c.	5c.
Tickets	4 for 25c.	5 for 25c.
After midnight	10c.	
Children, 5 to 12 years	5c.	3c.
Scholars, attending school, or children 5 to 12 years, tickets	6 for 25c.	32 for $1

One-man Cars for British Columbia Electric Railway.

In preparation for putting one-man cars on a number of the British Columbia Electric Ry. lines, W. G. Murrin, Assistant General Manager, has recently addressed several meetings in Vancouver and New Westminster, and A. T. Goward, Local Manager at Victoria, has been carrying on negotiations with the Victoria City Council. Mr. Goward is reported to have advised the council that a definite date had been set for starting operating one-man cars and that demonstrations of them would be given, and the change would be introduced gradually. The council passed a resolution recently expressing opposition to the use of one-man cars until their efficiency had been proved, which shows that the councillors do not keep up to date with current events.

The B.C. Premier, in replying to questions in the Legislative Assembly recently, said the Government has been advised of the company's intention to use one-man cars, but no formal application had been made for their use, and no approval had been given. The Government had no information as to whether the cities and municipalities concerned had been consulted regarding the use of such cars. It had been suggested that some unemployment might result from the introduction of the cars. An order in council was passed Oct. 6 repealing the rule in force since Jan. 1, 1913, that "All city street cars must be equipped with double trucks," and substituting therefor the following:—"Street railway companies must make application to the Minister of Railways before changing from two-man to one-man operated cars and must submit routes upon which change is proposed. One-man operated cars must be equipped with safety control devices, the motorman's brake valve and brake equipment, safety controller and door and step devices." He considered that the change was necessary in the public interest. The Government was contributing to one-half of the cost of the alteration of street cars necessitated through the change in the rule of the road, and the costs of this work was being checked by the Government's Superintendent of Electric Energy, and its Inspector of Railway Equipment, but the Government was not contributing anything toward the expense required in the change of two-man cars to one-man cars.

Marine Department

General Shipbuilding Matters Throughout Canada.

Davie Shipbuilding & Repairing Co., Lauzon, Que.—The steam barge Thunder Bay, owned formerly by Montreal Transportation Co. and Collingwood Shipbuilding Co., jointly, has been shortened 60 ft. at Lauzon, to bring her within the limits of Welland Canal locks. New machinery and boilers have been installed. The barge Hamilton, owned formerly by Montreal Transportation Co., is undergoing a similar change at the plant.

Nova Scotia Steel & Coal Co., New Glasgow, N.S., delivered the motor yacht Sea King, which is illustrated herewith, to the owner, Baron Bliss, Bahamas, British West Indies, Nov. 10, and she sailed immediately for Nassau. She has been built for exploratory purposes, to the owner's designs, and has the following dimenions,—length b.p. 137 ft., breadth 42½ ft., depth moulded 28½ ft. Her gross tonnage is 1,866.31, and she has an estimated deadweight carrying capacity of 3,000 tons. She has two large bilge keels for steadying purposes, and is equipped with two 250 h.p. Vickers-Peters semi-Diesel oil engines. All the auxiliary equipment is electrically driven, the same motive power being used for the anchor. The owner's apartments occupy the center of the upper and lower decks, and are connected by an elevator. The accommodation for officers and crew is forward.

Prince Rupert Drydock & Shipbuilding Plant.—As announced in Canadian Railway and Marine World for November, this plant has reverted to the owning company, the Grand Trunk Pacific Ry. Co., on account of the bankruptcy of the lessee, the Prince Rupert Drydock & Engineering Co. It is now being operated by the Canadian National Rys. management on behalf of the Minister of Railways, receiver of the G.T.P.R. Co., and is in charge of J. H. Pillsbury, formerly Manager, Prince Rupert Drydock & Engineering Co., who reports to A. E. Warren, General Manager, Western Lines, Canadian National Rys. Satisfactory orders for shipbuilding and ship repairing will be handled, and the plant will be utiized, as far as possible, for repairing the C.N.R. rolling stock, bridge equipment, etc. The plant consists of a floating drydock, power house, boiler and blacksmith shop, and machine shop.

The floating drydock is in three units, with a total lifting capacity of 20,000 tons, and all the units are interchangeable, and each is complete in itself, with pumps and air compressors. The two end sections are each of 5,000 tons capacity, and the middle section is of 10,000 tons capacity. When all three units are joined together, the dock is capable of raising a ship 600 ft. long, of 20,000 tons. The dock is 603¼ ft. long on the keel blocks, and has a clear width of 100 ft., with an overall width of 130 ft. The lifting power is the aggregate of 12 pontoons of timber construction, each 130 ft. long, which is the overall width of the dock, 44 ft. wide and 15 ft. deep. These pontoons are united by steel side walls or wings 38 ft. high, 15 ft. wide at the bottom, and 10 ft. wide at the top, the walls being divided so that the whole structure may be used under ordinary conditions as three separate docks, one of 6 pontoons, with an overall length of 269 ft., and 2 of 3 pontoons each, with an overall length of 164 ft. each. The centrifugal pumps are operated by electric motors, the capacity of the equipment being sufficient to pump the entire lifting power of the dock in two hours. The whole is secured to the shore by clamps on the dock, with a vertical truss secured to the pile platform, so that it is free to rise and fall with the tide, or when being raised or lowered with the ship. The pumping machinery consists of 24 12 in. centrifugal pumps, one being placed at each end of each pontoon, and they are driven by a vertical shaft at approximately 275 r.p.m. All pumps on each side are driven through horizontal shafting by electric motors. Thus for the two smaller sections of three pontoons each, there are 4 100 h.p. motors, and for the larger section of 6 pontoons, there are 2 200 h.p. motors, all alternating current, 3 phase, 25 cycle, 550 volt, with wound rotors and slip rings for variable speed control. The armature shaft is extended at both ends and operates the distribution shafts through reduction gearing at approximately 275 r.p.m.

The power house, 104 x 148 ft., with a covered area of 15,392 sq. ft., is of steel frame construction, with walls and roof of reinforced concrete. There are six 400 h.p. water tube boilers, equipped with automatic stokers of the chain grate type, and provision is made for receiving coal by rail or water, into a coal pocket of 1,000 tons capacity. There are two main engines of 900 h.p. each. The electric generators have a capacity of 600 k.w., 3 phase, 550 volt, with 2 steam driven exciters, of 50 k.w., and 1 of 25 k.w. capacity, direct current, 220 volts, and 1 motor driven exciter of 25 k.w. capacity, the motor being 35 h.p., 3 phase, 25 cycle, 550 volt, alternating current, squirrel cage type. The equipment also includes air compressor plant, with capacity of 1,580 cu. ft. of free air per minute when operating at 150 r.p.m. It is designed for a steam pressure of 175 lb. a sq. in. and an air pressure of 100 lb. The compressed air is distributed by underground piping.

The boiler and blacksmith shop, 76 x 150 ft., with the central part 33 ft. wide, is of steel frame construction, covered with wood, with flooring of concrete, and heavy foundations for the larger tools. The equipment includes heavy punch and shears, rolls, plate planer, flanging clamps, heavy steam hammer and complete blacksmith equipment, and a 15 ton travelling crane.

The machine shop is of similar size and type to the boiler and blacksmith shop, and is completely equipped with tools, the larger ones being driven by individual motors, and the smaller ones being arranged for group driving.

Motor Yacht Sea King, 1,866.31 gross tons, built by Nova Scotia Steel & Coal Co.

The shipbuilding shed and woodworking shop are under one roof, and divided into two sections, the shed being 86 x 300 ft. with a clear height under cranes of 50 ft. and under girders of 56 ft. The shop section is 80 x 300 ft., the ground floor being used for machinery, and the upper floor for laying out.

The plant was completed and ready for operation in Aug. 1915, and the first ship to use the dock was the s.s. Delhi, which was wrecked on the Alaska coast about the end of 1914, and which was towed to Prince Rupert and docked in Sept. 1915. While, owing to the war, and conditions in general, the plant was not fully organized and operated, considerable ship overhauling and repair work was carried out by the G.T.P.R. Co., under J. H. Pillsbury, the local engineer in charge, during 1916 and 1917, and included work on several British warships, the G.T.P. Coast Steamship Co.'s steamships Prince Rupert, Prince George and Prince John, and a number of fishing ships. During 1918 it was decided that the G.T.P.R. Co. should cease operating the plant, negotiations were undertaken for leasing it,

and in Aug. 1918 a lease was given to the John L. Mullen Construction Co., Pittsburgh, Pa., covering the entire premises, and a sufficient area adjoining the drydock for laying down five shipbuilding ways. The Prince Rupert Drydock & Engineering Co. was incorporated Dec. 23, 1918, with authorized capital of $500,000, and office at Prince Rupert, B.C., to take over the lease and operate the property, and the following officers were elected: Chairman of the Board, Newman Erb, New York; President, John L. Mullen, Pittsburg, Pa.; Vice President, E. F. Schellenberg, Prince Rupert, B.C.; Treasurer, W. M. Wadden, New York; Secretary, H. Blanchard, New York; Superintendent of Plant, J. H. Pillsbury, Prince Rupert, B.C., and the Vice President, and Superintendent of Plant were placed in active charge of shipbuilding. A contract was obtained Feb. 21, 1919, from the Dominion Government for building 2 steel cargo steamships, approximately 8,390 d.w. tons each, for Canadian Government Merchant Marine, to be named Canadian Reaper and Canadian Thrasher, changed later to Canadian Scottish and Canadian Britisher. In the meantime considerable differences had arisen among the directors, and litigation followed to determine the rights of the Erb and Mullen interests respectively, the former alleging fraudulent conspiracy to obtain control of the company. The litigation resulted in Newman Erb acquiring the Mullen interests for $75,000, through the Empire Ship & Dry Dock Corporation. He then claimed that the company had spent $550,000 on fixed assets. Officers of the company were elected as follows:—Chairman and Managing Director, Newman Erb; Treasurer, W. M. Wadden; Secretary, H. Blanchard; acting General Manager, J. H. Pillsbury. Work on the two steamships for Canadian Government Merchant Marine, the keels of which were laid Sept. 27 and Oct. 20, 1919, proceeded during 1920, and early in November, the company suspended operations, owing to financial difficulties, which culminated in bankruptcy. Since then, the two steamships referred to were proceeded with, under special contract, by the Wallace Shipbuilding & Drydock Co., North Vancouver, B.C. The Canadian Scottish was delivered to Canadian Government Merchant Marine for operation, Sept. 1, and the Canadian Britisher on Nov. 15.

Three Rivers Shipyards Ltd., Three Rivers, Que.—The oil tank steamship Capitaine Damiani, which was under construction at this yard at the time of the company's bankruptcy, and which was afterwards completed by the owners, La Societe Naphtes Transports, Marseilles, France, sailed from Three Rivers, during November, for Beaumont, Texas, for a cargo of oil for France. She was in charge of Capt. Quedrue, who has to hand the ship over to Capt. Pillaud, to take to France, and who returned to Three Rivers, to continue his duties as representative of French interests there. The s.s. Capitaine Damiani is considered a unique ship of her class, and is stated to be the first oil tank steamship of that class to be built in Canada, and the first steamship built in eastern Canada on the Isherwood system. She has been built to carry benzine, and is equipped with oil burning furnaces, and designed for a speed of 11½ knots on a draft of 22¾ ft. Her dimensions are,—length b.p. 380 ft., beam 52 ft., depth to deck moulded 28½ ft., capacity 6,500 d.w. tons. The machinery consists of triple expansion engines with cylinders 27, 43 and 72 in. diar. by 48 in. stroke, a modified type of the British standard engine, the crank shaft being in three interchangeable pieces. There are three Scotch marine boilers, each 15½ x 12 ft., and one donkey boiler 11¼ 7 10 ft., all supplied by Canadian Allis-Chalmers, Toronto. The windlass and other deck machinery were built by Canadian Vickers Ltd., Montreal. The design and construction of the ship were supervised by A. J. Murray, naval architect, and the work was carried out, since the litigation which resulted in the owners obtaining possession of the unfinished ship, under the direction of Capt. Quedrue, representing the owners and the French Government, which is financially interested.

It is reported that two other oil tank steamships, of approximately 10,000 d. w. tons, which had been commenced before the bankruptcy of the Three Rivers Shipyards Ltd., and on which some work has been done by the owners since, may be removed to Quebec for completion during the winter. It is stated that it was the intention to break up the partially built ships, but that owing to the success in completing the s.s. Capitaine Damiani, the other two may be finished, and possibly sold.

Dominion Marine Association.

President, A. A. Wright, President, Tidewater Shipbuilders, and Vice President and Managing Director, Davie Shipbuilding & Repairing Co., Montreal.

First Vice President, T. R. Enderby, Operating Manager, Canada Steamship Lines, Montreal.

Second Vice President, Hon. L. C. Webster, President, Webster Steamship Co., Montreal.

Executive Committee, The President, First Vice President, Second Vice President, and W. E. Burke, Canada Steamship Lines, Montreal; Yvon Dupre, Sincennes-McNaughton Line, Montreal; W. B. Ellsworth, Imperial Oil Ltd., Toronto; L. L. Henderson, Montreal; G. J. Madden, George Hall Coal Co. of Canada, Montreal; A. E. Mathews, Mathews Steamship Co., Toronto; W. J. McCormack, Algoma Central Steamship Co., Sault Ste. Marie, Ont.; Col. G. P. Murphy, C.M.G., Ottawa Transportation Co., Ottawa, Ont.; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; John Waller, Keystone Transports, Montreal.

Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C. — The Marine Department invited tenders recently for the completion of the second of the four barquentines which were to have been built under a special agreement between the Dominion Government and this company, and which, owing to financial difficulties, the company is unable to proceed with.

The company's directors are pressing the Government for a statement of the position it proposes to adopt toward the shareholders, to explain the company's status and what provision is being made for the protection of the shareholders' interests. The directors' statement describes the situation as follows:—Under the original estimate the four wooden barquentines were to cost $250,000 each, or a total of $1,000,000. The Government was to advance $700,000 of this, and the balance of $300,000 was to be raised by subscription in Victoria. It was provided in the contract that 60% of those employed on the work were to be returned soldiers. The directors endeavored to make it a condition of employment that those engaged should take stock for $82,000, but the Government took exception to this, and declined to advance money if the workmen were required to participate in a co-operative scheme. The first ship was proceeded with, and was launched Dec. 28, 1920, and in the meantime two other keels had been laid. Before authority was given for the laying of the fourth keel, the directors were assured that the total extra cost of the four ships would be approximately $35,000, and with further assurances that it would be possible to operate them for four or five years at a considerable profit, they believed they were justified in laying the fourth keel. It was, however, shown that the first ship, Simon F. Tolmie, had already exceed the original estimate by some $45,000, but it was considered that in view of the prospective high freight rates, the ship would make a profit of from $40,000 to $50,000 each trip. They complained that they had to employ 60% returned soldiers, all willing, but not skilled, and that the remaining 40% had to be engaged through the labor bureau. and that they were not in a position to select the most suitable men. Bad weather and non-delivery of lumber also caused trouble. At the time the Simon F. Tolmie was launched, the company had in cash $17,000, unpaid shares $44,000, of which $30,000 was considered good, and $32,000 due from the Government. In view of the extra cost of building, and the generally unsatisfactory situation, the directors did not feel justified in proceeding with the programme. It was decided to close the yard and lay the position before the Government. Government auditors were sent to go through the accounts and, it is claimed, left the impression that everything was satisfactory, and that there would be no difficulty in clearing up the situation favorably to the company. On June 20, the Government gave notice that under the provisions of the agreement, it would take over the ships and all materials on hand intended for them at the Cholberg Shipyards. This action, the directors, in a telegram to the Finance Minister, declared to be "inimical to the interests of the Government and shareholders, being unjust and high handed in the extreme and further believe not in accord with ministerial policy." They also complained of the Marine Department "dispossessing company of its assets, without explanation as to its precipitate action,leaving them in the dark as to status of company, contractors and subcontractors" and declared it to be unbusinesslike and discourteous.

In reply to the message, the Marine Department stated that any suggestion the directors had to make in the direction of reaching a satisfactory settlement would be cordially welcomed, and pointed out that the Department only took action after having been advised that the company was unable to proceed further to carry out the contract with the Finance Minister.

We were officially advised, Nov. 14, that the second ship, to be named Henry L. Drayton, was practically 50% completed, and the third ship, possibly 20% completed, the keel having been laid and

some preliminary work done on construction. Some of the material had been assembled for the fourth ship, but the keel had not been laid, and practically no work had been done.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.—In addition to completing the C.P.R. s.s. Princess Louise, this company has recently carried out the following work: s.s. Chemainus, 153 tons, Kingcome Navigation Co., repairs; s.s. Chilco, 309 tons, Union Steamship Co. of British Columbia, cleaned and painted; steam tug Esdud, 114 tons, repairs; and the yacht Rio Bonito, A. Melville Dollar, rebuilding and refitting.

Yarrows Ltd., Victoria, B.C., did the following work during October: s.s. Algerine, 592 tons, Pacific Salvage Co., new hawse pipes and sundry repairs; s.s. Arizonan, 8,723 tons, American-Hawaiian Steamship Co., docked, oil pumped out, survey and temporary repairs; s.s. Canadian Importer, 5,465 tons, Canadian Government Merchant Marine, drydocked for survey; s.s. City of Victoria, 5,698 tons, British Canadian Steamships Ltd., docked, cleaned, painted and minor repairs; s.s. Leebro, 323 tons, Crescent Shipping Co., docked, cleaned, painted and sundry repairs; s.s. Princess Maquinna, 1,777 tons, C.P.R. British Columbia Coast Service, new propeller blades and minor engine room repairs; s.s. Toyohashi Maru, 7,031 tons, Nippon Yusen Kaisha, engine room repairs. Five of the large cribs which are being built at this yard, for the Dominion Government drydock landing wharf at Esquimalt, are nearing completion. Three have been launched, and the other two are to be launched shortly.

Trade Extension.—Hon. H. H. Stevens, M.P. for Vancouver Center, B.C., who was appointed Minister of Trade and Commerce recently, is reported to have stated in the west that his plans for trade development include negotiations for a preferential tariff arrangement with Australia, and the extension of shipping facilities between Canada and Mexico, by means of the Canadian Government Merchant Marine, two things which will doubtless be especially popular in British Columbia. Other announcements as to what he proposes to do for Canadian trade generally would also be acceptable.

Wreck Commissioners' and Nautical Assessors' Status and Jurisdiction.

The judgment of Mr. Justice Morrison, of the British Columbia Supreme Court, quashing the suspension of the certificate of the master of Canadian Government Merchant Marine's s.s. Canadian Exporter, lost on the Pacific coast, Aug. 11, which is given fully on another page of this issue, raises the questions as to the appointment of nautical assessors, the status of wreck commissioners, and the conduct of enquiries into marine casualties generally.

The procedure provided by the Canada Shipping Act, relates first to a preliminary enquiry, and for this purpose the Minister may appoint a principal officer of Customs, any officer of the Dominion Government, or any person, and on the conclusion of such enquiry, such person shall send to the Minister a report containing a full statement of the case, with his opinion. Then the Minister may appoint any officer of the Government, a judge of the Superior Court of Quebec, a county court judge, a local judge in Admiralty, or a stipendiary magistrate, to be a commissioner, to hold a formal enquiry, and such commissioner shall, for such purpose, be a court. The Minister may also at any time appoint one, or more, assessors, of nautical, engineering, or other special skill or knowledge, to assist such court, the appointments shall be in force for three years, the assessors shall be eligible for reappointment, and the appointments may be cancelled by the Minister at any time. A court holding a formal investigation into a shipping casualty shall have one, or more, assessors, to be selected for that purpose by the Minister, and where such investigation appears likely to involve any question as to the cancelling or suspension of the certificate of a master, mate, pilot, or engineer, there must not be less than two assessors having experience in the merchant service, and any such master, mate, pilot, or engineer, shall be furnished with a copy of the report of the case on which the formal investigation has been ordered, and every formal investigation shall be conducted in such a manner that if a charge is made against any person, he shall have an opportunity of making a defence, and a certificate shall not be cancelled or suspended unless a copy of the report upon which the formal investigation has been ordered, has been furnished to the holder of the certificate, and he has had an opportunity of making a defence.

From the foregoing, it appears that the appointment of a wreck commissioner can only be made from certain named classes, that nautical assessors may be appointed by the Minister of Marine, and such appointments are good for three years unless cancelled. Any number of nautical assessors may be appointed, and the selection of nautical assessors for the purposes of any formal investigation must be made by the Minister. As Mr. Justice Morrison pointed out, a practice has grown up, whereby local master mariners have been selected, apparently by the wreck commissioners, for one enquiry only, and also, apparently, without formal appointment by the Minister, and without his cognizance.

In the Canadian Exporter's case, the wreck commissioner notified the master of the hearing and sent him a series of questions. The master, who, with counel, was present at the hearing, and gave evidence, claimed to be unaware that the formal investigation would be likely to involve any question as to the cancelling or suspension of his certificate, and that he had no opportunity to make any defence.

Howell Forwarding Co. Ltd. has been incorporated under the Ontario Companies Act with $40,000 authorized capital, and office at Toronto, to carry on a general forwarding and transportation business by land and water, and to own and operate vehicles and ships. The provisional directors are: T. H. Barton, C. B. Henderson and L. C. Boles.

Great Lakes Levels.—The U.S. Lake Survey reports the stages of the Great Lakes in feet above mean sea level for October as follows:—Superior, 602.53; Michigan and Huron, 579.86; St. Clair, 574.65; Erie, 571.79; Ontario, 245.11. Compared with the average October levels for the past 10 years, Superior was 0.16 ft. below; Michigan and Huron, 0.65 ft. below; Erie 0.38 ft. below; Ontario, 0.71 ft. below.

Ships Registered in Canada During August, 1921.

In compiling the following lists of ships registered, steamboats and motorboats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing ships of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Enginse, n.h.p. etc.	Owner or Managing Owner
150367	Canadian Engineer	Montreal	Toronto 1921	251.0	43.7	22.5	2281	1317	260 Sc.	Minister of Marine, Ottawa.
150296	Margaret Mac	Sydney, N.S.	Levis, Que. 1917	80.3	19.3	10.5	112	39	24 Sc.	W. N. MacDonald, Sydney, N.S.
138460	Napoleon L	Sorel, Que.	Sorel, Que. 1918	125.0	23.7	12.8	285	96	62 Sc.	Transportation & Shipping Co., Quebec, Que.
150297	Norman Mac	Sydney, N.S.	Montreal 1917	84.0	19.2	10.5	98	31	24 Sc.	W. N. MacDonald, Sydney, N.S.
144929	North Shore(1)	Quebec, Que.	Walker-on-Tyne, Eng. 1895	206.5	28.0	20.8	880	522	110 Sc.	D. A. Clarke, Quebec, Que.
111852	Viper	Toronto	Owen Sound, Ont. 1901	58.3	13.5	6.0	34	23	10 Sc.	Toronto Harbor Commissioners, Toronto.
141671	Wana	Toronto	Bristol, R.I. 1903	109.4	15.6	9.4	82	24	25 Sc.	G. Clarke, Toronto.

(1) Formerly Novaia Zemlia.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owners or Managing Owners
138652	Cambrai	Pictou, N.S.	Schr.	River John, N.S. 1918	165.7	35.8	13.0	557	529	Tower Shipping Co., Montreal.
150281	Jeannon L	Sorel, Que.	Barge.	Sorel, Que. 1921	186.8	36.6	14.8	763	732	Transportation & Shipping Co., Quebec, Que.

Canadian Government Merchant Marine Ltd., Shipbuilding, Operation, Etc.

Deliveries of Steamships.—In addition to the steel cargo steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to Canadian Government Merchant Marine for operation.

Oct. 22, s.s. Canadian Cruiser, Marine Department contract 38, builder's yard no. 3, approximately 10,500 d.w. tons., Halifax Shipyards Ltd., Halifax, N.S.

Oct. 27, s.s. Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, Davie Shipbuilding & Repairing Co., Lauzon, Que.

Nov. 15, s.s. Canadian Britisher, Marine Department contract 43, builder's yard no. 2, approximately 8,390 d.w. tons. This ship, and the Canadian Scottish, of the same tonnage, were under construction by the Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C., when it became bankrupt, and they were finished at Prince Rupert, on a cost plus basis, by Wallace Shipbuilding & Drydock Co., North Vancouver, B.C.

Officers of Ships.—The following officers have been appointed to the various ships, in addition to those mentioned in previous issues:—Canadian Adventurer, Capt. J. E. Mann, vice Capt. A. J. Gilbert, transferred to Canadian Navigator; chief engineer, W. McNicol; Canadian Aviator, chief engineer, E. Sutherland; Canadian Britisher, Capt. W. Larmour; chief officer, Capt. R. P. Roberts, formerly master Canadian Engineer; Canadian Challenger, chief engineer, W. Harrison; Canadian Constructor, chief engineer, F. Evans; Canadian Engineer, Capt. A. Bouvier, vice Capt. R. P. Roberts, transferred to Canadian Britisher, as chief officer; Canadian Freighter, Capt. C. R. Bissett, transferred from Canadian Importer; Canadian Gunner, Capt. G. W. McIlroy, transferred from Canadian Trader, vice Capt. J. B. Millnes; Canadian Harvester, Capt. E. E. Manning, transferred from Canadian Sower; Canadian Importer, Capt. W. G. McConnechy, transferred from Canadian Navigator, vice Capt. C. R. Bissett, transferred to Canadian Freighter; Canadian Mariner, Capt. G. B. Leonard, transferred from Canadian Squatter; Canadian Navigator, Capt. A. J. Gilbert, transferred from Canadian Adventurer, vice Capt. W. G. McConnechy, transferred to Canadian Importer; chief engineer, F. W. Cunningham; Canadian Otter, chief engineer, C. Robertson; Canadian Pathfinder, chief enineer, R. G. R. Fairweather; Canadian Rancher, Capt. D. H. MacLean, vice Capt. D. M. Dickson on leave; Canadian Ranger, chief engineer, P. C. Bennett; Canadian Sailor, Capt. D. P. McCarthy, vice Capt. W. E. Baker, transferred to Canadian Warrior; Canadian Sapper, chief engineer, F. Stanley; Canadian Scottish, Capt. N. P. Hocking; Canadian Seigneur, chief engineer, J. Borland; Canadian Signaller, Capt. R. A. Goudey, vice Capt. F. W. Boulton, transferred to Canadian Squatter; Canadian Sower, Capt. O. Paterson, vice Capt. E. E. Manning, transferred to Canadian Harvester; Canadian Squatter, Capt. F. W. Boulton, transferred from Canadian Signaller, vice Capt. G. B. Leonard, transferred to Canadian Mariner; Canadian Trader, Capt. W. H. Anderson, vice Capt. G. W. McIlroy, transferred to Canadian Gunner; Canadian Trapper, Capt. W. H. Millar, transferred from Canadian Volunteer, vice Capt. G. W. Larmour, transferred to Canadian Britisher; Canadian Trooper, chief engineer, A. Cunningham; Canadian Volunteer, Capt. W. B. Armit, vice Capt. W. H. Millar, transferred to Canadian Trapper; Canadian Warrior, Capt. W. E. Baker, transferred from Canadian Sailor.

S.s. Canadian Exporter. — The overhauling of this ship, after her disaster on the Pacific Ocean, was completed by B.C. Marine Engineers and Shipbuilders Ltd., at Vancouver during November. The damage was found to be slight, the main work consisting of general cleaning up, and overhauling the interior, which had become more or less damaged by oil and the action of the sea and was confined almost solely to the engine room and the engines. On completion she was sent to Victoria to take on her original cargo for Australian ports.

S.s. Canadian Importer. — A Vancouver press dispatch of Nov. 24 said that Capt. J. D. McPherson, Dominion Wreck Commissioner for British Columbia, and nautical assessors, were holding an enquiry into the cause of the accident to the Canadian Government Merchant Marine s.s. Canadian Importer while en route from Vancouver to Australia, which caused her to drift in a helpless condition 600 miles off the Oregon coast for two weeks. A recent investigation on behalf of the underwriters is said to have shown the cause of the accident to have been a broken scudder pipe.

S.s. Canadian Recruit.—The work of salvaging this ship, which was sunk in collision with the Dominion Coal Co.'s s.s. Maskinonge, near The Pillars, in the St. Lawrence River, Aug. 18, was abandoned by the contractors, Nov. 16, the work crew and outfit, consisting of two cofferdams, two large air tanks, derricks, barges, etc., all being returned to Sorel. Gales and bad weather generally interfered with the work. The contract was let to Lachance Ltd., Quebec, and two attempts were made to float her without success. It is stated that the pumps were not sufficiently powerful, but new pumps were installed and a rearrangement of the work was made, but the severe deather intervening prevented what was expected to be a successful operation.

Salvage by s.s. Canadian Trooper.—The Norwegian s.s. Otta was libelled at Halifax, N.S., at the end of October, by Canadian Government Merchant Marine, for $50,000, and costs, for salvage. The surety to release the ship was provided by the National Surety Co., New York. The Canadian Trooper picked up the Otta, in distress, about 500 miles from St. John's, Nfld., Oct. 8, and towed her to St. John's. By arrangement, the case is to be dealt with by the Admiralty Court at Montreal.

The s.s. Canadian Volunteer, bound from Montreal to New York and Philadelphia, grounded near Point Tupper, N. S., Nov. 6, during a blizzard. She refloated under her own power, after about three hours, without apparent damage.

St. John, N.B., Sailings.—

Liverpool service—Canadian Explorer, Dec. 14; Canadian Leader, Dec. 28.

London service—Canadian Raider, Dec. 7; Canadian Trapper, Dec. 21; Canadian Rancher, Jan. 4.

Glasgow service—Canadian Aviator, Dec. 17; Canadian Otter, Jan. 7.

Cardiff and Swansea service—Canadian Navigator, Dec. 13; Canadian Squatter, Jan. 3.

Halifax, N.S., Sailings.—

Australia and New Zealand service—Canadian Spinner, Dec. 28.

Rio, Santos, Montevideo and Buenos Aires service—Canadian Volunteer, Dec. 7; Canadian Seigneur, Jan. 14.

Barbados, Trinidad and Demerara service—Canadian Beaver, Dec. 6; Canadian Logger, Dec. 14; Canadian Harvester, Dec. 28.

Nassau, Kingston and Belize service—Canadian Fisher, Dec. 2; Canadian Forester, Dec. 23.

St. John's, Nfld., service — Canadian Sealer, Dec. 8, Dec. 22, Jan. 5.

Vancouver, B.C., Sailings.—

Australia and New Zealand service—Canadian Skirmisher, Dec. 30; Canadian Traveller, Jan. 24.

Oriental service.—Canadian Highlander, Dec. 27; Canadian Winner, Jan. 20.

India service—Canadian Inventor, Jan. 4.

Liquor Cargoes for West Indies and Mexico.—Montreal press dispatch, Nov. 18.—"Hon. C. C. Ballantyne states that the Government will place two boats of the Canadian Government Merchant Marine between Canada and the West Indies and Mexico, which will carry liquor cargoes, at rates which will compete with lines from New York. This is the sequel to the embargo on liquor going in bond through the United States." We are advised by Canadian Government Merchant Marine management that it knows nothing about this reported statement, that it is at present operating steamships from Canada to Barbadoes, Trinidad, Demerara, Bahamas, Jamaica, and British Honduras, and, when cargo offers, to some of the Windward Islands, but that it is not putting on any new West Indian service.

Rumoured Purchase of German Steamships.—A Montreal paper said recently that it had been stated unofficially in local circles that the Canadian Government Merchant Marine had decided to buy four ex-German passenger steamships, and run them between Canada and the British West Indies. Enquiries at C.G.M.M. headquarters in Toronto has elicited the statement that there was no foundation for the rumor.

J. Coughlan & Sons, Vancouver, B.C. In the report of the launching of the steel cargo steamship Canadian Freighter, Marine Department contract no. 63, builder's yard no. 21, 8,390 d.w. tons, for Canadian Government Merchant Marine, on Oct. 12, in our last issue, it was stated that the christening was performed by Mrs. C. Wallace, wife of the President, Wallace Shipbuilding & Drydock Co., North Vancouver. This was an error, the sponsor being Mrs. W. A. Wallace, wife of the local representative of the British Corporation for Survey of Shipping, who is also acting as surveyor for the Marine Department.

Davie Shipbuilding & Repairing Co., Lauzon, Que., delivered the steel cargo steamship Canadian Challenger, Marine Department contract 60, builder's yard no. 476, approximately 8,390 d.w. tons, to the Marine Department, Oct. 27. She was transferred to Canadian Government Merchant Marine for operation.

Prince Rupert Drydock & Engineering Co., Prince Rupert, B.C.—The steel cargo s.s. Canadian Britisher, Marine Department contract 43, builder's yard no. 2, approximately 8,390 d.w. tons, one of the two ships which this company was building when it became bankrupt, and for the completion of which a contract was given Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., cost plus basis, was delivered to the Marine Department at Prince Rupert Nov. 15, and transferred to Canadian Government Merchant Marine for operation. She proceeded to Vancouver, to load a general cargo for New Zealand and Australia, and we were advised, Nov. 16, that she would sail from Vancouver about Nov. 30.

Wallace Shipbuilding & Drydock Co., North Vancouver, B.C. See Prince Rupert Drydock & Engineering Co.

Tidal Research Work in Eastern Canada.

Has the reader ever had occasion to refer to a tide table? Did it ever occur to him how this advance information is compiled? The general public are unacquainted with the method of obtaining information concerning tides. The system of reducing the tidal observations is complicated and technical. The usefulness of the survey can, therefore, best be judged from the published results as shown in the annual tide tables issued by the Naval Service Department, which give the time of the rise and fall of the tide, or the turn of currents, along the Canadian coasts, for periods of one year in advance; i.e., the time of the tides for 1922 may be obtained from the tide tables issued in the autumn of 1921. The tide tables also give, for various regions, the height of the tide and the depth over certain areas at high and low water. The information is valuable to shipping interests, as they are enabled to know the depth of water over bars and shoals at the entrances of our harbors at any stated period. The information compiled by this Survey is also useful with regard to mean sea level, which is determined by them, and which is used by land surveys as the basis of their levelling operations.

The record of tides is obtained by the use of an ingenious instrument actuated by clockwork. This instrument gives a continuous curve, which shows the height of the tide at every moment throughout the day and night, and thus records more accurate information than could be obtained by three men set to observe the tide in 8-hour shifts during the 24 hours of each day. These instruments, to give correct results, must be carefully installed and must also be kept accurately set.

The tidal records compiled by the Naval Service Department's Naval Survey Branch have reached a high standard of perfection, and Canada is well in the lead in recognizing the importance of tidal information, not only for navigation purposes, but also as a basis for carrying out levelling operations and survey work on land.

Extensive tidal research work was carried on by the Tidal Survey Branch during last summer. This work was performed in order to obtain additional tidal data over that compiled in previous years for our harbors and various other areas for which tidal information is required. Observations of the tide were made at Campbellton and Dalhousie at the head of Chaleurs Bay and other harbors in eastern New Brunswick, where the tide is of special importance, because of bars at their entrances. At these harbors, considerable dredging has been done, or is in prospect. Tidal data are essential in relation to low water levels, and the amount of rise of tide, where the depth of water available for navigation is limited. The tidal data will facilitate the determination of what amount of dredging is necessary.

Three new tidal stations were put in operation at the entrance to the St. Lawrence, viz., at Gaspe, Fox River and Seven Islands. Tidal data were also obtained for the east coast of Hudson Bay and for James Bay. In addition to the special work undertaken, the six permanent tide stations on the east coast have been continued and from the reduction of the records obtained will be compiled tide tables for future years.

C.P.R. Atlantic and Pacific Steamships.

In order to clear up some misunderstandings relating to the additional steamships of the Empress class, which the C.P.R. is putting into service under Canadian Pacific Steamships Ltd., Sir Thomas Fisher, General Manager of the latter company, wrote recently, as follows:—"In May, 1921, the C.P.R. Co. purchased the two German steamships Kaiserin Auguste Victoria, 24,581 tons, and Prinz Friedrich Wilhelm, 17,099 tons gross. These ships were re-named Empress of Scotland and Empress of China respectively, the company's intention being to employ the former on its Atlantic service and the latter on the Pacific. On the completion of the company's new s.s. Empress of Canada, now building at Fairfield, this will give the company a fortnightly first class service across the Pacific and practically a weekly first class service across the Atlantic throughout the St. Lawrence season. Subsequently an opportunity offered to purchase the German steamship Tirpitz. This steamship is fitted with Fottinger transformers, and represents the last word in German ship construction as applied to a vessel intended for service in tropical waters. The Tirpitz is in the hands of her builders, being converted for burning oil fuel, and is expected to be in service early in April next; her new name has not yet been selected. As, under these arrangements, the Empress of China is no longer required for service on the Pacific, her name has been changed from Empress of China to Empress of India. At the present moment this ship is running under charter to the Cunard Line, temporarily replacing the Mauretania, damaged by fire at Southampton recently."

The s.s. Empress of China, formerly the German s.s. Prinz Friedrich Wilhelm, has been placed on the Canadian register, with her home port at Vancouver, B.C. She was built at Geestemunde, Germany, in 1908, and is screw driven, by engines of 1,416 h.p. Her dimensions are,—length 589.9 ft., breadth 68.3 ft., depth 38.6 ft.; tonnage, 17,099 gross, 9,849 net. She is equipped with wireless.

Panama Canal Operating Results.

The report for the year ended June 30, shows that for the fourth consecutive year, the canal earned an excess of revenue over operation and maintenance, the excess for the past year being sufficient to wipe out the last of the deficits resulting from the slides in the Gaillard Cut in the earlier years of operation. For the last fiscal year, the surplus over operation and maintenance was $2,711,918.56, and for the entire period of operation, approximately $420,000, less approximately $60,967.60 due to steamship operators as refunds. The expenses for the year, including civil government and sanitation, were $9,328,300.14, compared with $6,548,272.43 for the previous year. There was an increase of $2,780,027.71 in the actual cost of operation and maintenance, resulting from a number of causes culminating during the year. Wages reached their highest point and all material used was purchased at the top of the market. Considerable necessary repair work was done on equipment, which had been postponed on account of congestion, and the reduction in forces, and the reorganization necessary on account of the reduction in commercial work, due to a general depression, could not be brought about simultaneously with the reduction of the work. The revenue exceeded that of the previous year by $3,104,245.13, due principally to an increase of traffic, and also to an increase in profits on business operations, such as the sale of fuel and supplies. The revenue consisted of: tolls on ships passing through the canal, $11,261,919.31; licenses and taxes, court fees and fines, $188,986.19; interest on balances in banks, $25,000; profits on business operations, $564,211.20; total, $12,040,116.70. The expenses for operation and maintenance do not, with minor exceptions, include any allowance for depreciation of plant and equipment, nor interest charges on capital investment.

The cost of the canal to June 30, 1921, was $368,543,271.95, including docks, coaling plants, shops, piers, barges, etc.

Ships Added to and Deducted From the Canadian Register During August, 1921.

	Steam.			Sailing.		
		—Tonnage—			—Tonnage—	
	No.	Gross	Net	No.	Gross	Net
Added.						
Built in British Possessions	14	2,955	1,594	1	763	732
Purchased from foreigners	1	82	24	1	557	529
Transferred from U.K. ports	1	880	522	....	.....	.....
Registered anew	3	57	50	....	.....	.....
Remeasurement	....	24	24	....	.....	.....
Totals	19	3,998	2,214	2	1,320	1,261
Deducted.						
Wrecked or otherwise lost	8	6,366	3,788	12	4,352	4,054
Broken up or unfit for use	8	1,991	1,221	13	1,043	979
Sold to foreigners	....	.....	.....	5	1,262	1,234
Transferred to British Possessions	....	.....	.....	5	939	751
Registered anew	2	54	33	4	125	125
Remeasurement	....	37	4	....	.....	.....
Totals	18	8,448	5,046	39	7,721	7,143

Dominion Marine Association's Activities.

The Dominion Marine Association's executive committee met in Montreal recently and dealt with a number of important matters.

Montreal Port Congestion.—The whole question of the movement of grain through Canadian channels was discussed and various recommendations have been made. In the first place it is recommended that the facilities and equipment in the Montreal harbor have proved inadequate and that elevator space there should be increased by 10,000,000 bush., construction to be commenced as quickly as possible, in order that part of this space be available in 1922; and that, inasmuch as lake fleet ships have been subjected to serious delays in unloading at the port, the facilities for that operation should be increased in readiness for the 1922 season, and that additional berths, at which ocean steamers can load grain cargoes should be provided at the G.T.R. elevator, where grain congestion has occurred due to the elevator being equipped with only two loading berths. The Harbor Commission has already recommended the additional elevator capacity mentioned above, and also additional railway car unloading equipment and the G. T.R. is also seeking additional elevator capacity and ocean loading berths and facilities. In the second place, as conditions this year have been extraordinary and the congestion much increased by reason of foreign grain coming through from the west, and as it does not seem desirable to place a direct embargo upon grain from the U.S., it is recommended by the Association that the shipment of this grain from the west through Canadian terminals should be regulated by a system of permits after Sept. 1, when conditions warrant, as such a system would prevent an undue quantity from coming forward. In the third place the Association is desirous of some arrangement which will provide for some definite, certain and uniform control of this movement of grain from the west to the seaboard on the Canadian route, with all the various facilities co-ordinated and working together under some common direction, instead of as at present working quite independently of each other. The Association has, therefore, recommended that the movement of Canadian grain should be brought under some one Government department.

In the fourth place the Association strongly approves of the arrangement initiated in the port of Montreal recently, whereby a committe, representing the various interests, has endeavored to solve the various difficulties, and has greatly facilitated the movement of cargoes and relieved congestion; but the Association believes this committee should be clothed with some authority, instead of being entirely voluntary, and dependent upon the good will of the parties, and it recommends that such a committee should be established permanently.

Windsor-Detroit Bridge.—The Association will not raise objections to the proposed bridge across the Detroit River between Windsor, Ont., and Detroit, Mich., provided no pier is allowed to encroach beyond the wharf or harbor lines on each side and that there is a clear span of 1,800 ft. and a minimum clearance above high water level of 110 ft. at all seasons.

St. Lawrence River Development Proposals.—The Association's President and Counsel attended before the International Joint Commission at Ottawa on Nov. 14 to consider final statements from all parties with reference to the plans of the engineers as filed. The Association maintains its position, already defined, in favor of the development which will properly recognize navigation as the prime interest, while at the same time satisfying the demand for power, and will effectually stop the granting of independent and uncontrolled concessions on the river. The initial development at Morrisburg, by a lock and dam, as the first step in a larger scheme would not meet with objection from the Association.

Nautical Assessors.—The Association has submitted to the Dominion Wreck Commissioner a list of names of masters experienced in lake and upper river traffic and capable of acting as assessors in wreck investigations on waters above Montreal.

Shipping Act.—The Association's President and Counsel have taken up at Ottawa the pending questions with reference to amendment to the Canada Shipping Act in respect of: definition of inland waters; compulsory payment of pilotage dues; relief from sick mariners' dues, or at least relief for U.S. ships entering Quebec Province, so as to earn relief from U.S. tonnage tax for ships from that province entering U.S. ports; and reinstatement of provisions as to inspection fees procured by the Association in 1903 and repealed at the Dominion Parliament's last session.

Grain Shovelling and Elevator Charges. The Association is continuing its work in connection with charges made for shovelling and elevation in the various eastern terminals, including Georgian Bay ports, Port Colborne and Montreal and instructions have been given for further proceedings and correspondence.

Shipowners' Liability. — Consideration was given to the movement for amendment of the Harter Act. in the U.S. to cancel some of the exemptions from liability now enjoyed by shipowners, in connection with the water carriage of goods, and in this connection attention is called to the Imperial Shipping Committee's report on the limitation of shipowner's liability by clauses in bills of lading, made after evidence from shippers, carriers and underwriters, the recommendations in paragraphs 31 and 32 of that report being as follows:—

"31. As the result of the considerations outlined above under the three several heads, we have come unanimously to the following conclusion:—That there should be uniform legislation throughout the Empire, on the lines of the existing acts dealing with shipowners' liability, but based more precisely on the Canadian Water Carriage of Goods Act, 1910, subject to certain further provisions in regard to exceptional cases in which goods should be allowed to be carried by shipowners at owner's risk; the precise definition of the phyical limits to the shipowner's liability; the fixing of maximum values for package up to which shipowners should be liable to pay.

"32. We make the Canadian Water Carriage of Goods Act, and not the Harter Act which it closely resembles, the basis of our recommendation, because it embodies the latest experience. It was passed in 1910, whereas the Australian Sea Carriage of Goods Act was passed in 1904 and the New Zealand Shipping and Seamen Act, certain sections of which deal with shipowners' liability, was passed in 1903. The Harter Act was passed in 1893."

Aids to Navigation.—The Association has dealt with a large number of suggestions with regard to aids to navigation and its President has been present at all the meetings of the Lighthouse Board as an ex officio member. Permanent improvements of any substantial cost have, however, been found impossible under present financial conditions and work has been confined largely to alterations and matters of minor character.

Welland Canal Lock Gate Accident.

The s.s. Robert R. Rhodes, owned by R. E. Lawlor, Hawkesbury, Ont., and operated by the George Hall Coal Co. of Canada, while upbound and light, struck the outer gates of lock 3, Welland Canal, Oct. 24, and carried out both gates. The rear slope of the heel path bank, at the head of lock 2, was washed out somewhat by the water released from the reach above lock 3. A wooden derrick scow, owned by the Railways and Canals Department, which was lying below lock 3, was floated up on some piling, and when the water receded, the scow was left in a sunken condition, with a hole in her hull. The 10 in. water pipe of the Port Dalhousie Waterworks Commission, which crosses the canal at the upper end of lock 3, was washed out, completely interrupting Port Dalhousie's water supply. The Interwaterway Line's new steel barge 104, engaged in the Erie barge canal service and operated by two semi-Diesel oil engines, downbound with 62,000 bush. of grain from Buffalo to Montreal, was left in the bottom of lock 4, in 5 ft. of water, but suffered no apparent damage. Two spare gates were placed in position at lock 3, and navigation resumed on the same day within 12 hours. The scow was also released, floated and drydocked at old lock 1 for repairs. The s.s. Robert R. Rhodes, which is an old ship, suffered considerable damage, and it is said was abandoned to the underwriter. The estimated cost of repairs to government property, and the water main, is $10,000.

New Marine Flags for Germany and Austria.—The Marine Department has issued descriptions of the new German and Austrian marine flags, as follows:—German,—a rectangular flag, divided horizontally into three equal stripes, black, white and red; in the black stripe, next to the staff, are inserted the national colors, black, red and yellow, divided from the black stripe by an outer vertical edge of white; the length of the insertion is equal to the depth of the black stripe. Merchant ships commanded by retired naval officers used the merchant flag, superimposed with an iron cross. According to existing regulations, it is permissible for German merchant ships to fly the old, or the new, flag at will, up to Jan. 1, 1922. Austrian,—an oblong flag, divided horizontally into three equal stripes, red, white and red; the relation of the breadth to the length, is as two to three.

Icebreaking Steamship for St. Lawrence River.

When Prime Minister Meighen was in Montreal Nov. 4, a deputation from the Canadian Workers Federation of Returned Soldiers and Sailors called on him and the Minister of Marine, Hon. C. C. Ballantyne, and asked if it would be possible to do anything for the shipwrights who have for some time been engaged at the Canadian Vickers yard at Maisonneuve, mostly men who had served their time as shipwrights in the Old Country, and also served during the war either in the army or navy. The men were anxious to know if anything was being done in the matter of letting contracts for the construction of the new Government icebreaker which was authorized during the last parliamentary session. The men's representative said that they resented in the strongest possible way the attacks made upon the Government in respect to the shipbuilding policy which was conceived and carried out by Mr. Ballantyne. That programme had helped at a difficult period to furnish employment to men who most deserved help, those who had returned from overseas service. So far from blaming the Government, these men felt that they would like to see the programme of 63 ships duplicated. In any case, they wished to assure the Premier of their appreciation of the great work carried out by Mr. Ballantyne, and they wished as citizens to express disapproval of the conspiracy among certain individuals to create among the public evident misrepresentations as to the real object of the construction of the merchant marine.

Mr. Ballantyne, who replied for the Premier, said he sympathized with the men in the present unemployment situation. The Government was glad to have this expression of appreciation of its shipbuilding programme and to learn that it had been of material assistance to the workers, as well as to the country at large. Only the previous week he had instructed the Deputy Minister to call for tenders for an icebreaking steamship, and while he was not prepared to say that the Government would let the contract this autumn, he was going to Ottawa the following week, and if the Government could see its way clear to let the contract shortly it would be done. He regretted that it was impossible to offer more encouragement than that; but he urged "Trust the Government."

Shortly afterwards the Marine Department issued an advertisement inviting tenders up to Nov. 15, which date was extended subsequently to Nov. 21, for furnishing materials and labor of all kinds, for the construction, equipment and delivery of a steel twin screw icebreaking steamship for service in the St. Lawrence River. She is to be built largely on the lines of the icebreaking steamship J. D. Hazen, which was built by Canadian Vickers Ltd. for the Department in 1914, and transferred to the Russian Government early in the war, at the request of the British Government, for icebreaking service in the White Sea. The principal dimensions are,—length overall 292 ft; length b.p. 275 ft.; breadth moulded at l.w.l., 57 ft.; depth moulded, 32 ft.; draft, mean, 19¼ ft.; i.h.p., 8,000. She is to be classed 100 A1 at Lloyds.

The plans and specifications provide that the stem shall be a massive steel casting, raked aft, and the stern of the cruiser type, which will allow of easy propulsion when going astern among ice. There will be seven main transverse watertight bulkheads, extending to the upper deck; the side bunker walls will also be watertight to the upper deck, and an inner skin will be provided between the fore peak and forward bunker, the bulkheads thus forming, in conjunction with the double bottom, which will extend the full length of the ship, a double skin extending from the engine and boiler room bulkheads right forward. Access from below to these watertight compartments will be provided by watertight doors. Large trimming tanks will be placed forward and aft, connected with special pumping arrangements, so that the ship may be trimmed quickly. The framing will be composed of heavy channels spaced 15 in. apart at the bow, the spacing being increased midships and aft, and intermediate frames introduced in the way of the ice belt for a certain distance about midships. These ordinary frames will be strengthened by heavy web frames and side stringers, placed so as to resist as efficiently as possible the heavy stress due to ice pressure. The plating forward will be 1¼ in. thick, and the ice belt, over 1 in. thick, and 15 ft. deep, will run right round the ship; all ice plating will be worked flush on the outside.

Accommodation will be provided on the main deck for the engineers, stewards, etc., the crew and petty officers being located forward on the same deck. On the upper deck, at the forward end of the casing, will be the officers' quarters and mess room. The two galleys will be on this deck in the casing, and will communicate with all messing quarters by dumb-waiters. In the forecastle will be two houses for cold storage, with cook's day stores alongside, and on the forecastle deck will be the official accommodation, consisting of two official cabins, pantry, lavatory and combined dining saloon and chart room. The wireless cabin and operator's room will be on the boat deck aft, and the captain's cabin and wheel house will be on the navigating bridge. Complete hot and cold fresh water, sanitary and steam heating systems will be fitted throughout, and the ship will be electrically lighted and fitted with a searchight of 25,000 c.p., situated on the fore side of the fore mast. Current will be supplied by two direct current compound dynamos, direct driven by high speed enclosed compound engines. The life saving appliances will be in accordance with the Canadian Steamboat Inspection Act's latest rules and will include four lifeboats and one cutter. The deck machinery will consist of a powerful steam steering gear aft, controlled from the bridge by telemotor, and fitted with hand gear at the engines, one windlass, two capstans and boat and coal hoists.

The main propelling machinery will be of the twin screw, triple expansion, surface condensing type, capable of developing 8,000 i.h.p., in ordinary working. Independent air feed and bilge pumps of extra large capacity will be provided, and the engine room auxiliary equipment otherwise will be very complete. The six boilers will be of the marine return tube type, two double ended and four single ended, built for a working pressure of 180 lb. a sq. in.; and arranged to work under forced draft. All boilers will supply steam to the main engines, and connection for the auxiliary steam mains will also be led from three of the single ended boilers. Ash ejectors and steam ash hoists will be provided in the various stokeholds. The piping, valves, mountings, etc., will be of the highest class materials.

The Marine Department estimates for 1920-21 included $2,000,000 for building an icebreaking steamship, and tenders were invited to Aug. 13, 1920, but the prices quoted at that time were considered to be too high, the lowest received being reported to have approximated $2,500,000. The estimates for the year ending March 31, 1922, passed at the Dominion Parliament's last session, contain a revote of the $2,000,000.

A Montreal press dispatch of Nov. 25 said that the Minister of Marine had announced that the contract for building the icebreaking steamship had been given to Canadian Vickers Ltd., the price being $1,580,000, and that by delaying the order 18 months, $700,000 was saved.

Canadian Notices to Mariners.

The Marine Department has issued the following:—

70. Oct. 14.—187. Nova Scotia, south coast, Halifax harbor entrance, Sambro outer bank, lightship to be replaced. 188. Prince Edward Island, south coast, Bedeque harbor, Summerside, change in character of buoy. 189. Newfoundland, south coast, Fortune Bay, English harbor wharf, light established.

71. Oct. 15.—190. Quebec, Montreal, change in position of radiotelegraph station. 191. Newfoundland, east coast, Bonavista Bay, Puffin Island, light established. 192. Newfoundland, south coast, La Poile Bay, Little Bay, light established.

72. Oct. 16.—193. Nova Scotia, Bay of Fundy, Lurcher shoal, lightship replaced on her station. 194. New Brunswick, east coast, North Tracadie gully, lighting of channel.

73. Oct. 18.—195. British Columbia, Vancouver Island, west coast, entrance to Quatsino Sound, uncharted shoal. 196. British Columbia, entrance to Vancouver harbor, error in notice, re seaplane station in English Bay.

74. Oct. 21.—197. Ontario, Lake Huron, North Channel, Boyd Island, fog horn established. 198. United States, St. Mary River, West Neebish channel, west side upper light 25 established temporarily. 199. United States, St. Mary River, St. Mary Falls canal approach, Bayfield rock range, dredging, buoy discontinued.

75. Oct. 28.—200. Ontario, Lake Ontario, Kingston harbor, Barriefield common range lights, intensity to be increased. 201. Ontario, Detroit River, wreck south of Woodtick Island, temporary buoy established. 202. United States, Detroit River, Lake Huron, Lake Superior and connecting waters, aids to navigation to be discontinued for winter of 1921-22. 203. United States, Lake St. Clair, St. Clair Flats, canal, buoy discontinued.

76. Nov. 9.—204. British Columbia, Vancouver Island, West Coast, Quatsino Sound, Ildstad Island, light established. 205. British Columbia, Vancouver Island, West Coast, Quatsino Sound, southeast arm, Dog Island, light established. 206. Alaska, Lynn Canal, Vanderbilt Reef, light established.

Mainly About Marine People.

H. Bjorklund, of the White Star-Dominion Line's staff, Montreal, is reported to have been appointed travelling passenger representative, White Star Line, Chicago, Ill., and to have left Montreal for Chicago, Nov. 19. He has been with the company at Montreal since 1906.

H. C. Blackiston, a director and General Manager, Furness, Withy & Co., New York, was presented with a silver platter, by the British Ambassador, Sir Auckland Geddes, recently, on behalf of the British Government, as an appreciation of valuable services rendered by him during the war, and as a testimonial to the work accomplished by the company's staff throughout eastern Canada, Newfoundland and along the U.S. seaboard.

T. Bourassa, Harbor Master, Montreal, was presented with a cane by the harbor employes, Nov. 1, on his 70th birthday.

W. E. Burke, Director of Transportation, Canada Steamship Lines, Montreal, was in England during November on business.

James Cant, Superintendent, Wallace Shipbuilding & Drydock Co., North Vancouver, B.C., died in the General Hospital there, Oct. 24, aged 54. He was born in Dundee, Scotland, and was connected with shipbuilding all his life. He came to Canada in 1912, as Superintendent, Wallace Shipbuilding & Drydock Co., but returned to Great Britain on the outbreak of war as a munition worker and came back to Canada in 1917 to resume his duties.

Capt. J. E. Christie, of the White Star Dominion Line's s.s. Cornishman, which sailed from Montreal, Nov. 4, stated that he would retire from the service on the arrival of his ship in England, after about 47 years of seafaring life. His first service was on a windjammer in 1875, and in 1877 he helped to transport part of the British army from India to the Dardanelles, in the Russian war. His first service on steamships was on the U. S. s.s. Keystone, which was taken over by the Dominion Line in 1896. He assisted in transporting troops to South Africa during the Boer war of 1899 to 1901. His first service on the St. Lawrence route was with the s.s. Canada, of which he was first officer, and he was subsequently master of the s.s. Manxman, which he commanded at the outbreak of the Great War, during which he served on the s.s. Irishman, which acted as a convoy to merchant ships. He holds the South African war medal and also medal for service during the Great War, and was presented, in 1914, with a silver cup by the British Government for rescuing the crew of the schooner Banshee, for which he also received the Royal Humane Society's silver medal and the Emile Robin award, which was founded in perpetuity by a French merchant for the ship master who effects the most gallant rescue in any one year.

Joseph F. Dolan, formerly General Agent, Passenger Department, Canada Steamship Lines, Boston, Mass., died suddenly, Oct. 23, at Montreal, from heart failure. He was born at Kingston, Ont., in 1867, and entered steamship service in 1893, as City Passenger and Ticket Agent, Richelieu & Ontario Navigation Co., Toronto, and in 1901 was appointed Passenger and Stock Transfer Agent, same company, Montreal. From 1913 to 1914, he was District Passenger Agent, same company, Boston, Mass., and on the taking over of that company by Canada Steamship Lines, was appointed General Agent, Passenger Department there. He retired from the service in May 1916, to enter private business at Montreal, and was presented with a silver tea set by a number of transportation representatives in Boston.

Capt. E. English, harbor master, St. John's, Nfld., and formerly master of the s.s. Ethie, which was wrecked at Cow Head, Nfld., in Dec. 1919, was presented recently with a silver cup by the Newfoundland Government, in recognition of his gallant conduct and able seamanship, which resulted in the saving of the lives of all the passengers and crew.

Sir Frederick Orr-Lewis, Bart., President, Canadian Vickers Ltd., and also of Lewis Bros., Ltd., wholesale hardware, Montreal, died at Villa Valetta, Cannes, France, Nov. 18. He was born at Kingston, Ont., his father being a native of Wales. He was, for many years, in hardware business in Montreal, and was President of the Dominion Wholesale Hardware Merchants Association in 1903. He was Canadian representative of the English firm, Vickers, Son & Maxim, now Vickers Ltd., shipbuilders, and on the formation of Canadian Vickers Ltd., became its President. He was also a director of the Merchants Bank of Canada. He had resided for the greater part of each year at Whitewebbs Park, Enfield, Eng., but was a frequent visitor to Canada.

John J. Phelan, shore superintendent, Furness Withy & Co., Montreal, at one time Assistant to Mechanical Superintendent, Richelieu & Ontario Navigation Co., and later, Purchasing Agent, Canada Steamship Lines, Montreal, died there suddenly, Nov. 6, from acute indigestion.

Stanley Phillips elder son of William Phillips, European Manager, Canadian Nationa Rys., and Canadian Government Merchant Marine, London, Eng., sailed from England recently for Shanghai, China, via the Suez Canal. He has been engaged for some time on the staff of John Swire & Sons, steamship agents, London, Eng., and has been transferred to their Shanghai agency, where as Butterfield & Swire they act as agents for Blue Funnel Line and also represent Canadian Government Merchant Marine.

W. G. Ross, President, Montreal Harbor Commissioners, has resigned after nine years service, in consequence of being the Government candidate for the representation of St. Antoine, Montreal, in the House of Commons.

Capt. P. Williams, for the last 25 years master of one of the Detroit & Windsor Ferry Co.'s steamships, died at Windsor, Ont., Nov. 7, aged 74.

Longshoremen's Wages at St. John, N.B.—The schedule of wages for longshoremen, etc., at St. John, N.B., for this winter shows considerable decrease from last winter. Following are the rates effective Nov. 30, compared with those paid last winter: General cargo handling, day or night, 50c. an hr., against 70c.; grain, day or night, 60c. an hr., against 70c. day and 80c. night; ship carpenters, 45c. an hr. day, and 62½c. an hr. night, against 60c. an hr. day and 90c. an hr. night; coal handlers, 50c. an hr. day or night, against 80c. day and $1 night.

Atlantic and Pacific Oceans.

The International Mercantile Marine Co. has announced a reduction of 20% in its third class steamship fares between New York and European ports.

The Newfoundland schooner Nevis, bound from Labrador to Genoa, Italy, with a cargo of fish, is reported a total wreck on the Island of Majorca in the Mediterranean Sea.

Canadian Pacific Steamships Ltd. has announced that its new service between St. John, N.B., Boston, Mass., and Havana, Cuba, will be inaugurated Dec. 5, with the s.s. Sicilian.

Steamships of constituent companies of the International Mercantile Marine Co. will make 22 calls westbound, and 18 calls eastbound, at Halifax, N.S., between Dec. 1 and April 30.

Experimental shipments of Canadian wheat are being made to Japan, about 1,200 tons having been booked. Extensive shipments are probable, as Japan seems to be leaning toward Canadian hard wheat instead of the U.S. soft grain as heretofore.

The Ellerman-Wilson Line is including Vancouver as a port of call in its sailings from the Pacific coast to Havre, Hull, Leith, Hamburg, Antwerp, Rotterdam, etc. The first ship to call at Vancouver was the s.s. City of Naples on Nov. 20. B. W. Greer & Co. are local agents.

The Cairn Line's s.s. Cairngowan, bound from Leith, Scotland, for Montreal, in ballast, ran ashore near Deal, Eng., during a heavy fog, Nov. 17. She was towed off without apparent damage, and taken to Deal, where large quantities of sand washed aboard by heavy seas were removed.

Recent ocean charters by the Vancouver Merchants' Exchange, for shipments of lumber and grain from Pacific coast ports, include 9 British, 7 Japanese, 3 U. S. and 11 Spanish, French, Dutch, Norwegian and Swedish steamships. Lumber will be shipped in 9, mixed grain and lumber in 1, and grain in the balance.

The C.P.R. s.s. Empress of Britain has been equipped with a direction finding equipment, which, it is said, will obviate the necessity of asking the direction finding stations on shore for a bearing, which, under certain conditions, causes delay. The equipment is fitted up in a box about 4 ft. square, and does not require the rigging of special aerials.

The s.s. Seistadt, a sister ship of the s.s. Storstadt, which collided with and sank the C.P.R. s.s. Empress of Ireland in 1914, was libelled at Montreal, Oct. 28, on a claim of $2,204, for repairs and materials supplied for grain fittings. Pending a judgment in the action, the ship was released on depositing a sufficient sum to cover the claim and costs.

The Red Star Line announces the inauguration of a regular weekly service between Halifax, N.S., England and the continent in January, with its steamships Finland, Kroonland, Lapland and Zeeland. The ships will run from Halifax direct to Plymouth, Eng., thence to Cherbourg, France, and Antwerp, Belgium, and on the return journey will make Southampton instead of Plymouth the English port of call.

The s.s. General Turner, owned by Eastern Shipping Co., Toronto, which struck a mine and sank, while bound from the Danube to Rotterdam, July 21, has been removed from the Canadian

register. She was built by the Dominion Shipbuilding & Repair Co., Toronto, in 1919, and was screw driven by engine of 146 h.p. Her dimensions were,—length 251 ft., breadth 43½ ft., depth 21.2 ft.; tonnage, 2,490 gross, 1,519 net..

Canadian Pacific Steamships Ltd. is reported to have announced that on the re-opening of St. Lawrence navigation, in 1922, its Empress steamships will make Southampton their English port instead of Liverpool, as hitherto. It is stated that docking accommodation has been arranged for at Southampton. The company's other passenger steamships, which already run out of Liverpool, will continue to do so, and the three new steamships, now approaching completion for the St. Lawrence route, will also operate from that port. We were officially advised, Nov. 22, that the matter was under consideration, but at that date, nothing definite had been decided.

Following an experiment on the C.P.R. s.s. Minnedosa with the use of moving pictures during a voyage across the Atlantic, the company inaugurated a definite plan on the s.s. Melita for making moving pictures one of the regular features on its transAtlantic steamships. About 8,000 ft. of film are carried on the trip, and are shown at various times in the cabin and third class dining rooms. The films are of Canadian manufacture and show among other things agricultural and travel scenes in Canada. They are nonflammable, thus eliminating any possible danger from fire, without which assurance the company would not have considered adopting them. Three performances are given on each trip in each class, each exhibition lasting about an hour.

The Cunard Line's s.s. Andania, 14,000 tons, was launchen at Hebburn-on-Tyne, Nov. 1, being the seventh steamship launched for that company since the conclusion of the war. She is for the St. Lawrence route, on which the company has not operated since the war, during which all its steamships operated previously on that route were sunk by enemy ships. The s.s. Andania is 538 ft. long, 65 ft. broad, 43 ft. deep. She will have accommodation for 1,700 cabin and third class passengers, and is the third of six similar ships which the company is having built for this class of service, two of which, Ausonia and Antonia, have been launched, and another three, Alaunia, Aurania and Ascania, are to be built. The accommodation of these ships includes large dining rooms, reading rooms, drawing room, lounge, smoking rooms, and verandah cafe. She will use oil as a fuel and thus provide increased space for passenger accommodation. The propelling machinery will consist of the Parson type of double reduction geared turbines, for a speed of 15 knots.

Martime Provinces and Newfoundland.

During a hurricane along the Newfoundland coast, Nov. 4, thirteen sailing ships were wrecked and three lives lost.

The Public Works Department received tenders to Nov. 29, for floating, towing, docking, repairing and painting steel hopper scow 157, which was wrecked near Port Hawkesbury, N.S., recently.

The New York & Cayenne Steamship Co. will, it is reported, establish a steamship service between Boston, Mass., Halifax, N.S., and St. John's, Nfld., with the s.s. Bournholme. The Boston agent for the line is F. H. Chipman.

The steam trawler Baleine, owned by Leonard Fisheries Ltd., Montreal, which was wrecked recently, has been abandoned by both owners and underwriters. It is said that the company will purchase another trawler in the near future.

The Newfoundland schooner Linda Purdy, 69 tons, became a total loss at Mira Gut, near Sydney, N.S., Oct. 31. She was trying to make North Sydney, but anchored, on account of high wind. The anchors dragged, and she was driven ashore.

The Boston & Yarmouth Steamship Co.'s s.s. Prince Arthur, which went ashore on Bakers reef, near Yarmouth, N.S., Oct. 25, was refloated on the following day, and proceeded toward Boston, but when about 10 miles out, she was found to be taking considerable water, and returned to Yarmouth.

The three masted schooner Jennie V. Merriam, owned in Parrsboro, N.S., outward bound from Hillsboro, N.B., with plaster, was destroyed by fire, Nov. 7, and sank in the Petitcodiac River. She was built at Port Greville, N.S., in 1919, her dimensions being,—length 156.4 ft., breadth 35 ft., depth 12.8 ft.; tonnage, 454 register.

The U.S. schooner Mary Manson Gruener, which went ashore near Port Hastings, N.S., recently, and which was refloated, has been libelled by the owners of the Halifax steam trawler Venosta, for $25,000 for salvage services. The ship is valued at $85,000. She has a full cargo of lumber and laths loaded at Bathurst, N.B., for Philadelphia.

The Wabana Steamship Co., Halifax, N.S., has acquired the s.s. Wabana, owned formerly by the British and Chilean Steamship Co., Liverpool, Eng., and has transferred her to the Canadian register. She was built at Sunderland, Eng., in 1911, and is screw driven, by engines of 480 h.p. Her dimensions are,—length 375 ft., breadth 52 ft., depth 28.3 ft.; tonnage, 4,804 gross, 2,676 net.

The steam tug Lord Beatty, owned by Nagle & Wigmore, St. John, N.B., was destroyed by fire there, Nov. 5. The loss is estimated at $30,000, with $15,000 insurance. She was built at Port Hawkesburl, N.S., in 1902, was formerly named Fred. L. M. Paint and was screw driven, by engine of 24 h.p. Her dimensions were,—length 68 ft., breadth 17.9 ft., depth 8.9 ft.; tonnage, 88 gross, 39 net.

The Lurcher shoal lightship, which has been off her station temporarily for repairs, has been replaced on the shoal in the Bay of Fundy, and lightship 15, which has been at the Heath Point station, Gulf of St. Lawrence, will be withdrawn Dec. 1, and after overhaul will be placed on the Sambro outer bank station, at Halifax harbor entrance, for the winter. On the reopening of St. Lawrence navigation she will be replaced on the Heath Point station.

The s.s. Weymouth, owned by Bras d'Or Steamboat Co., North Sydney, N.S., is being dismantled at Sydney. It is stated to be the intention to remove the machinery and convert the hull into a barge. She was built at Weymouth Bridge, N.S., in 1890, and was screw driven, by engine of 26 h.p. Her dimensions are,—length 102.7 ft., breadth 19 ft., depth 7.6 ft., tonnage 154 gross, 106 net.

The Bridgetown Steamboat Co.'s s.s. Valinda was reported to have sunk in the Annapolis River, Nov. 12, after striking one of the piers of the bridge near Annapolis, N.S. She was built at Liverpool, N.S., in 1911, and was screw driven, by engine of 19 h.p. Her dimensions were, length 95 ft., breadth 21.5 ft., depth 7.3 ft., tonnage 117 gross, 60 net. She was operated between ports along the Bay of Fundy.

The s.s. Pelican, owned by the Hudson's Bay Co., was offered for sale by auction, at St. John's, Nfld., Nov. 1, the purchaser to undertake that she be either broken up, or used for a hulk only, and that she be not used for seagoing purposes. She was formerly H.M.S. Pelican, and was built at Devonport, Eng., in 1877, with a composite hull of the following dimensions,—length 180 ft., breadth 26.1 ft., depth 16.8 ft.; tonnage, 638 gross, 294 net, and she is screw driven by engine of 120 h.p. We were officially advised, Nov. 18, that she had not been sold.

The s.s. Lady of Gaspe, which was wrecked on Thrum Cap shoal, near the entrance to Halifax harbor, N.S., Aug. 8, broke up during a gale, Nov. 10. She was owned by Nova Scotia Steamships Ltd., Halifax, and was operated on the Halifax-St. John's, Nfld.-Boston route. In

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during October, 1921:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B. M. 6,018	22,717	28,735
Flour	"	Barrels 981,470	861,810	1,843,280
Wheat	"	Bushels 4,380,165	37,457,221	41,837,386
Grain, other than wheat	"	Bushels 2,678,554	6,440,691	9,119,245
Copper	"	Short tons 1,242	3,322	4,564
Iron Ore	"	Short tons 112,567	3,097,319	3,209,886
Pig Iron	"	Short tons	.....	.....
Stone	"	Short tons 2,900	.....	2,900
General Merchandise	"	Short tons 7,038	6,001	13,039
Passengers	"	Number 326	40	366
Coal, soft	Westbound	Short tons 7,490	1,203,366	1,210,856
Coal, hard	"	Short tons	278,657	278,657
Iron Ore	"	Short tons	.....	.....
Manufactured Iron and Steel	"	Short tons 3,250	4,949	8,199
Salt	"	Short tons 1,335	12,273	13,608
Oil	"	Short tons	28,212	28,212
Stone	"	Short tons	98,662	98,662
General Merchandise	"	Short tons 40,511	30,339	70,850
Passengers	"	Number 317	125	442
Summary				
Vessel Passages		Number 640	1,210	1,850
Registered Tonnage		Net 708,799	4,099,514	4,808,313
Freight—Eastbound		Short tons 422,799	4,520,552	4,943,351
Westbound		Short tons 52,586	1,656,458	1,709,044
Total Freight		Short tons 475,385	6,177,010	6,652,395

connection with the loss of the ship, the master's certificate was suspended for 12 months from Aug. 11. The s.s. Lady of Gaspe was built at Glasgow, Scotland, in 1877, and has borne the names, Restigouche and Rathlin. She was screw driven, by engine of 180 h.p., and her dimensions were,—length 229.7 ft., breadth 31 ft., depth 16.1 ft.; tonnage, 1,237 gross, 774 net.

Province of Quebec.

The cause of the explosion and fire at Montreal Harbor Commissioner's grain elevator no. 1 at Montreal in October is given by the Fire Commissioner, after an enquiry, as spontaneous combustion caused by dust in one of the elevator legs. The damage is estimated at $11,000 to the building and $2,000 to grain.

The s.s. John S. Thom, stated to be owned by Canada Transport Co., ran ashore near Carleton Island, opposite Cape Vincent, N.Y., Nov. 13, while bound to Montreal with coal. She was owned formerly by the Quebec & Levis Ferry Co., and towards the end of 1918, was sold to La Societe Maritime et Commerciale, France, for $240,000, with the object of using her in transporting troops between England and France. On the signing of the armistice, the purchaser claimed that she was unsafe for navigation, and sued for a return of the purchase money, but was unsuccessful.

Ontario and the Great Lakes.

The s.s. Aragon, bound from Chicago to Kingston, with coal, went ashore on Salmon Point about 60 miles west of Kingston, Nov. 17.

The Welland Canal's Superintending Engineer issued a notice at the end of October that no ship would be allowed to enter in or pass through the canal drawing more than 14 ft. of water.

Keystone Transports Ltd has not, we are officially advised, bought the U.S. s.s. Neebing, engaged recently in the U. S. coasting trade, for service between Montreal and Lake Erie ports, a report of which was mentioned in our last issue.

The Great Lakes Transportation Co.'s s.s. Glenlivet collided with the U.S. barge Thomas Quayle, in tow of the s.s. King, near Toledo, Nov. 1, sinking the barge, the Glenlivet being forced aground against the crib lights, by the force of the collision.

The Great Lakes Transportation Co.'s s.s. Glencairn ran aground near Point aux Pins, in the St. Mary River, Oct. 31, while downbound. She was released shortly after, practically undamaged.

Trouble was experienced during the early part of November, in the Welland Canal, owing to low water. Several ships were held at both ends, and the s.s. Senator Derbyshire grounded, Nov. 9. The chief cause for the delays, which have occurried four times during this year, is given as strong winds, especially on Lake Erie.

The Canadian Towing & Wrecking Co.'s steam tug Sarnia was destroyed by fire, at Port Arthur, Nov. 11. The loss is estimated at $50,000, covered by insurance. She was built at Sarnia in 1901, and was screw driven, by engine of 26 h.p., her dimensions being,—length 66.8 ft., breadth 21 ft., depth 11 ft.; tonnage, 85 gross, 58 net.

The 3 masted schooner Scotia, owned formerly by Kolbe Fish Co., was offered for sale, Nov. 15, under order of the Exchequer Court of Canada, Toronto Admiralty District, as she lay on bottom, in shallow water, in Goderich harbor. Her dimensions are,—length 210.9 ft., breadth 34.5 ft., depth 13.4 ft., capacity under tonnage deck 839 tons, gross 903 tons, net 858 tons.

The U.S. s.s. W. H. Wolf, which was wrecked in the Detroit River recently, is sunk about 250 ft. from the Canadian shore, and 2,400 ft. south of the south end of Woodtick Island. She extends out into the channel, and is a menace to ships using the channel east of Woodtick Island. The wreck has been marked by a float with a mast 6 ft. high, and at night a lantern, showing a red light, is hung on the mast.

British Columbia and Pacific Coast.

The name of the s.s. Santa Cruz, owned by A. Berquist, Victoria, B.C., has been changed to Trebla.

The Alaska Steamship Co. has taken over the agency for the Williams Steamship Co.'s intercoastal service for Puget Sound, Grays Harbor and British Columbia.

The British Yukon Navigation Co. has bought the gasoline ship Kestrel from U.S. owners, and has placed her on the Canadian register under the name of Neecheah.

The Kingsley Navigation Co., Vancouver, has chartered the s.s. Chilkoot from the Union Steamship Co. of British Columbia, to run on the California route, in conjunction with its s.s. E. D. Kingsley.

The s.s. Princess May, owned formerly by the C.P.R., and operated in its British Columbia Coast Service, and sold to the Di Giorgio Co., New York, in 1917, for its fruit service, was reported ashore at Cuba during November.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Albert was substituted for the s.s. Prince John on the Vancouver, Queen Charlotte, Prince Rupert and Stewart service, Nov. 4, and the s.s. Prince John was taken out of service until further notice.

The Kingston Navigation Co., operating the steamships Brockville and St. Lawrence on river and lake routes, has plans for considerable improvements in its service for next season. J. M. Campbell, President, is reported to have announced that the s.s. St. Lawrence will be thoroughly overhauled during the winter, to increase her efficiency as a passenger ship.

The Hudson's Bay Co.'s auxiliary powered schooner Lady Kindersley arrived at Vancouver, Oct. 24, having completed the round trip to Herschel Island and back within the short season, the first time this has been accomplished. Very rough weather was reported in the north, gales and ice being plentiful, and it was, at one time, feared that the ship would have to winter there.

The Dominion Public Works Department is reported to have awarded the contract for the construction of a light tower, at Carmanah Point, to Hodgson, King & Marble, Vancouver, for $30,000. Tenders for carrying out this construction were called for last year, but were rejected, as it was considered too late in the season to proceed with the work. The tenders on which the contract has now been awarded were called for early this year.

The hydroglider, Tortoise, owned and run by Norman A. Yarrow, Managing Director, Yarrows Ltd., Victoria, B.C., which was described and illustrated in Canadian Railway and Marine World for October, was tested on a long distance run toward the end of October, between Esquimalt, Cadboro Bay, Sidney Island, Albert Head, and back to Esquimalt, about 50 miles, and for a considerable portion of the trip was run at her limit of 50 miles an hour. This is the first long distance run undertaken with the boat and the owner expressed his pleasure at the result, and stated that he would probably run her from Victoria to Vancouver for a trip.

Canal Statistics for October.

The Dominion Bureau of Statistics has issued the following figures for October:

Sault Ste. Marie. — The total traffic through the Canadian and United States locks was 6,650,811 tons, against 12,991,-121 for 1921, a decrease of 6,340,310 tons. The decrease in iron shipments accounted for 5,466,937 tons of this. Wheat increased from $28,435,517 bush. in 1920 to 752,341 in 1921. The increase of 58% in traffic through the Canadian lock was largely due to diversion of traffic from the U.S. locks, on account of an accident to the bascule bridge, which, while noe closing the locks, affected the passages somewhat.

Welland Canal.—Grain shipments were considerably heavier than in 1920. The U.S. wheat amounted to 21,597 tons, or 719,900 bush., and U.S. corn amounted to 95,406 tons, or 340,700 bush. Soft coal decreased 95,245 tons for October and 575,877 for the season. The total traffic for October was 386,052 tons, against 336,164 tons for 1920.

St. Lawrence Canal.—The total traffic was 479,033 tons, against 455,369 for 1920. Grain shipments were heavy and show large increases over last year. Corn shipments were 102,043 tons, 96,133 tons of which were U.S. Wheat shipments were 99,689 tons, 21,660 tons being U.S. Pulpwood decreased 25,496 tons, and soft coal decreased 111,270 tons. For the season the total decreases in pulpwood and soft coal were 88,735 and 571,562 tons respectively.

Imperial Oil Tank Steamships.

Imperial Oil Ltd., Toronto, has placed two new oil tank steamships on the Canadian register, and the International Petroleum Co., Toronto, one. Following are the chief details:—

Albertolite, Imperial Oil Ltd., built at Vancouver, Wash, 1921; screw driven, 334 h.p.; length 463.2 ft., breadth 60.2 ft., depth 20.2 ft.; tonnage, 8,461 gross, 5,960 net.

Vancolite, Imperial Oil Ltd., built at Kearney, N.J., 1921; screw driven, 350 h.p.; length 500.3 ft., breadth 68 ft., depth 30.5 ft.; tonnage, 10,831 gross, 7,530 net.

G. Harrison Smith, International Petroleum Co., built at Sparrows Point, Md., 1921; screw driven, 462 h.p.; length 550.6 ft., breadtr 72.3 ft., depth 44.1 ft; tonnage, 15,371 gross, 9,326 net.

All the ships are of the latest type, with the most modern equipment for the work for which they are intended, and are equipped with wireless.

Wreck Commissioners' Enquiries and Judgments.

Enquiries have been held and judgments delivered in connection with the following casualties:—

Loss of s.s. Canadian Exporter.

The enquiry into the cause of the loss of Canadian Government Merchant Marine s.s. Canadian Exporter, which was held at Vancouver, B.C., Aug. 11, by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Commanders F. W. Evans and J. B. Radcliffe, as nautical assessors, was dealt with in Canadian Railway and Marine World for October. As then stated, Capt. Wm. Bradley, and the first mate, Newton Campbell, were both found in default, and their certificates suspended for six months and four months, respectively. Commander Evans dissented, and while agreeing with the necessity for suspending both certificates, he considered that, as regards the master, the suspension was too severe, and felt that three months would have been sufficient. The master applied to the British Columbia Supreme Court to have the suspension quashed, on the ground that he was not told that he was being tried and had been given no opportunity to defend himself. Judgment was given at Vancouver, Oct. 25, quashing the suspension, and restoring his certificate.

Mr. Justice Morrison gave the following reasons for judgment:—There was a formal investigation pursuant to the Canada Shipping Act into the loss of the s.s. Canadian Exporter, which was stranded July 31, directed by the Minister of Marine, who delegated the power of selecting the assessors to the local wreck commission at Victoria. The Commisioner selected his assessors and served Capt. Bradley with notice of the hearing, accompanying which were set out a number of questions for the opinion of what he termed "the court" as follows: 1. What number of compasses had the vessel, were they in good order and sufficent for the safe navigation of the vessel, and when and by whom were they last adjusted? 2. Did the master ascertain the deviation of his compasses by observation from time to time; were the errors correctly ascertained and the corrections to the courses properly applied? 3. Was the vessel supplied with proper and sufficient charts and sailing directions? 4. Was the vessel navigated at too great a rate of speed for the six hours immediately preceding the stranding, having in view the conditions of the weather? 5. Was the lead used at any time during the six hours immediately preceding the stranding? If not, should it have been used? 6. What was the cause of the stranding and loss of the vessel? 7. Was the vessel navigated with proper and seamanlike care? 8. Was the stranding of the Canadian Exporter, and/or, subsequent loss, caused by the wrongful act or default of the master, first, second or third officers, or any one or more of them, and if so, which of them?

The captain appeared with counsel and gave evidence, along with many other witnesses, after which the board handed down their findings, suspending the captain's certificate for six months. He now applies for a rule absolute to quash this finding. His counsel, Donald McTaggart, submits at the outset that the Minister may not delegate to the Commissioner the power to select the assessors, and relies upon sec. 783 of the Shipping Act, which provides for the appointment by the Minister of assessors to hold office for three years, and also upon sec. 784, as amended in 1908, which enacts that the court shall hold the investigation with two or more assessors to be selected for that purpose by the Minister. As to this submission I am of opinion that the above sections embody a special statutory power and must be strictly construed. It is a power with which the responsible head of a great department of state is invested. To delegate such a power to a remote subordinate is not in consonance with the intention of Parliament. The Minister is thus clothed by Parliament with the power to select. Express power to delegate is withheld. It may be that a practice, now more or less inveterate, has grown up to the contrary, but it is only after all a practice, doubtless a convenient one, but yet not sanctioned by the statute, which, if persisted in, may result in serious consequences, amounting in some cases to a miscarriage of justice. In this case principle is more important than practice. In re Behori Lal, 13 B.C. Rep. 415. Burroughs v. Queen, 20 SC. Can. 428. Richards v. Wood, 12 B.C. Rep. 182. Abraham v. Queen, 24 Lower Can. Jurist 332; on appeal, 6 S.C. Can. 10.

It is further submitted that there was no opportunity given Capt. Bradley to make an effective defence. Sec. 801, subsec. 3, as amended in 1908, enacts that "A certificate shall not be cancelled unless the holder has had an opportunity of making a defence," and by sec. 795, "every formal investigation shall be conducted in such manner that, if a charge is made against any person, such person shall have an opportunity of making a defence." The effect of these sections is that, at some time during the proceedings, definite charges shall be formulated, and that, after notice of them, an opportunity to meet them shall be afforded. In this case certain general questions were prepared, but they cannot be said to be definite charges, and are not of such a character as to enable Capt. Bradley to controvert the matters in respect of which he was afterwards found to be in default. See The Chelston 1920, p. 400, per the President: "There must be a hearing and there must be a charge preferred before a penalty can be inflicted."

I give effect to both these submissions and quash the decision of the court of enquiry and direct that the certificate of Capt. Bradley be restored free from any suspension.

Canadian Recruit-Maskinoge Collission.

Held at Montreal, Aug. 25, and at Quebec, Oct. 21, before Capt. L. A. Demers, Dominion Wreck Commission, and Capts. C. Lapierre and G. M. Morsburgh, as nautical assessors, in the first part of the hearing, and Capts. C. Lapierre and F. Nash, as nautical assessors, in the second part of the hearing, into the collision, and subsequent sinking, of Canadian Government Merchant Marine s.s. Canadian Recruit and Dominion Coal Co.'s s.s. Maskinonge, between the Traverse and the Pillars, bell buoy 65, St. Lawrence River, during fog, Aug. 18, while the Canadian Recruit was at anchor. The evidence showed that when the Canadian Recruit was anchored, proper lights were at once placed in position and the bell rung every minute, as required by the Board of Trade regulations and International Rules of the Road. While there are no regulations prohibiting the anchoring of ships in that vicinity, and the exact distance of bearing from the bell buoy not having been determined, the court deemed it always more prudent and thoughtful to anchor at some distance from aids to navigation, but no blame could be attached to the master of the Canadian Recruit for anchoring where he thought he was. The court also expressed the opinion that had a cast of the lead been taken before anchoring, it would have helped to clear the uncertainty as to the ship's position at the time of the collision. This observation did not, however, imply blame against the master.

The court held that when the fog came on, the master of the Maskinonge should have reduced his speed, and sounded the usual fog signal, called for by article 15, which no doubt would have induced the Canadian Recruit to sound its bell violently and more frequently than is called for by article 15. The full speed ahead, and hard to port helm, were done in the agony of collision, which was brought about by the immoderate speed of the Maskinonge. The master of the Maskinonge told a straightforward story and impressed the court favorably. He heard the bell, and saw a small light, and assumed that it was the bell buoy and the light of a small ship.

The pilot's evidence, through his illness, was much delayed. He stated that he saw the Canadian Recruit's green light, and was the only witness who mentioned that. If the green light was seen ahead, or nearly so, or if seen at all, the pilot's order to port, and the master's hard to port, were wrong, but as it appears that at that moment the ships were so close to one another, perhaps the countermanding of the first order could not be executed. The court did not attach much significance to the order, the principal action which brought about the collision being the immoderate speed of the Maskinonge, which was maintained after the bell was heard. The pilot stated that he did not know whether it was the bell buoy or the ship's bell. The ship's engines at that moment should have been stopped, and the ship navigated with caution, as required by article 16. The bell was heard at 10.15 and the collision occurred 5 minutes later. There was, therefore, ample time in which to act cautiously. It was the intention of the Maskinonge to come to an anchor. Counsel for the Maskinonge, basing on the pilot's evidence, urged that the pilot had seen the green light, meaning that the Canadian Recruit was stopped, but not yet anchored, and considered by the rules under weigh, and should have sounded signals required by such circumstances. The court did not imply that it viewed the pilot's statement with suspicion, but owing to the excitement which in cases of this kind must prevail, and in the absence of corroboration, it could not be seriously entertained, but supposing such had been the case, that the green light was being taken away, the evidence from the Canadian Recruit was undisputed, that the bell was being rung, indicating therefore that the ship was at anchor and not under weigh.

The court therefore found that the master of the Maskinonge, B. R. Griffiths, certificate 018,906, was in default for

violating articles 15, 16, 27 and 29, but bearing in mind his long and successful career, and his frank admission and clear evidence, the court exercised leniency and suspended his certificate for 6 months from Oct. 21, and recommended that a mate's certificate be issued to him during the suspension of his master's certificate. Other officers of the Maskinonge were exonerated. The court found that the pilot, S. Rioux, in acquiescing complacently in the maintenance of an immoderate speed, and not volunteering a suggestion to have the whistle sounded, was remiss in his duties, but as in the court's view, a question of seamanship was involved which rested chiefly with the master in this instance, and taking into consideration the pilot's illness, due to a fall while in the execution of his duties, the court suspended his license for the remainder of the season only.

Canada Steamship Lines Bond Issue. The Canada Steamship Lines, Ltd., issued recently $6,000,000 ten-year serial 7% 1st mortgage collateral bonds. A cericular issued to shareholders by J. W. Norcross, Oct. 28, stated that the directors and their friends had subscribed for approximately $2,500,000 of the issue, and offered to allow other shareholders to subscribe for $100 of bonds for each share of stock held, at 97. The Municipal Debenture Corporation isued a prospectus, Nov. 3, offering $3,609,200 of the bonds to the public, at part, and interest from Sept. 1. The bonds are issued in denominations of $100, $500, $1,000, and $5,000, their maturities running from Sept. 1, 1924 to Sept. 1, 1931, interest coupons being payable half-yearly March 1 and Sept. 1.

The Canadian Deep Waterways and Power Association held its annual meeting at Hamilton, Nov. 2, when the proposal to deepen the various waterways between the head of the lakes and the seaboard was discussed. It was decided to hold the next annual meeting at Welland, Ont. The officers for the current year are:—Honorary President, W. M. German, Welland; Honorary Vice Presidents, Sir Adam Beck, London, and T. L. Church, Toronto; Hon. Treasurer, F. M. Schlander, Windsor; President, O. E. Fleming, Windsor; Vice Presidents, E. L. Cousins, Toronto, G. J. Guy, Hamilton, G. A. Graham, Fort William, T. R. Deacon, Winnipeg; Secretary-Treasurer, A. C. Lewis, Toronto.

Wreck Statistics for 1920.—A summary of ships totally lost, broken up, condemned, etc., for 1920, shows a reduction in the world's effective mercantile marine of 585 ships, totalling 657,554 tons. These figures exclude all ships lost, or broken up, of less than 100 tons each. Of the total, 370, totalling 518,595 tons, were steamships, and 215, totalling 138,959 tons, were sailing ships. Strandings and similar casualties accounted for 45.6% of the steamship losses, and for 45.1% of the sailing ship losses. Ships reported missing, abandoned and foundered, accounted for 29% of the steamship losses, and for 38.5% of the sailing ship losses. Ships broken up, dismantled, etc., not in consequence of casualty, during the year, totalled 11,951 tons.

Low Prices of Sailing Ships.—At a recent sale of German sailing ships in London, Eng., six, aggregating 11,724 tons, were sold for £7,350, an average of approximately $3 a ton. The prices for individual ships varied from approximately $1.92 to $4.62 a ton.

The Playfair Interests add to the Great Lakes Fleets.

James Playfair, of Midland, Ont., President, Great Lakes Transportation Co., when in France last winter, came across some cargo steamships which he considered admirably adapted for Great Lakes service, and subsequently bought six of them for a syndicate headed by himself, and of which Jas. Richardson & Sons, of Kingston, Ont., and A. E. Mathews, President and General Manager, Mathews Steamship Co., Toronto, are the other members.

The ships were built in the United States and formed part of the Great Lakes & St. Lawrence Transportation Co.'s fleet, managed by D. Sullivan, of Chicago, nine of which were bought by the French Government about 1916, two being lost subsequently, one being sold to the Geo. Hall Coal Co. Up to the time of their purchase by Mr. Playfair, they were carrying coal for French Government railways.

The six ships, which average about 2,200 gross tons each, are on the British Register, their names having been changed to the following:—Glenarm, Glenealy, Glendochart, Glendowan, Glenfarn, Gengarnock.

The Glenarm and Glendowan have reached Montreal, and the others are en route, it being hoped that before the close of navigation they will all be got to Midland, where they will be overhauled and fitted for the lake trade. Three of them came out in ballast to New Carlisle, Que., where they loaded pulpwood for Oswego, N.Y.

It is said that a company will be organized to own them, and that they will probably be managed by A. E. Mathews, as the Glen Transportation Co.'s steamships Glenafton, Glencadam, Glenclova and Cicoa are.

Training Canadian Marine Engineers. Steps are being taken for training apprentices who have served their time in Canadian engineering shops and shipyards, in marine engineering, classes having been started by J. O. Twinberrow, of Babcock & Wilcox Ltd., Montreal. The Engineering Institute of Canada has started a marine branch, and papers on marine topics will be read at intervals by marine engineers. It is said to be the intention to establish a chair in marine engineering at McGill University.

Montreal Grain & Shipping Corporation Ltd. has been incorporated under the Dominion Companies Act, with $100,000 authorized capital, and office at Montreal, to carry on a general transportation and forwarding business, and to own and operate ships, wharves, docks, marine railways, coaling apparatus, telegraph and telephone lines, terminals, etc. The incorporators are: H. N. Chauvin, J. J. Meagher, H. E. Walker, H. Crepeau and H. Wylie, Montreal.

Export Steamships Ltd., the incorporation of which was announced in a recent issue, with authorized capital of $200,000, owns the s.s. Travisa, engaged in the coal trade between Erie, Pa., and Montreal. The President is A. B. Taylor, who is in the coal trade at Erie, Pa.; A. G. Schendemhill, President, Pittsburgh & Erie Coal Co., Erie, Pa., is Secretary-Treasurer, and John Waller, of the Montreal Light, Heat & Power Co., is a director.

Telegraph, Telephone and Cable Matters.

A. E. Dyment has been elected President, Marconi Wireless Telegraph Co. of Canada, vice Senator Frederic Nichols, deceased, and Sir William Mackenzie has been elected Vice President, succeeding A. E. Dyment.

M. J. O'Reilly, a telegrapher for over 50 years, died at Quebec, Que., Nov. 14. He entered telegraph service as a messenger with the Montreal Telegraph Co., and remained with th Great Northwestern Telegraph Co. when it leased the first named company's lines, and also with Canadian National Telegraphs on its assumption of control.

The proposal to establish a chain of radiotelegraph stations throughout the British Empire is reported from England to have collapsed, the failure, it is said, being due to the aloofness of the overseas Dominions and India. Stations have been erected at Leafield and Oxford, Eng., and were formally opened Sept. 18. Another station is approaching completion at Cairo, Egypt, and is expected to be ready for operation by the end of the year.

The Naval Service Department will, it is reported, erect a radiotelegraph station on the west short of Lulu Island, B.C., in the near future. G. J. Desbarats, C.M.G., Deputy Minister of Naval Service, while in British Columbia during the summer, inspected available lands on Lulu Island, and it is stated that a site is being acquired by the Government. The station is intended to take care of the commercial needs of Vancouver, leaving the station at Point Grey free to handle shipping matters.

The motorboat Nokomis, which was offered for sale by tender recently, by the Dominion Public Works Department, will not be sold for the present, the question of disposal remaining in abeyance until next year.

Lumber shipments through the Panama Canal from Pacific to Atlantic ports during the first six months of 1921 were 93,843,494 ft., compared with 1,564,505 ft. for the same period in 1920, an increase of approximately 5,890%.

Moving Pictures on C.P.R. Steamships. The Canadian Pacific Steamships Ltd. is reported to have completed arrangements for placing moving picture outfits on its steamships, for the entertainment of passengers. The present arrangements cover the trans-Atlantic steamers, on which three exhibitions will be given on each trip. Educational and scenic pictures will form the main class of films exhibited.

United States Grain Rates to Europe. The United States Shipping Board has it is stated in a New York press dispatch, announced a new schedule of grain rates for the North Atlantic service as a result of a conference of shipping companies. Rates on wheat and corn, per 100 lb., are fixed at 17c. to the United Kingdom, 16½c. to Antwerp and 18c. to Hamburg. Wheat flour comes under the same rates, with the usual differential of 5c.

Capt. W. E. Shields, acting Substation Superintendent, Dominion Air Patrol, High River, Alta., was killed, and C. H. Harding, a wireless operator, was slightly injured recently as the result of the sideslipping of an aeroplane, when only 50 ft. in the air.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Orton & Steinbrenner Co., material handling machinery, Chicago, Ill.—B. L. Whitney, formerly with the Byers Co., has opened offices at 528 Detroit Savings Bank Building, Detroit, Mich., and represents Orton & Steinbrenner Co. in that territory.

Transportation Conventions in 1922.

Jan. 24 to 26.—American Wood Preservative Association, Chicago, Ill.; G. M. Hunt. Forest Products Laboratory, Madison, Wis.

Jan. 26, 27.—National Association of Railway Tie Producers, Chicago, Ill.; W. C. Nixon, 905 Syndicate Trust Bldg., St. Louis, Mo.

March 14 to 16.—American Railway Engineering Association, Chicago, Ill.; E. H. Fritch, 431 South Dearborn St., Chicago, Ill.

May.—International Railway Fuel Association, Chicago, Ill.; J. G. Crawford, 702 East 51st St., Chicago, Ill.

May 17 to 19.—Association of Railway Claim Agents, Montreal; H. D. Morris, Northern Pacific Ry., St. Paul, Minn.

May 23 to 26.—Master Boiler Makers Association, Chicago, Ill.; H. D. Vought, 26 Cortland St., New York.

June 1, 2.—Canadian Electric Railway Association, Quebec, Que.; L. E. Moreland, Hull, Que.

September.—Roadmasters and Maintenance of Way Association, Cleveland, Ohio; P. J. McAndrews, Chicago & Northwestern Ry., Sterling, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.

Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, Belleville, Ont.

Canadian Car Demurrage Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.

Canadian Electric Railway Association—L. E. Moreland, Hull Electric Co., Hull, Que.

Canadian Freight Association (Eastern lines)—G. C. Ransom, 909 Shaughnessy Bldg., Montreal.

Canadian Freight Association (Western Lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

Canadian Navigators Federation, Great Lakes Division.—Capt. R. D. Simpson, Owen Sound, Ont.

Canadian Navigators Federation, Pacific Division.—Andrew Goodlad, 1101 Rogers Building, Vancouver, B.C.

Canadian Railway Board of Adjustment No.1—R. Chapple, 263 St. James Street, Montreal.

Canadian Railway Club — W. A. Booth, 53 Rushbrooke St., Montreal. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Canadian Traffic League—R. J. Fitzgerald, 4 Queen St. West, Toronto.

Dominion Marine Association—F. King, Counsel, Kingston, Ont.

Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal—C. M. Strange, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto—R. B. Wolsey, 84 King Street West, Toronto.

Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.

Express Traffic Association of Canada—C. N. Ham, Montreal.

Great Lakes and St. Lawrence River Rate Committee—A. E. Storey, 310 G.T.R. General Office, Montreal.

Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.

International Water Lines Passenger Association—M. R. Nelson, 89 Chatham Ave., Buffalo, N.Y.

Niagara Fronter Summer Rate Committee—James Morrison, Montreal.

Quebec Transportation Club—A. F. Dion, Harbor Commissioner's Office, Quebec, Que.

Railway Association of Canada—C. P. Riddell, Montreal.

Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacrament Street, Montreal.

Transportation Club of Toronto—W. A. Gray, 257 Roxton Road, Toronto.

Transportation Club of Vancouver — C. E. Blaney, Travelling Passenger Agent, Canadian Pacific Steamships Ltd., Vancouver, B.C.

Reduced Draft on Great Lakes.—The Lake Carriers Association issued a notice recently that bulk freighters intending to pass through the St. Mary River and Lake St. Clair must limit their draft to 19½ ft. for the balance of the season. This is 6 in. less than the previous limit.

THE VICTORIA ROLLING STOCK & REALTY CO. OF ONTARIO, LIMITED.

Notice is hereby given that a dividend of four per cent. on the paid-up capital stock of the Company for the half-year ended Nov. 30, 1921, has been declared payable Dec. 1st, 1921, to the shareholders on record as of 30th of Nov. 1921.

G. T. CHISHOLM, Secretary.
Toronto, Nov. 22nd, 1921.

The British Government

(Department of Overseas Trade)

announces that the eighth annual

British Industries Fair

will be held at

London and Birmingham

from

27th February to 10th March, 1922

All Canadian buyers are cordially invited to attend

A particularly fine and comprehensive range of

Railway and Marine Equipment, Lighting Plant and Small Tools

will be shown, in addition to many other lines of manufactured goods.

Goods can be examined, values compared and contracts concluded at the Fair with the minimum of trouble and the greatest saving of time.

Full information and complimentary admission cards are obtainable from:—

H. M. Senior Trade Commissioner, 248 St. James Street, Montreal.
H. M. Trade Commissioner, 260 Confederation Life Building, Toronto.
H. M. Trade Commissioner, 610 Electric Railway Chambers, Winnipeg.

The Imperial Guarantee and Accident Insurance Co. of Canada

Imperial Protection. Accident and Sickness Insurance. Guarantee Bonds.
Plate Glass and Automobile Insurance. Automobile Fire Insurance

A Strong Canadian Company — Head Office, 20 Victoria St., Toronto, Ont.

Branch Offices:
Montreal, Que., Canada Life Bldg. Winnipeg, Man., Merchants Bank Bldg. Calgary, Alta., Canada Life Bldg. Vancouver, B.C., 530 Seymour

Malleable Castings High Grade Material First Class Service

Galt Malleable Iron Co., Limited - GALT, ONT.

STREET CARS FOR SALE

The Toronto Transportation Commission will receive tenders for the following 340 single-end city service street cars:

Group	Number	Description
A	4	18′ Single Truck Closed Motor Cars
B	2	20′ " " " " "
C	15	21′ " " " " "
D	117	22′ " " " " "
E	30	23′ " " Convertible Motor Cars
H	1	27′ Double " " " "
J	1	30′ " " " " "
K	12	25′ " " Closed " "
L	34	30′ " " " " "
Q	3	36′ " " " " "
T	2	16′ Single " " Trailer "
U	33	19′ " " Convertible " "
V	69	22′ " " Closed " "
W	17	18′ " " " " "
	340	

The single truck motor cars are mounted on Blackwell, Curtis and Peckham trucks and are equipped with G.E. 67 and G.E. 1000 motors, K-10 controllers and hand brakes. The trailers are mounted on special trailer gear.

The double truck motor cars are mounted on Curtis and Brill trucks and are equipped with G.E. 80, G.E. 67 and G.E. 1000 motors, K-6 and K-10 controllers and Magann storage air brakes.

A stock of spare equipment is carried for the above cars and will be disposed of to parties purchasing the cars. The wheel gauge of the cars is 4′ 10⅞″.

These cars are now in Toronto and can be inspected upon application to the Head Office of the Commission, Ryrie Building, Toronto, Ontario. Tenders will be based on the cars being loaded by the Commission on their siding in Toronto.

Tenders addressed to the Chairman, sealed and endorsed "Tenders for Street Cars," to be delivered at the Commission's Office, Room 219 Ryrie Building.

The highest or any tender will not necessarily be accepted.

TORONTO TRANSPORTATION COMMISSION

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, Positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meetings, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under

Positions Wanted and Positions Vacant, 3c. per word.
Equipment for Sale advertisements, 4c. per word.

Allow five words where replies are to be sent to a box number. Minimum order—$1.

Rates under other headings and for display advertisements on application.

The Curtiss-Willis Co.

INCORPORATED
30 Church Street, New York
Telephone: Cortlandt 4338

The largest dealers in Used and New Tanks

At the prices we make we should sell a tank every thirty minutes.

We are anxious to become so well known that when a man thinks of tanks he will automatically think of Curtiss-Willis.

We are building and selling new tanks of all kinds in every part of the country.

Modern Marine Machinery

Automatic Steam Towing Machines, Ship Windlasses, Cargo and Deck Winches, Steam Capstans, Dock Gypsies, Steering Engines, Hydraulic Hoists, etc.

Manufactured by the

CORBET FOUNDRY & MACHINE CO., LIMITED Owen Sound, Canada

Car Closets

Flush or Dry

DUNER CO. 101 S. CLINTON ST. CHICAGO.

GRIFFIN & BRINKERHOFF

P.O. Box 97, Windsor, Ont.

Canadian manufacturers of the Celebrated Wheel Truing Brake Shoe. Best Wheel Grinders in the World.

JOHN DATE

Manufacturer of

Diving Apparatus

For Sale or Hire

Brass Founder and Coppersmith

13-15 Concord St., Montreal.

For Sale

"We are now prepared and glad to furnish Stucki Side Bearings per Canadian Patents Nos. 187019 and 170780 upon request. Please call—The Holden Co., Ltd., Montreal, Canada."

NOTICE.

The General Railway Signal Company of the United States of America, the owner of the exclusive rights to Canadian patents No. 92323, No. 93127, No. 96256, and No. 97758, issued to Young and Townsend, and covering methods of signalling electrified railways, wishes to call the attention of all possible users of the devices and systems covered by such patents to the fact that it is prepared to sell and furnish, at short notice, all such devices and to install such systems upon any railway in the Dominion of Canada.

All inquiries regarding the above should be addressed to The General Railway Signal Company of Canada, Limited, Lachine, Province of Quebec, Canada.

FOR SALE

H.M.S. "CHARYBDIS"—late 2nd Class Cruiser converted to Merchant use.

As and where she lies at Bermuda Dockyard.

Without guarantee in her present condition.

Length, 320 feet.
Breadth, 49 feet 6 ins.
Depth in hold, 25 feet 6 ins.
Register gross tonnage, 2,730.
Steel hull sheathed with teak and coppered.

Phosphor bronze stern post, rudder and propeller brackets.

Two anchors and cable.

Has refrigerating machinery with insulating space 34.440 cubic feet. Deadweight capacity, 1,460 tons. Bunker capacity, 566 tons. Tenders will be considered inclusive or exclusive of refrigerating machinery.

Main Engines.—Twin screw, triple expansion inverted vertical type of 7,000 I.H.P. Fitted with main and auxiliary surface condensers of gun metal with brass and usual auxiliary machinery.

Boilers.—Originally fitted with eight; six in number, return tube marine type now on board, and one on wharf.

Propellers (with 2 spare blades) are of gun metal. Offers will be received by the Captain in Charge, H.M. Dockyard, Bermuda, until noon on Saturday, 31st December, 1921, and forms of tender can be obtained from the Commander-in-Charge, H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,
Deputy Minister of the Naval Service.

Ottawa, September 23, 1921.

Unauthorized publication of this advertisement will not be paid for.

CANADIAN PACIFIC RAILWAY CO.

Dividend Notice.

At a meeting of the Board of Directors held today a dividend of two and one-half per cent. on the Common Stock for the quarter ended 30th September last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account, was declared payable on 31st December next to Shareholders of record at 3 p.m. on 1st December next.

By order of the Board,
ERNEST ALEXANDER,
Secretary.

Montreal, 14th November, 1921.

WANTED—Used fore and aft compound engine in good condition. 24"—48" x 36" stroke or thereabouts, or triple expansion of equal power. Quote price and particulars. Box No. 3298, Canadian Railway and Marine World, Toronto.

POSITION WANTED

Graduate of the Columbia School of Drafting, Washington, D.C., desires position as mechanical draftsman. Box A1198 Canadian Railway and Marine World, Toronto.

LIQUIDATOR'S SALE

THE DOMINION SHIPBUILDING & REPAIR COMPANY, LIMITED.

The Company's yards are being dismantled and the Liquidator now has for sale the following, either en bloc or separately:

MACHINERY—

Set of Steel Shear Legs, electrically operated, capacity 100 tons; Gantry Cranes, Overhead Travelling Shop Cranes, Locomotive Steam Cranes, Jib Cranes, Air Compressors, maximum capacity 4,500 cubic feet; Oil Burning Furnaces, Cast Iron Slabs and Electric Winches; Rivet Making Machine and complete set of Dies, Punches, Shears, Counter sinks; Cold Presses; Horizontal Rolls; Spacing Table; Wood-working Machinery; Steam Hammers; Pipe Machines; Lathes; Shapers; Planers; Boring Mills; Drill Presses; Milling Machines; Slotting Machines; Radial Drills; Key Seaters; Power Hack Saws; Grinders; Air Tools and Miscellaneous Hand Tools; Burners and Electric Welders, and other machinery.

MERCHANDISE—

Plates; channels; angles; flats; rounds; squares; valves; fittings; marine supplies equipment; one new Marine Engine and other merchandise.

Enquiries for detailed particulars solicited by letter or personal application, and assets may be inspected at the Company's plant at the foot of Spadina Ave., Toronto.

Dated at Toronto this 30th day of September, 1921.

OSLER WADE,
32 Front St. W., Toronto.
McMASTER, MONTGOMERY, FLEURY & CO.,
901 Temple Bldg., Toronto, his solicitors.

Roger Miller & Sons Limited

Engineers and Contractors

Docks Harbors Breakwaters
Canals Foundations Industrial Plants

Head Office: Lumsden Bldg., - TORONTO.

Geo. P. Nichols & Bro.

Turntable Tractors

More than one hundred railroads use over 700 Nichols' Electric Tractors.

Transfer Tables

Eighty-five railroads and car builders use nearly 200 Nichols' Electric Transfer Tables.

There's a Reason

2137 Fulton St., Chicago

IMPERIAL BANK OF CANADA

Capital Authorized.....$10,000,000
Capital Paid Up..... 7,000,000
Reserve Fund..... 7,500,000

Head Office: Toronto.

Letters of Credit, Travellers' Cheques and Drafts issued, available in all parts of the World.

Sterling and New York Exchange bought and sold.

Savings Department: Interest allowed on deposits at best current rates.

Branches throughout the Dominion of Canada.

Study Room at Montreal

Of Special Interest to Railroad Men in the Dominion

STUDENTS of Railroad Subjects taught by the International Correspondence Schools will appreciate the convenience, quiet and comfort of the Study Room that has just been established for their exclusive use at 745 St. Catherine St., W., Montreal, Canada.

The Room is in charge of an expert instructor who will gladly render every possible assistance to I. C. S. Students and employes of Canadian railroads in their efforts to acquire advanced instruction, to prepare for examinations, etc.

Special charts and illustrated lectures are part of the equipment and service rendered.

The establishment of the Study Room is evidence of the co-operation the International Correspondence Schools are endeavoring to render employes of railroads with which they have instruction contracts.

While any one who so desires is at perfect liberty to avail himself of the advantages and privileges of the Montreal Study Room, the service rendered is particularly adapted to students of the I. C. S.

Those who desire to know more of this spare time study system that is qualifying men and women all over the world for advancement, will do well to mark and mail the coupon today.

INTERNATIONAL CORRESPONDENCE SCHOOLS CANADIAN, LTD.
745 St. Catherine Street, W.
Montreal, Can.

TEAR OUT HERE

"INTERNATIONAL CORRESPONDENCE SCHOOLS CANADIAN, LIMITED
Box 8417 745 St. Catherine St., W. Montreal, Canada

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

- ☐ LOCOMOTIVE ENGINEER
- ☐ Locomotive Fireman
- ☐ Traveling Engineer
- ☐ Traveling Fireman
- ☐ Air Brake Inspector
- ☐ Air Brake Repairman
- ☐ Round House Foreman
- ☐ Trainmen and Carmen
- ☐ Railway Conductor
- ☐ MECHANICAL ENGINEER
- ☐ Mechanical Draftsman
- ☐ Toolmaker
- ☐ Machine Shop Practice
- ☐ Boiler Maker or Designer
- ☐ Stationary Engineer
- ☐ Marine Engineer
- ☐ Gas Engine Operating
- ☐ CIVIL ENGINEER
- ☐ Surveying and Mapping
- ☐ R. R. Constructing
- ☐ Bridge Engineer
- ☐ ARCHITECT
- ☐ Architectural Draftsman
- ☐ Contractor and Builder
- ☐ Structural Engineer
- ☐ Concrete Builder
- ☐ BUSINESS MANAGEMENT
- ☐ Private Secretary
- ☐ Business Correspondent
- ☐ TRAFFIC MANAGER
- ☐ BOOKKEEPER
- ☐ R. R. Agency Accounting
- ☐ R. R. Gen'l Office Acc'ting
- ☐ Higher Accounting
- ☐ Stenographer and Typist
- ☐ Mathematics
- ☐ SALESMANSHIP
- ☐ ADVERTISING
- ☐ ELECTRICAL ENGINEER
- ☐ Electrician
- ☐ Electric Wiring
- ☐ Electric Lighting
- ☐ Electric Railways
- ☐ Telegraph Engineer
- ☐ Telephone Work
- ☐ MINE FOREMAN OR ENG'R
- ☐ CHEMIST
- ☐ Pharmacy
- ☐ AUTOMOBILES
- ☐ Good English
- ☐ AGRICULTURE
- ☐ Poultry Raising
- ☐ Spanish
- ☐ Teacher
- ☐ Banking

Name
Present Occupation Employed by
Street and No.
City Prov.

7-1-21

Engineers and Contractors

The Strauss Bascule Bridge Co.

Engrs. & Patentees of Strauss Movable Bridges.

STRAUSS Bridges in CANADA number more than TWICE as many as all other Bascule and Lift Bridges COMBINED. Consult us before adopting plans or undertaking construction.

Main Office: 225 No. Michigan Ave., Chicago.

Canadian Offices: 14 Windsor Hotel, Montreal; 103 London Bldg., Vancouver.

New York Office: 30 Church St.

VIVIAN T. BARTRAM

Railroad and Harbour Works

Head Office

Bank of Toronto Bldg. TORONTO

ANGUS SINCLAIR, C. E.

Railway Contractor

OFFICE: EXCELSIOR LIFE BUILDING, Adelaide and Toronto Sts., Toronto

THE ARNOLD COMPANY

ENGINEERS—CONSTRUCTORS.
ELECTRICAL—CIVIL—MECHANICAL
REPORTS, DESIGN AND CONSTRUCTION
Complete Railway Shop and Terminal Properties—Electrification of Steam Railroads.
CHICAGO

Rails, Cars, Locomotives

and Contractors' Equipment

IMMEDIATE SHIPMENT

John J. Gartshore

58 Front Street West

TORONTO

ROBERT W. HUNT, President CHARLES WARNOCK, Vice-Pres. and Genl. Mgr.

Robert W. Hunt & Co., Limited

Consulting and Inspecting Engineers
Chemists and Metallurgists

Expert examination and tests of all steel and metal products; Bridges, Buildings, Cement, Electrical and Mechanical Plant Equipment; Rails and Fastenings; Cars; Locomotives; Pipe; Castings; Forgings; Lumber; Paving Materials.

Resident inspectors at all important manufacturing centres in Canada, the United States and Great Britain.

REPORTS ON PROPERTIES AND PROCESSES.

Head Office and Laboratories:

McGill Building - - - - - - - - MONTREAL, QUE.
Branches: TORONTO VANCOUVER LONDON, ENGLAND

FORGINGS

SEND PRINTS FOR PRICES

CANADA FOUNDRIES & FORGINGS, LIMITED
WELLAND, ONT.

RAILWAY
To R.S.A. Specification
Catalogue No. 33

LAMPS

MARINE
To B. of T. Requirements
Catalogue No. 24

THE HIRAM L. PIPER COMPANY, Limited
Montreal, P.Q.

ESTABLISHED 1849.

BRADSTREET'S

Capital and Surplus, $1,500,000.
Offices throughout the Civilized World.

Executive Offices:
NOS. 346 and 348 BROADWAY,
N.Y. CITY, U.S.A.

The Bradstreet Company gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

Subscriptions are based on the service furnished and are available only by reputable wholesale jobbing, and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. Correspondence invited.

OFFICES IN CANADA:

Halifax, N.S.; Hamilton, Ont.; London, Ont.; Montreal, Que.; Ottawa, Ont.; Quebec, Que.; St. John, N.B.; Toronto, Ont.; Vancouver, B.C.; Calgary, Alta.; Edmonton, Alta.; Winnipeg, Man.; Victoria, B.C., and St. John's, Nfld.

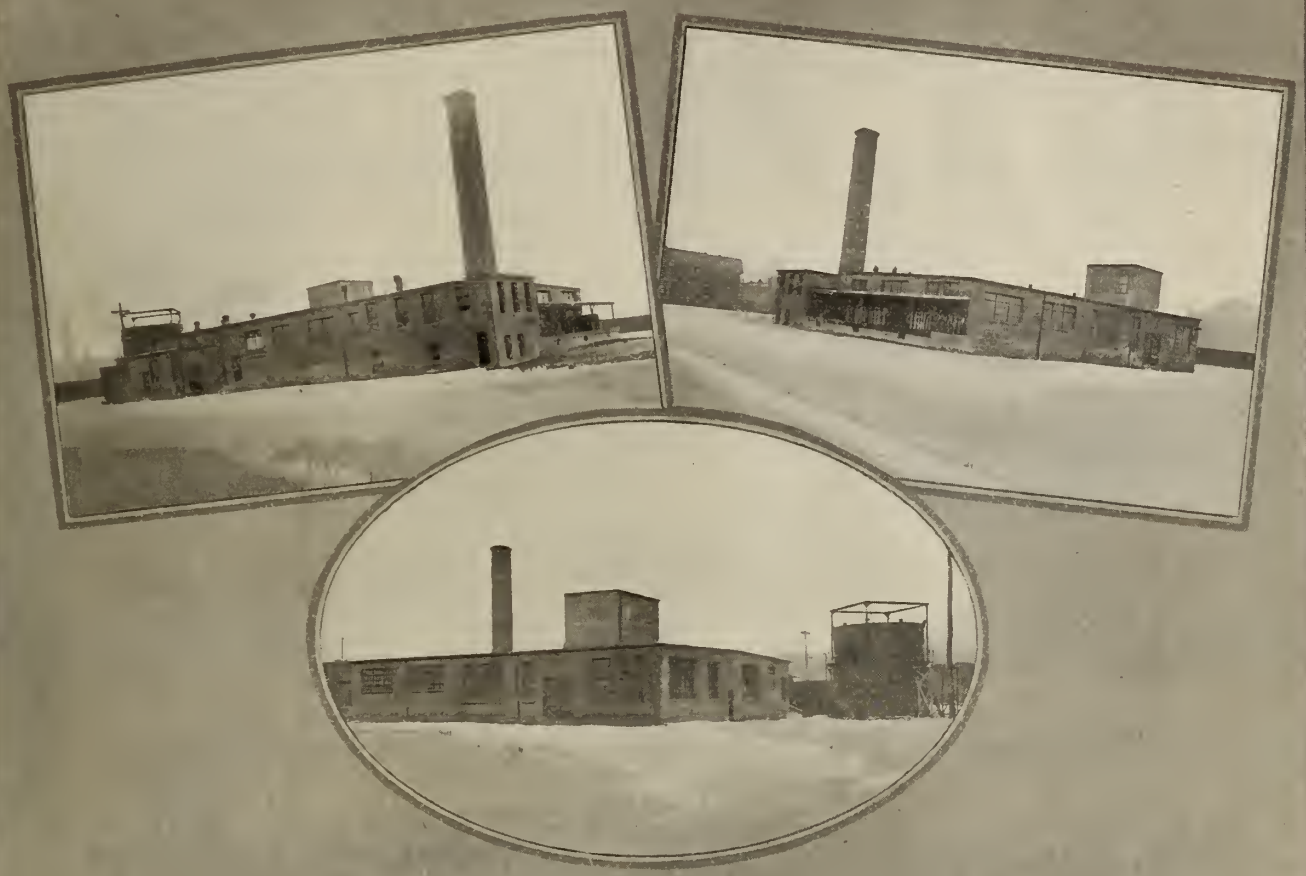
JOHN A. THOMPSON,
Gen. Man. Western Canada, Toronto.

STANDARD
Light and Power Cables

meet every requirement of the most discriminating buyer as regards quality, reasonableness in price and delivery. We have unexcelled facilities for serving you. Write our nearest office.

Standard Underground Cable Co. of Canada, Limited.

Branch Offices and Warehouses:
Montreal, Toronto, Hamilton, Winnipeg, Seattle.



Dominion Oxygen Company's New Plant at Montreal

TO accommodate the rapidly increasing demand for Dominion Oxygen, this new plant has been built and is now operating to full capacity in Montreal. Our customers in Montreal and adjacent territory are using such large quantities of Dominion Oxygen that the Distributing Station has been replaced by this Manufacturing Plant, where ample reserves will be maintained to give you an immediate supply —whether only one cylinder is required or a hundred.

With two Plants and four Distributing Stations, we can fill orders for any quantity of Oxygen the same day as they are received.

Dominion Oxygen Company Limited

Plants at Toronto and Montreal

Distributing Stations — Hamilton, Merritton, Welland, Windsor

Toronto Places Repeat Order for

Wilson Plastic Arc Rail Bond Welder

After the Toronto Transportation Commission had tried out thoroughly its first Wilson Plastic Arc Rail Bond Welder, an order came in for another machine.

Only actual service can reveal the real character of the Wilson Welder.

Only in actual operation can you see how it holds the current to a constant value and limits the arc to the short length—both essential for a good weld.

Only when it has been used twenty-four hours a day—and day after day—as it was at Toronto, can you appreciate its capacity for continuous service.

But not until you have tested the finished weld do you understand, absolutely, why the Wilson Plastic Arc Rail Bond Welder is The Machine.

Wilson Welder is capable of any welding work—on the track or in the shop.

Toronto also uses O-B Arc Weld Bonds

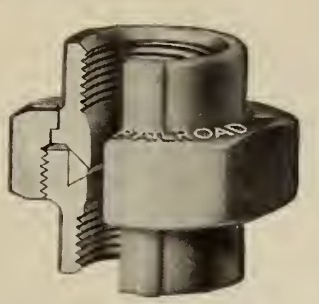
O-B Arc Weld Bonds have four fundamental advantages — right angle welding scarf, steel welding surface, steel reinforcement completely encircling the terminal, and a copper vibration-damping sleeve where strand joins terminal.

O-B Bonds may be installed with the Wilson Welder or any other metallic arc welding machine.

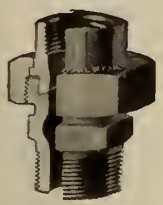
THE OHIO BRASS CO., Mansfield, Ohio

New York Philadelphia Pittsburgh Chicago
Los Angeles San Francisco Paris, France

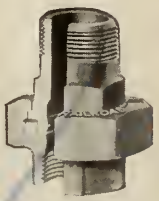
Trolley Materials; High Tension Porcelain Insulators; Third Rail Insulators; Rail Bonds; Electric Car Equipment.



No. 519



No. 517 Reducing Pump Stud Union.



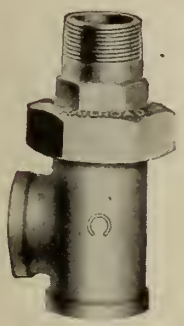
No. 519½. Male and Female Union.

CRANE

RAILROAD UNIONS AND FITTINGS

No. 594 Tee with Female Union.

No. 595 Tee Reducing or Outlet

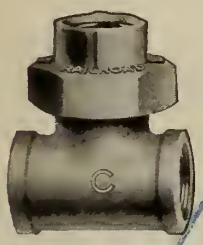


No. 596 Tee with Male Union.

Are Absolutely Leak-Proof, and Eliminate Unnecessary Joints.

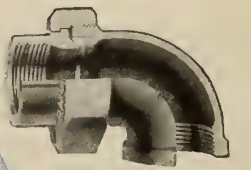
THEY REQUIRE NO GASKETS AND MAY BE TAKEN APART EASILY.

No. 592 Elbow with Male Union



No. 598 Tee Union on Outlet.

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe Plumbing and Heating Supplies.



No. 590 Elbow with Female Union

CRANE LIMITED
HEAD OFFICE & WORKS
1280 ST PATRICK STREET
MONTREAL

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO, WINNIPEG, REGINA, CALGARY, VANCOUVER.

Sales Offices:
QUEBEC, SHERBROOKE, HAMILTON, VICTORIA.
ST. JOHNS.

CRANE-BENNETT Limited
Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
MANCHESTER, BIRMINGHAM.
LEEDS, GLASGOW.

31

performance on the job COUNTS

A Wonderful Reputation and Making Good Every Day

The wonderful pulling power, stand-up ability, and low up-keep of the Mighty Fairmont is known everywhere. And because of these known qualities, railroad men are not amazed when they see and hear of Fairmont performance.

Thousands of Fairmont motors have been on the job every day for the past nine, ten, eleven and twelve years.

23,000 Fairmont Motors on over 700 railway systems is an indication of what the railroad world thinks of the Fairmont.

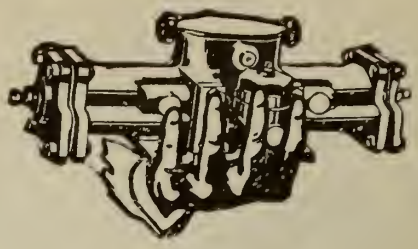
This remarkable record comes only through performance **on the job.** Fairmont has proved itself consistently for over twelve years. Lower your maintenance cost—Fairmont will do it.

We have some interesting maintenance reports which will be of value to you.
Send today for copies.

Fairmont Gas Engine & Railway Motor Car Co.
Fairmont, Dept. D-12 Minnesota.

Canadian Representative
WM. A. GOOLD 39 Charlotte St., Winnipeg, Canada

Fairmont Ball Bearing Motors



BETTER SERVICE

"Better Service" in electric railway operation means more cars, shorter headways and shorter running time.

You may not always be able to get more cars, but you can give the shorter headways and better running time just the same.

How? By speeding up the cars you have, so that the same car will come around oftener, get the patrons there faster and carry more of those patrons in the day's run.

With what? *National Pneumatic Door* and *Step Control,* which eliminates time losses due to manual operation, and with *Safety Interlocking Door Control,* which eliminates time losses due to hand-cord signals, and to delays in starting the car immediately upon closing of the doors.

National Pneumatic Company

Originators and Manufacturers of

National Pneumatic
Door and Step Control
National Pneumatic
Motorman's Signal Lights
National Pneumatic
Safety Interlocking Door Control
National Pneumatic
Door and Step Operating Mechanism
National Pneumatic
Multiple Unit Door Control

Make your peak periods produce maximum profit and efficiency

National Pneumatic Co., Inc.

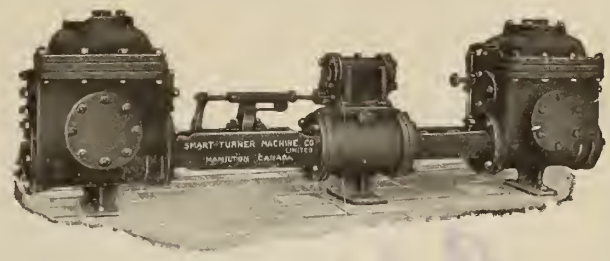
50 Church St., New York Edison Bldg., Chicago
Works: Rahway, N.J.

Manufactured in Canada by Dominion Wheel & Foundries, Ltd., Toronto, Ont.

Let the Canadian workman benefit when you purchase

PUMPS

for Marine and General Service.



It is no longer necessary to go out of the country for high-class equipment of this kind. Our long experience in pumping problems is at your service, and we solicit your correspondence.

The Smart-Turner Machine Co., Limited
Hamilton - Canada

RAMAPO

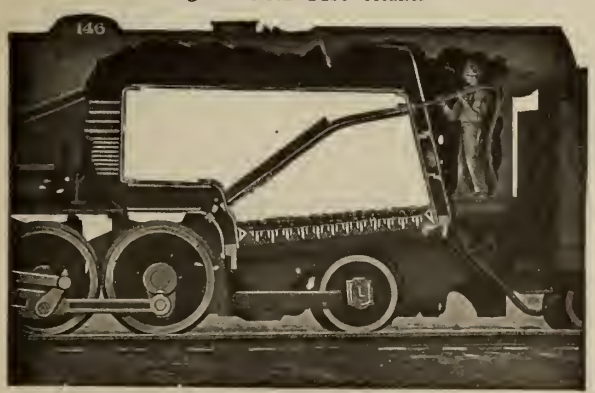
AUTOMATIC SAFETY SWITCH STANDS

Guard Rail Clamps
Double Shoulder Solid Bottom
Switch Riser Plates

SWITCHES
FROGS AND CROSSINGS
MANGANESE TRACK WORK A SPECIALTY

CANADIAN RAMAPO IRON WORKS, LIMITED
NIAGARA FALLS, ONT., CANADA

Lagonda Arch Tube Cleaner



Lagonda Cleaner Removing Scale from Arch Tubes.

Lagonda Arch Tube Cleaners

Scale forms in the Water Arch Tubes of locomotives, and it must be removed, as Government Inspection requires that these tubes be absolutely clean.

The Lagonda Arch Tube Cleaner will remove these scale deposits easily and quickly. They are built for all sizes of tubes and can be driven by either water, air or steam. Send for Catalogue W-1 describing the construction and operation of these Cleaners.

Other Lagonda Boiler Room Specialties are described in our General Catalogue L. Send for Copy.

Babcock and Wilcox, Limited

Head Office For Canada
St. Henry, MONTREAL

Toronto Office
Traders Bank Building

ELESCO FEED WATER HEATERS ELESCO ARE MADE IN CANADA

KILL LAST AD.

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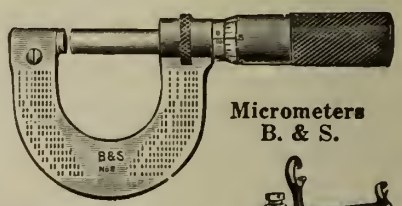

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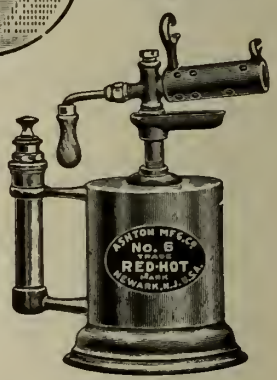

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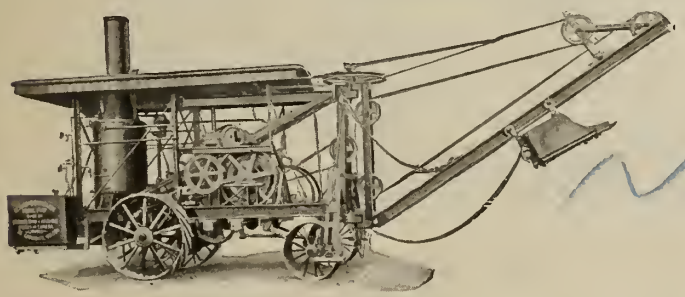

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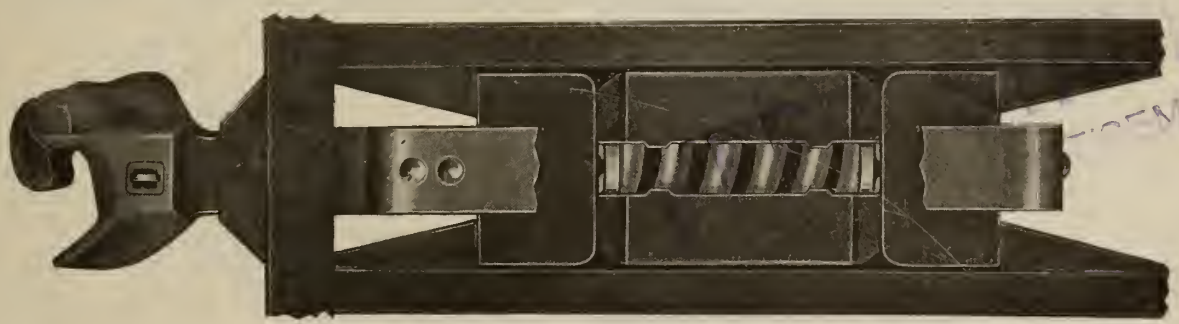

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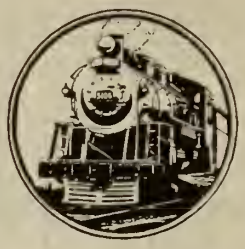

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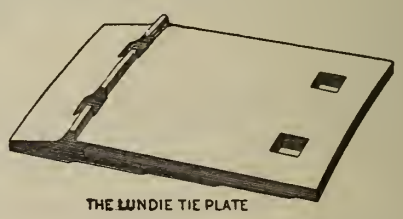

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Alphabetical List of Advertisers

A

Algoma Steel Corporation 41
American Steel Foundries 2
Arnold Co. 46
*Association of Manufacturers of Chilled Car Wheels 18

B

Babcock & Wilcox 51
Barrett Co. 16
Bartram, V.T. 46
Berry Bros. 41
Bertram, John, & Sons Co. 1
Bowser, S. F., Co. 31
Bradstreet Company 46
British Empire Steel Corp. 17
Brown Hoisting Machinery Co. 3
Brydges, Ltd. 35
Buffalo Brake Beam Co. 25
Burrows—Acton Burrows 62
Butterfield & Co. 39

C

Canada Foundries & Forgings Ltd. 46
Canada Grip Nut Co. ..... —
Canada Iron Foundries, Ltd. 40
Canada Machinery Corporation .. 38
Canada Steamship Lines, Ltd. 24
Canadian Bridge Co. 60
Canadian Bronze Co. 62
Canadian Car & Foundry Co. ..... —
Canadian Clothel Refrigerating Co. Ltd. 30
Canadian Consolidated Rubber Co. 8
Canadian Fairbanks-Morse Co. .. 34
Canadian General Electric Co..... 9
Canadian Gold Car Heating and Lighting Co. 60
Canadian Government Merchant Marine, Ltd. 7
Canadian Johns-Manville Co. 40
Canadian National Carbon Co. 55
Canadian National Railways 62
Canadian Pacific Railway ..... —
Canadian Railway and Marine World .....65 and cover 4
Canadian Ramapo Iron Works Ltd. 51
Canadian Steel Foundries, Ltd... 12
Canadian Steel Tire & Wheel Co. 30
Canadian Vickers, Ltd. 52
Canadian Westinghouse Co. 32
Carr, C. E. A., Co. 53
Carter White Lead Co. 60
*Chase, L. C., & Co. 36
Coghlin, B. J., Co. 58
Collingwood Shipbuilding Co. ... 26
Commercial Acetylene Supply Co. 56
Consolidated Steel Corp. 4
Corbet Foundry & Machine Co... 44
*Crane Limited 49
Curtiss-Willis Co. 44

D

Date, John 44
Dearborn Chemical Co. of Canada 20
Diamond Saw & Stamping Works. 56
Diamond State Fibre Co. of Canada . . .. —
Dominion Brakeshoe Co. 54
Dominion Bridge Co. 63
Dominion Oxygen Co. 47
Dominion Steel Products Co. 38
Dominion Towing & Wrecking Co. 60
Dominion Wire Rope Co. 23
Duner Co. 44

E

Engineering & Machine Works of Canada 53

F

Fairmont Gas Engine & Railway Motor Car Co. 50
Flannery Bolt Co. 34
Franklin Railway Supply Co. of Canada 29

G

Galena Signal Oil Co. 15
Galt Malleable Iron Co. 676
Gartshore, J. J. 46
General Railway Signal Co. of Canada 60
General Supply Co. of Canada 10 and 11
Grand Trunk Railway 24
Griffin & Brinkerhoff 44

H

Hamilton Bridge Works Ltd..... 55
Hart-Otis Car Co. 23
Hopkins, F. H., & Co. 23
Hoyt Metal Co. 63
Hunt, Robert W., & Co. 46
Hunt-Spiller Mfg. Corporation.... 28

I

Imperial Bank of Canada 45
*Imp. Guar. & Accident Ins. Co. 676
Inglis, John, Co. 27
International Correspondence Schools 45
International Machinery & Supply Co. 31

J

Joliette Castings & Forgings Ltd. 55

K

Kennedy, The William, & Sons, Ltd. 2
Krauser, Webb. G. 5

L

Lewis, Ricc, & Son 52
Lincoln Electric Co. 19
Lundie Engineering Corporation 62
*Luther Grinder Mfg. Co. ..... —

M

McAvity, T., & Sons 33
Marconi Wireless Telegraph Co. 54
Miller, F. W., Heating Co. 60
Miller, Roger, & Son 45
Miner, W. H. 36
Montreal Locomotive Works, Ltd. 26

N

National Lock Washer Co. 13
National Pneumatic Co. 50
Nichols, G. P., & Bro. 45
Nicholson File Co. 61
Northern Crane Works Ltd. 62
Northern Electric Co. ..... —
Norton, A. O., Ltd. 28

O

Ohio Brass Co. 48
Orton & Steinbrenner Co. 40

P

Page-Hersey Tubes, Ltd. 27
Peacock Bros. 14
Pedlar People, Ltd. 32
Piper, The Hiram L., Co. 46
Pratt & Whitney Co. of Canada 42
Prest-O-Lite Co. 22

R

Rail Joint Co. of Canada 53
Railway & Power Engineering Corp. 21
Reid Newfoundland Co. 37
Russell, J. E. 39

S

Safety Car Htg. & Ltg. Co..... 33
Sinclair, Angus 46
Slater, N., Co. 35
Smart-Turner Machine Co. 51
Standard Car Truck Co. 58
Standard Underground Cable Co. of Canada 46
Star Brass Works 29
Steel Co. of Canada 6
Strauss Bascule Bridge Co. 46
Superheater Co. 52
Symington Co., The T. H. 25

T

Taylor & Arnold Engineering Co. 60
Toronto Drydock Co. 39
Toronto Transportation Commission 43
Tuco Products Corporation 58
Turnbull, Harvard, & Co. 37

U

Union Draft Gear Co. 5
Universal Draft Gear Attachment Co. 5
Universal Lubricating Co. 54

V

Vapor Car Heating Co. of Canada. 41

*Alternate months.

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Canada exported, in the year ended March 31, 1921:—

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Pulp to the value of 71,552,037

Total value $163,655,344

Of this business, paper and pulp to the value of $130,172,540 went to the United States—over 80% of the total.

These figures are given to illustrate the scale on which Canadian industries operate.

But, looking behind the figures, we see more than mere dollars; we see sixty million hundred-weight of paper and pulp moved by Canadian railways and steamships; we see numberless logging trains pulling out of our forests to the mills; trainloads of chemicals and other supplies, bound millward; trainloads and shiploads of materials, machines, equipment and supplies necessary to building those mills; and looking back farther still, we remember the formidable tonnage of railway building materials that were required to connect those distant forest mill-sites with the arteries of commerce.

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Adapted from The Publisher's Page. Class.